

introduction

CLIMATE CHANGE OVERVIEW

A balance of naturally occurring gases dispersed in the atmosphere determines the Earth's climate by trapping solar radiation. This phenomenon is known as the greenhouse effect. Modern human activity, most notably the burning of fossil fuels for transportation and electricity generation, introduces large amounts of carbon dioxide and other gases into the atmosphere. Reductions in the planet's forested regions, where greenhouse gases are banked, are also a major contributor to the increasing greenhouse effect. Collectively, these gases intensify the natural greenhouse effect, causing global average surface temperature to rise, which in turn affects global climate patterns.

In response to the threat of climate change, communities worldwide are voluntarily reducing greenhouse gas emissions. The Kyoto Protocol, an international effort to coordinate mandated reductions went into effect in February 2005 with 161 countries participating. While there are a growing number of nations committed to the Kyoto Protocol, as of December 2008, the United States is the only major industrialized country that has not signed the Protocol.

The Intergovernmental Panel on Climate Change (IPCC) is a scientific intergovernmental body established by the World Meteorological Organization (WMO) and by the United Nations Environmental Programme (UNEP). IPCC was established to provide decision-makers with an objective

source of information about climate change. IPCC has called the evidence of the impacts of greenhouse gas emissions (GHG) on the world's climate "unequivocal."

By April of 2008 all six local governments in Napa County committed to becoming members of ICLEI – Local Governments for Sustainability (ICLEI) and participating in the Napa County Climate Protection and Energy Efficiency Action Plan development process sponsored by the Napa County Transportation and Planning Agency (NCTPA) and funded by the Bay Area Air Quality Management District (BAAQMD)

The 2005 census estimates Napa County's population at 133,574, the 34th most populous county in the State of California. Like other metropolitan areas, inhabitants of the county and the cities therein contribute to the problem of global warming, while also holding immense potential to contribute to the solution. The energy consumed and the waste produced within the county's boundaries result in thousands of tons of heat-trapping greenhouse gas emissions. But, as is evidenced by the widespread and active involvement of staff from all jurisdictions in Napa County in the development of a Climate Protection Action Plan, the local governments are firmly committed to building on existing efforts to reduce the emissions that cause global warming.

Regional governments and nations across the world can only manage what they measure. The first step in managing greenhouse gas emissions, therefore, is to establish an inventory of those emissions. Below is a chart of global greenhouse gas emissions, which includes the amount of short tons of carbon dioxide equivalent (tons CO₂e) that is generated worldwide, within the United States, the State of California, and in Napa County. For context, California is the

16th largest emitter in the world - if it were considered a country of its own - second only to Texas in the US. Per capita emissions in California, however, are among the lowest in the US. Further, emissions in Napa County are significantly less than the California average.

This document is the result of these efforts. It identifies actions to ensure Napa Countywide emissions



CLIMATE ACTION PLAN OUTCOMES

Napa Countywide Community Climate Action Plan Outcomes

Economic Sustainability

- A world-famous grape-growing and wine-making region
- A viable, thriving agricultural industry
- Locally-produced resources
- A range of employment and a skilled workforce
- Businesses conserve and renew resources

Equal Access to Community Resources

- Equitable access to parks, schools, grocery stores, and medical services
- A rational transportation system that prevents sprawl and its attendant impacts

Environmental Sustainability

- Napa River is clean and healthy
- Thriving, diverse native habitat and species
- Safeguarded environment
- Efficient use of water, land, and energy resources
- Renewable resources are primary energy source

Quality of Life

- Retained rural character and outstanding quality of life
- Affordable and diverse housing types

Adaptation

- Focus on minimizing risk and maximizing preparedness

On December 19, 2007, the Bay Area Air Quality Management District Board of Directors awarded \$3 million in Climate Protection Grants to Bay Area local governments and nonprofits for implementation of innovative projects to reduce GHG emissions. The Napa County Transportation and Planning Agency (NCTPA) was awarded a grant to support climate action plan development in the County. The NCTPA teamed with M/G, the Climate Protection Campaign, and ICLEI – Local Governments for Sustainability to develop the Napa countywide baseline emissions inventory, target reductions and a preliminary slate of existing, proposed and potential actions to reduce emissions and improve energy efficiency.

Additional funding was granted from the Napa Valley Community Foundation to complete the technical analysis of projected GHG reduction impacts and costs. This work is projected to be completed by September 2009.

Once completed, the Napa Countywide Community Climate Action Plan will guide future implementation and foster effective collaboration between government, business and community organizations toward achieving the GHG reduction targets.

