

Napa County Climate Protection: Overview of Work and Findings, 2008 - 2009 MIG and Climate Protection Campaign, December 2009

Background of Phases 1 and 2

Phase 1: In 2008 the Napa County Transportation and Planning Agency (NCTPA) received a \$75,000 climate protection grant from the Bay Area Air Quality Management District (BAAQMD). NCTPA contracted with MIG, a Berkeley-based consulting firm, and the Climate Protection Campaign to deliver the work described in the grant. Staff at NCTPA, the County, and the five cities also invested considerable time on Phase 1. In December 2009 the NCTPA Board adopted the Napa Countywide Community Climate Action Framework.¹

Phase 2: In 2009 the Napa Valley Community Foundation contracted with MIG and the Climate Protection Campaign for \$49,930 to refine the greenhouse gas (GHG) inventory produced in Phase 1, and to produce a white paper in which high impact/high leverage actions for reducing GHG emissions in Napa County were identified.

What are the outputs from Phases 1 and 2?

1. Two sets of GHG emission inventories and forecasts for Napa County
An inventory provides a baseline much like a financial audit of a company that shows status and trends. The distinction of the Phase 1 and 2 inventories is described below.
2. Recommended GHG emission reduction targets for Napa County
3. Napa Carbon Model
This mathematical representation of all emissions sources within Napa County's geographic boundary also provides "opportunities for intervention." The purpose of this model is to quantify the effects of various policy and program measures on overall emissions so that solutions can be compared, and thereby assist in decision making. The Carbon Model offers living tool with a methodology for analyzing new opportunities on a continual basis. Please note that the Carbon Model is not a layperson's tool. A Technical Brief explains how the Model works, and a description of the advances in the Napa Carbon Model from the Sonoma Carbon Model is described below.
4. Napa County Community Climate Action Plan
This blueprint is a comprehensive document, akin to a business plan, for achieving Napa County's GHG emission reduction target. The Plan describes investment needs, promising strategies, action steps, and recommended implementers.
5. Napa County Community Climate Action Framework
This document, distilled from the Climate Action Plan, was recommended by the NCTPA Technical Advisory Committee that was concerned that local governments could actually implement the solutions specified in the Plan, especially in light of the new CEQA guidelines anticipated to be adopted in January 2010. As stated above, the NCTPA Board adopted the Framework in December 2009.
6. Local government alignment and buy-in
Engagement in developing the GHG inventories, Plan and Framework built local government alignment and buy-in for countywide climate protection solutions.

¹ NCTPA Board agenda, December 16, 2009, Item 10.1, http://www.nctpa.net/Agendas/160/NCTPA_Agenda_12-16-09.pdf

Rather than being discrete projects, Phases 1 and 2 were interwoven. Approximate attribution for the above Phases 1 and 2 outputs are as follows.

Outputs	Phase 1	Phase 2
1. Inventories	50%	50%
2. Target	100%	0
3. Carbon model	0	100%
4. Plan	50%	50%
5. Framework	75%	25%
6. Alignment	100%	0

Outputs of Phases 1 and 2 will not only help solidify Napa County’s leadership, but will also help it comply with AB32, SB375, and BAAQMD’s proposed new CEQA guidelines.

A direct and immediate by-product of Phases 1 and 2 is that MIG is using the solutions format developed as part of this work to help create the climate change element for the City of St. Helena’s General Plan.

What documents were produced as part of Phases 1 and 2?

1. Napa County Climate Protection: Overview of Work and Findings, 2008-2009
2. Inventory of Napa County GHG Emissions – Phase 1
3. Preliminary Draft of Napa County Community Climate Action Plan
4. Addendices for the Preliminary Draft Napa County Community Climate Action Plan
 - A: Summary Table of Actions
 - B: Inventory of Napa County GHG Emissions – Phase 2
 - C: Methodology – ICLEI
 - D: Napa Carbon Model
 - E: Analysis of Potential Actions
 - F: Potential Impact of AB 811 Program in Napa County
 - G: Need for Local Communities to Engage in Advocacy
 - H: Glossary of Acronyms and Terms
 - J: Solid Waste GHG Emissions Analysis Report
5. Technical Document and supporting spreadsheets
6. Draft Countywide Climate Action Framework (Adopted by the NCTPA Board Dec. 16, 2009)

Call to Action: Why should Napa County prioritize and invest in climate protection?

Climate change is the defining challenge for the 21st century. Leading scientists worldwide have concluded that human-caused greenhouse gas emissions are destabilizing Earth’s climate, and that the need to reduce emissions is urgent. The best single indicator is the concentration of carbon dioxide in the atmosphere. It now is about 390 parts per million and needs to be at 350 or below. Local U.S. communities are taking the lead in climate protection – and reaping economic and public health co-benefits as well.