OPPORTUNITY FOR CLIMATE PROSPERITY

Clean Up Local Air Pollution. When you cut carbon emissions, you also reduce air pollution – such as carbon monoxide, sulfur dioxide, benzene, and particulates. Less pollution means cleaner air and healthier families.

Develop the Local Economy. Shifting to a low carbon future underscores the importance of local jobs for residents, and of supporting local businesses. Dollars currently spent outside of the county could stay within the county to pay for energy conservation and production measures.

Support a Healthy Living Environment. Actions in this plan support the development of healthy built environments that are “walkable,” “bikable,” and include a variety of local services and goods. Actions will also ensure the protection and preservation of Napa’s agricultural lands and significant natural resources.

Save Money. Using less energy means lower energy bills for residents, business and government.

Encourage Renewable Energy Use and Production. Every action in this Plan will reduce our reliance on fossil fuels. As fossil fuel supplies become more uncertain and prices increase, a reduced reliance on volatile, non-domestic oil supplies through the use of renewable local energy will both boost the economy and make us less vulnerable to geopolitical forces.

Lead the Way. Napa County could serve as a model for jurisdictions worldwide by fighting local emissions with targeted policies.



climate protection in napa county

A great deal of work is being done at the local level on climate change as well. ICLEI—Local Governments for Sustainability has been a leader both internationally and domestically for more than ten years, representing over 770 local governments around the world. ICLEI was launched in the United States in 1995 and has grown to more than 230 cities and counties providing national leadership on climate protection and sustainable development. In June 2006, ICLEI launched the California Local Government Climate Task Force as a formal mechanism to provide ongoing input and collaboration into the State of California’s climate action process. ICLEI also works in conjunction with the U.S. Conference of Mayors to track progress and implementation of the U.S. Mayors Climate Protection Agreement, launched in 2005, which more than 376 mayors have signed to date pledging to meet or beat the Kyoto Protocol emissions reduction target in their own communities.

Over the last several years, all of the local governments in Napa County have taken numerous actions to reduce GHG emissions and improve energy efficiency in the County.

¹ Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report: “Climate Change 2007”

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- The City of Napa’s long-term water management strategy commits the city to implementing the appropriate Best Management Processes to ensure future supply reliability.
- The City of Napa recently adopted the nation’s first green building code to cut energy and water usage.
- Napa County General Plan sets a concrete goal for the year 2030 of reducing 50% the number of work trips in private automobiles.
- City of Calistoga’s Proclamation declaring the last Saturday in March from 8:30-9:30 pm to be “Earth Hour.”
- City of St. Helena’s General Plan Update includes a Climate Change Element.
- Growth focused urban limit lines.

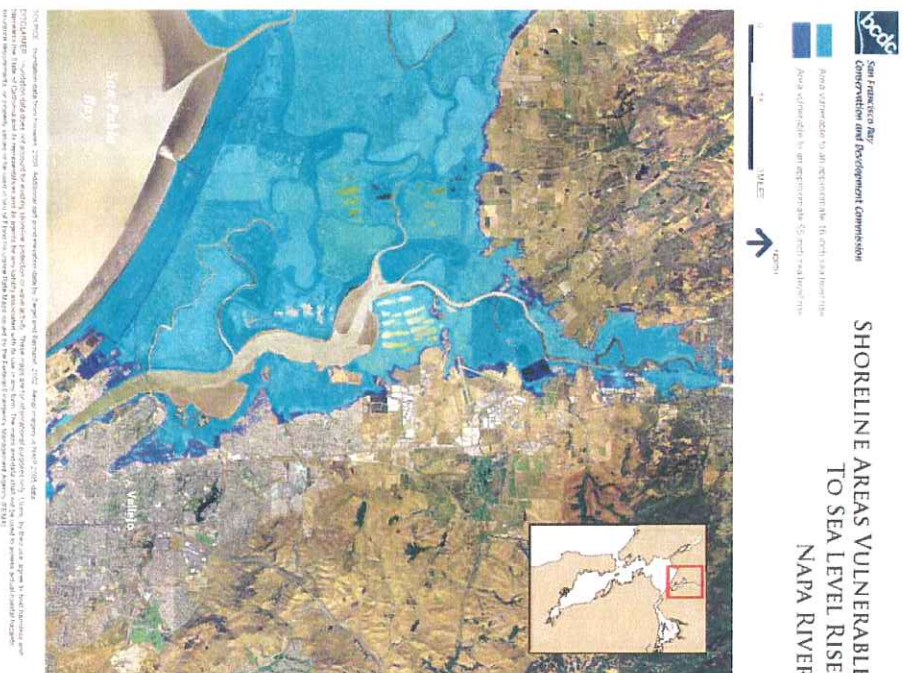
LOCAL CLIMATE CHANGE IMPACTS

While climate change is a global problem influenced by an array of interrelated factors, climate change is also a local problem with serious impacts foreseen for the cities and County of Napa.

Sea Level Rise. According to the Union of Concerned Scientists, the sea level in the State of California is expected to rise up to 12 inches of the next hundred years. The Pew Center on Climate Change has reported that this would result in the erosion of beaches, bay shores and river deltas, marshes and wetlands and increased salinity of estuaries, marshes, rivers and aquifers.² This increased salinity has the potential to damage or destroy crops in low-lying farmlands. Infrastructure at or near sea level, such as harbors, bridges, and roads, would also be impacted by a rising sea level...

The San Francisco Bay Area Conservation Commission has modeled the impact of sea level rise for two different scenarios (16 inches at mid-century and 55 inches at the end of the century). These models illustrate a tremendous impact on Napa County and along the Napa River. A significant portion of Napa County would be under water with 16 inches of sea level rise.

² Neumann, James E. for the Pew Center on Global Climate Change. "Sea Level Rise & Global Climate Change: A Review of Impacts to the US Coasts." February 2000



Public Health. Warming temperatures and increased precipitation resulting from climate change can also encourage mosquito-breeding, thus engendering diseases that come with mosquitoes, such as the West Nile County of Napa Climate Action Plan 13 Virus, a disease of growing concern in the Napa region.

Fluctuating seasons and temperatures could result in more extreme heat waves and cold spells in Napa County. Heat waves are expected to have a major impact on public health and be a determinant factor of mortality. Extreme temperatures could affect the health of vulnerable residents in Napa, such as senior and youth populations.



Plants and Vegetation. Napa County is home to a particularly diverse population of plants. It contains 1,102 native plant taxa, or 32% of the state's native flora. The County's plants and vegetation support many wildlife species including many rare, threatened, and endangered species including the endangered California clapper ray and the threatened northern spotted owl, among many others.

Native plants and animals are also at risk as temperatures rise. Scientists are reporting more species moving to higher elevations or more northerly latitudes in response. Increased temperatures also provide a foothold for invasive species of weeds, insects and other threats to native species. The increased flow and salinity of water resources could also seriously affect the food web and mating conditions for fish that are of both of economic and recreational interest to residents. In addition, the natural cycle of plant's flowering and pollination, as well as the temperature conditions necessary for a thriving locally adapted agriculture could be affected, with perennial crops such as grapes taking years to recover.

In Napa County, climate change may result in decreased genetic diversity, a reduction in seed dispersal, decreased or extirpated population, and long-term distribution changes.

Water. Napa County is subdivided by parallel northwest-trending mountain ridges into three principle watersheds: Napa River watershed, Putah Creek/Lake Berryessa watershed, and Suisun Creek watershed. The major aquifers in the County are the north Napa Valley groundwater basin. Domestic, commercial, and industrial water is derived from surface water (53%) and groundwater (47%). The Napa River has recently been defined as water quality impaired.

Water quality and quantity are also at risk as a result of changing temperatures. With warmer average temperatures, more winter precipitation will fall in the form of rain instead of snow, shortening the winter snowfall season and accelerating the rate at which the snowpack melts in the spring. The decrease in snow-pack is particularly relevant in the State of California and Napa County, as the Sierra snow-pack provides approximately 80% of California's annual water supply.

Natural Disasters. Natural disasters in Napa County include earthquakes, seismicity, wildfires, flooding, and other geologic hazards. Precipitation varies significantly throughout the county and annual precipitation varies from 22.5 to 75 inches per year. Snow is not uncommon along the higher ridges in the county. Natural disasters, such as wildfires and flooding, are precipitated by temperature and precipitation changes. Climate change impacts could increase the number of natural disasters in Napa County.