Climate change is not just another issue in this complicated world of proliferating issues. It is the issue that, unchecked, will swamp all other issues."- Ross Gelbspan—*The Heat Is On*

Who should be involved in climate protection and what are their roles?

People at all levels – from individuals to leaders of countries, and in all sectors –government, business, youth, academia, faith, funders, and the community at large – are needed to respond to meet this challenge. Everyone has a role. For example:

Government

- Institute new ordinances, zoning, laws, pricing policies, and land use practices
- Strengthen general plans and environmental impact reports
- Coordinate a public works project to increase efficiency and develop local renewables
- Make climate protection a high priority for staff and other resources

Business

- Be a voice for entrepreneurial innovation and bold action
- Take advantage of new market opportunities
- Set up employee incentives to reduce driving fossil fuel-powered vehicles

Community

- Urge elected representatives to take action
- Support the introduction of new pricing policies and financing solutions
- Make choices with the future in mind, and encourage others to do the same.

What are highlights of climate protection activity already happening in Napa County?

Among a broad range of local initiatives are:

Government

- The County of Napa and all five cities passed resolutions to follow ICLEI's Cities for Climate Protection® program.
- The County of Napa is spearheading the Napa Green Business program.
- The City of St. Helena is adding a climate protection element in its updated general plan.

Business

- Napa Valley Vintners is implementing the Napa Green program.
- Napa building and hospitality industries are working with PG&E and Sustainable Napa Valley to increase energy efficiency and conservation.

Community

- The Gasser Foundation solarized its building in 2008; now more than 90 percent of electricity used is from renewable energy.
- The Napa Valley Community Foundation funded Phase 2 to help the community identify the high leverage/high impact measures for reducing GHG emissions in Napa County.

As a community, what should Napa County do to address the climate crisis?

Napa County should focus its resources on implementing the most significant, rapid, cost-effective solutions for reducing GHG emissions. This endeavor begins with the recognition that every solution has an opportunity cost – an economic term that suggests the trade off when one course of action is pursued instead of another. In other words, if an investment of a scarce resource such as time, attention, funds or a combination of them is made for one solution, then this investment will not be made for a different solution. Although making choices about the allocation of scarce resources is inherent in all facets of life, people often skip the analysis needed to determine optimum choices in their eagerness to take action. The main output of Phase 2 was identification of the high impact/high leverage solutions based on rigorous analysis.

How were top solutions for reducing Napa County’s GHG emissions identified?

Analysis began with calculations of the amount of GHG emissions from the major sources following an established protocol used to conduct such inventories. Then, taking goals set by the State of California, target amounts of emission reductions were determined for Napa County.

Possible solutions were tested using four criteria:

1. Under local control
2. Significant, rapid GHG emission reduction
3. Cost effective
4. Politically feasible

Using the Carbon Model, opportunities for intervention were analyzed. Solutions were integrated into a Plan which provides a comprehensive view of the current best assessment of opportunities.

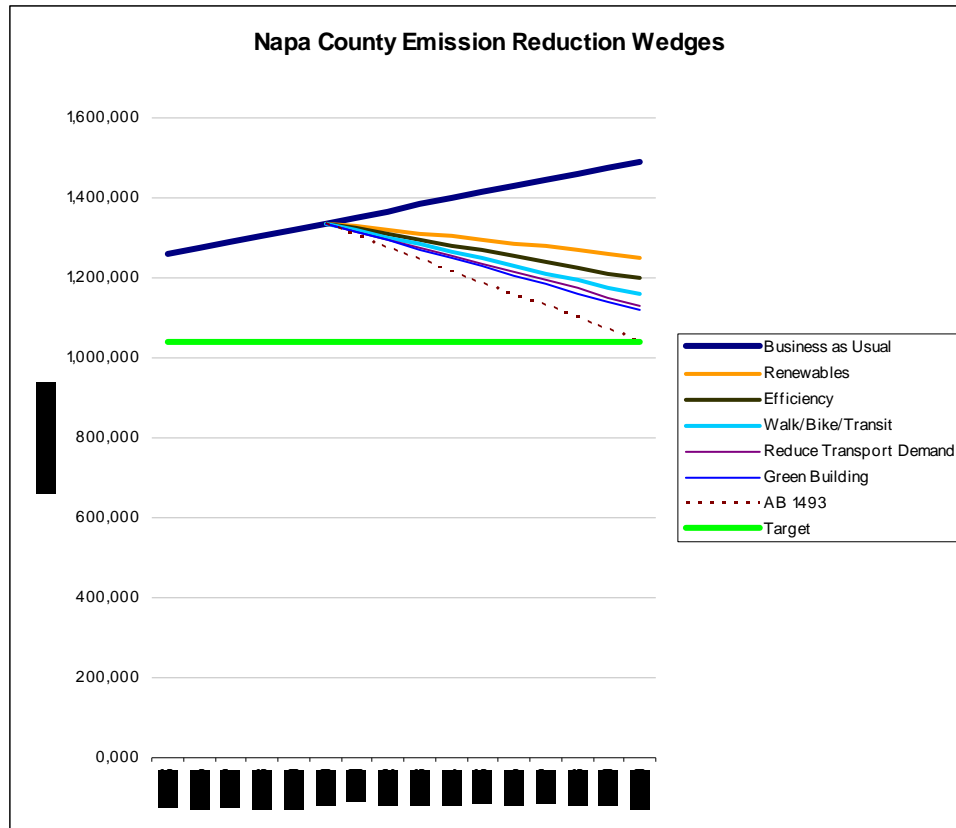
What, in sum, are the top opportunities for Napa County to reduce GHG emissions?

The table below highlights the conclusions of Phases 1 and 2. Please note that all of these opportunities are revenue neutral because investments pay back in energy savings.

Top opportunities for reducing Napa County GHG emissions Please note that all of these opportunities are revenue neutral because investments pay back in energy savings.	Percentage of target¹	Estimated upfront investment
1. Switch electricity/natural gas to renewables	53%	\$760 M
2. Improve energy and water efficiency of existing buildings	12%	\$235 M
3. Shift mode of travel from driving to walking, biking, and public transit	9%	\$45 – 61M
4. Slow anticipated growth of amount of new driving	6%	0 ²
5. Implement green building ordinances - reduce growth of elec. and nat. gas use	3%	0 ²
TOTAL	83%	
(6. Improve overall efficiency of transportation system through CA’s AB1493)	18%	0

1. Target reduction is 446,661 metric tons GHG emissions from projected Business as Usual level in 2020.

2. Negligible – mostly planning actions and regulatory changes



A brief discussion of the highest priority actions follows. A full discussion including specific costs, benefits, and assumptions, is presented in the Technical Brief and accompanying spreadsheets, and in the Napa County Community Climate Action Plan Preliminary Draft.

1. **Switch electricity/natural gas to renewables.** To achieve this 53% requires that Napa County create a Community Choice Aggregation (CCA), a politically challenging endeavor. A few local counties such as Marin and San Francisco are pursuing such a strategy. Marin expects its CCA to provide both local and purchased renewable energy at rates equal to or below investor owned utility prices. Currently, nine of the twelve cities in Marin County have agreed to participate in the CCA.
2. **Improve energy and water efficiency of existing buildings.** The estimated 12% can be achieved through implementation of an AB811 program, creation of a CCA and an on-bill water financing program. This integrated and comprehensive solution bundle addresses several of the barriers to homeowner adoption of energy efficiency retrofits. An AB811 program provides low interest municipal loans paid for by tax assessments. The CCA and on-bill program provide kitchen and water using appliance rebate programs not covered by AB811. Both require no initial capital outlay by the homeowner, thereby addressing the number one barrier to energy efficiency retrofits. In addition, the programs as designed with the financial and uptake assumptions, as noted in the Technical Brief and Carbon Model worksheets, result in a net savings. The creation of an AB811 program is relatively politically easy.

3. **Shift mode of travel to biking, walking and public transit, and;**
4. **Slow anticipated growth of new driving.** These two actions can be achieved by implementing smart growth land use and transportation policies and plans. In general, these measures are costly to implement since they require large subsidized transportation-related infrastructure and capital which is not recovered at the fare-box due to the lack of carbon pricing which is unrealistic to expect in the short term. Nonetheless, as a result of significant investments in public education and outreach over the last 20 years, the political feasibility of implementing smart growth measures is relatively easy. However, the 15% estimated is very ambitious and will take decades to realize. Much of the local government staff time and resources are directed toward these actions given their political acceptance and the accessibility and familiarity of the policy and planning levers necessary for staff to affect smart growth changes.
5. **Implement Green Building Ordinances.** Similar to 3 and 4 above, green building ordinances are actively pursued as a result of their political feasibility, low implementation costs, readily available models and staff familiarity. Green building ordinances are important symbolically and an important strategy for reducing GHG emissions. However, in slow growth counties like Napa, green building ordinances have a small impact – in this case 3% of the emission reduction needed to achieve the 2020 goal.
6. **Improve overall efficiency of the transportation system through California’s AB 1493.** The authority to implement the clean car standards included in AB1493 or the Pavley Law was recently approved by the U.S. EPA. These higher fuel efficiency standards for passenger cars, sport utility vehicles and light trucks are expected to account for 18% of the total reduction needed to achieve the goal. This reduction requires no local action other than advocacy to ensure smooth and quick implementation at the state level.

What is the role of financing in implementing solutions?