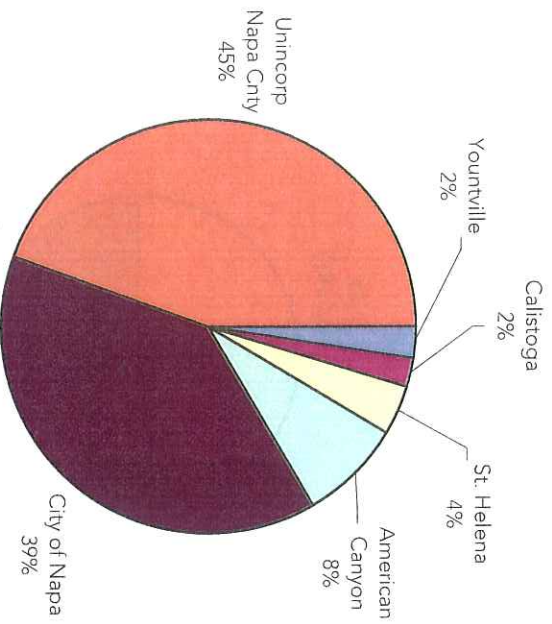
Climate models predict a 4°F temperature increase in the next 20 to 40 years, with an increase in the number of long dry spells, as well as a 20-30% increase in precipitation in the spring and fall. More frequent and heavier precipitation causes flooding and mudslides, which would incur considerable costs in damages to property, infrastructure and even human life in Napa County.

In addition, the increase of wildfires due to continued dry periods and high temperatures is another expected impact of continued climate change. These climate change impacts could impact agriculture growing seasons and production. Grapes, for example, grow well in Napa County. Yet, if the County's climate changed and impacted water resources, grape growing seasons could be altered.

SOURCES OF CARBON EMISSIONS

Countywide Emissions

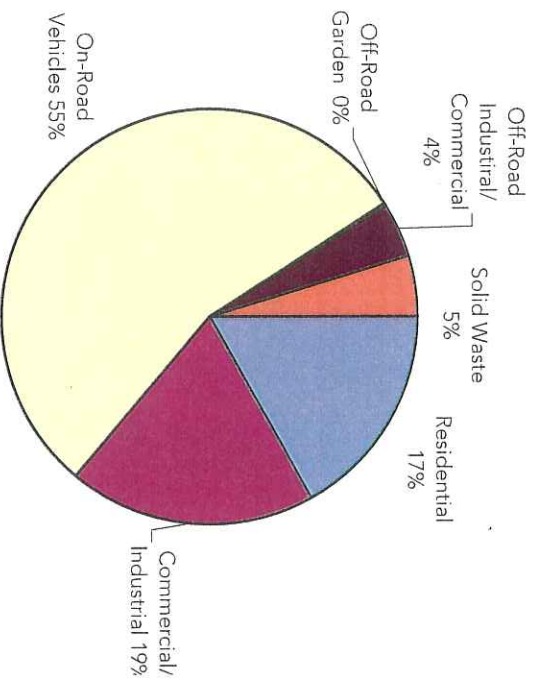
2005 Napa Countywide GHG Emissions by Jurisdiction



The majority of GHG Emissions in 2005 were sourced in Unincorporated Napa County and the City of Napa. The majority of state route roads are located in the unincorporated areas of the county, which are frequented by county residents and visitors alike.

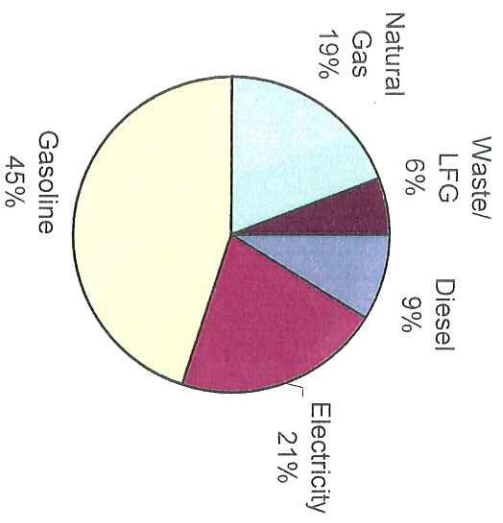
JUNE 30, 2009

2005 Napa Countywide GHG Emissions by Sector



In 2005, the majority of Napa Countywide emissions were from on-road vehicles (55%). Napa County residents tend to commute outside county limits for employment. Additionally, Napa County serves as a major north-south arterial for truck traffic. Passenger vehicles and truck traffic contribute significantly to GHG emissions in the county.

2005 Napa Countywide GHG Emissions by Source



The majority of Napa County's greenhouse gas emissions are sourced from gasoline (45 percent) and electricity (21 percent). This is consistent with the major sector sources of emissions. Transportation and mobility uses gasoline for power, thereby emitting greenhouse gases into Napa County's air. Additionally, residential and commercial buildings, the second major sector responsible for Napa County greenhouse gas emissions use electricity for power.