The chief barrier to implementing climate protection solutions is access to investment dollars that pay back through energy savings. We do not lack solutions. Instead we lack a means to make a value proposition that compels sufficient numbers of people to implement solutions and thus reduce their fossil fuels usage. The Sonoma and Napa Climate Action Plans are groundbreaking in that they connect GHG emission reduction solutions with the financing tools needed to implement them.

What is the role of advocacy?

To achieve an aggressive local GHG target, government must leverage its participation in regional land use and transportation planning entities, and advocate for policy changes at the state and national levels to achieve economies of scale in reducing emissions. The principle ‘think globally, act locally,’ although necessary, is insufficient to deal with global climate change. Local communities must engage in advocacy to help solve the climate crisis.²

² See appendix to the Napa County Community Climate Action Plan, “Need for Local Communities to Engage in Advocacy,” www.coolplan.org.

What is the difference between Phases 1 and 2 GHG emission inventories?

The Phase 1 inventory was produced under the auspices of NCTPA in conjunction with Napa local government staff, consultants from MIG and the Climate Protection Campaign, and staff from ICLEI funded by BAAQMD. ICLEI staff helped collect and organize 2005 data from PG&E for electricity and natural gas, and CalTrans for transportation including off road vehicles. At the end of 2008, ICLEI staff led a workshop at which local government staff input data into ICLEI's Clean Air Cool Planet software, and produced inventories for each Napa city and the County.

As part of these inventories, GHG emission trends are projected for each jurisdiction. Population data from the Association of Bay Area Governments were used. Growth in commercial sector energy use was based on job forecasts. An overall statewide transportation growth rate was used to project vehicle miles traveled, the basis for calculating emissions in the transportation sector. Combined these projections create a "business-as-usual" emission scenario for 2020. The same electricity emission factor was used for both the 2005 and for the 2020 power content.

The 2005 baseline and the projection for 2020 were used as the basis for emissions reduction target scenarios. Following guidelines from the state, these scenarios use a 15 percent reduction below 2005 as a proxy for the state AB 32 target of 1990 levels by 2020.

The Phase 2 inventory and forecast were produced under the auspices of the Napa Valley Community Foundation. They provide a more detailed and accurate representation of actual emissions levels in 1990. Data from the California Energy Commission for the year 1990 was used to calculate emissions due to electricity and natural gas use in residential, commercial and industrial sectors.

The projections used several sources in addition to ABAG and CalTrans for population growth and growth in VMT. This was done to reduce uncertainty in making target reductions by providing a range of projected business as usual scenarios.

PG&E projections for electricity and natural gas use in their service territory were used to create ranges for projected electricity and natural gas use in Napa County. Finally, the 1990 emission factor for electricity generation mix was used to calculate emissions from electricity use in the 1990 baseline year. The projected PG&E emission factor for 2020 was used to calculate emissions for the target year business as usual scenario.

Phase 1 inventories are "first cut" estimates for the 2005 baseline year and the 2020 target year (business-as-usual) emissions. These give an overall sense of the scale of the reductions that are required to meet the AB 32 targets, as well as give a city-level breakdown of the emissions distribution for the County.

Phase 2 inventories are more detailed, provide a more accurate baseline estimate, and give a range of projected business-as-usual scenarios. This information enables a more accurate assessment of both the needs for reduction measures in the various sectors and the effects of these measures over time. Phase 2 corroborated the general findings of Phase 1 inventories.

How do the Sonoma and Napa Carbon Models relate?

The Sonoma Carbon Model was used as the basis for the Sonoma County Community Climate Action Plan (2008). The model was invented by Dave Erickson, then the Technical Director of the Climate Protection Campaign. It is a mathematical representation of all emissions sources within the geographic boundary of Sonoma County, along with "opportunities for intervention." The opportunities for intervention are represented by data in tables showing energy end use distribution or other areas where policy and technological changes can reduce emissions. The purpose of this model is to quantify the effects of various policy and program measures on overall emissions from transportation and usage of electricity and natural gas.

The Napa Carbon Model, used as the basis for the Preliminary Draft of the Napa County Community Climate Action Plan (2009), improved and expanded on the capabilities of the Sonoma Carbon Model. These improvements were in the modeling of emissions growth over time. The Napa Carbon Model represents the growth of emissions or "new emissions" over a period of time, separately from "existing emissions" in the baseline year. Using this representation, it is possible to model the effects of policies such as green building ordinances or general plan changes, on the business as usual emissions in the target year. In effect, new emissions are treated as a separate quantity, and can be shown independently of emissions in the baseline year. This enables policies such as retrofit programs to be modeled independently so that the impact on the existing built environment can be shown as an independent quantity. This is important for policy makers to be able to evaluate the effectiveness of programs both on the existing community and on future development.

The Napa model also introduces cost modeling for retrofit programs to allow an estimate of the cost of various levels of carbon reduction in each sector, based on typical end use installation packages for energy efficiency upgrade.