



Appendix A

Stakeholder Outreach and Engagement Plan for City of American Canyon Energy Efficient Climate Action Plan

1. Introduction

The City of American Canyon (City) has retained Environmental Science Associates (ESA) to develop an Energy Efficiency Climate Action Plan (EECAP) which includes a Stakeholder Outreach and Engagement Plan. The purpose of this effort is to engage stakeholders in building a stronger local economy and community through energy efficiency and renewable energy technologies. This means engaging those within the City government and the general community who can most influence, and who are most affected by, energy-related policies and programs. This also means helping the City implement public outreach and education programs for the general public and stakeholder groups regarding electrical energy consumption, greenhouse gas (GHG) emissions, and climate change.

This community engagement Plan describes the purpose, approach and objectives of engaging with government, business and residential stakeholders to facilitate understanding of the importance of energy conservation, and to contribute to sustainable decision-making.

1.1 Overview of EECAP Project Objectives

Recently, the California Public Utilities Commission (CPUC) authorized Pacific Gas and Electric (PG&E) to conduct strategic plan activities centered on energy efficiency and addressing the “Big,

Bold” strategies and related local government goals found in the CPUC’s California Long-Term Energy Efficiency Strategic Plan (CEESP). The goal of the CEESP is to encourage deep energy savings as standard practice and energy efficiency as a way of life for all Californians. The City of American Canyon was awarded funding from PG&E with the purpose of developing a community-wide Climate Action Plan tied to Energy Efficiency to reduce GHG emissions consistent with the California Global Warming Solutions Act of 2006 (AB 32). In addition to identifying GHG reduction strategies and measures, the plan calls for a regional public engagement program and implementation matrix.

1.2 Funding for This Project

The City of American Canyon was awarded funding from the PG&E Green Communities program for this project.

2. Approach to Outreach and Stakeholder Engagement

Stakeholder engagement and outreach is a critical component to the development and implementation of an effective EECAP. Since energy use and conservation are tied to such a wide array of issues – social, environmental, and economic – the range of stakeholders potentially impacted by a comprehensive energy planning effort is necessarily extensive.

The EECAP will seek input from two main groups of stakeholders: the Planning Commission/ City Council and the broader community of residents and businesses. Community engagement is a process that seeks public input and involvement in visioning, problem-solving, and consensus building. The EECAP process will provide key community stakeholders the tools and education they need to bring their informed voices to the planning process, and help the City develop an EECAP that represents the priorities of the community as a whole.

This plan relies on multiple engagement strategies that target all sectors of the City of American Canyon community, including traditionally underrepresented or underserved groups. Education and information sharing is an important aspect of this plan. Although many members of the community are conversant with energy issues affecting City operations and the community as a whole, there are many others who are just learning about these issues, or may be completely unaware of them. Thus, the plan takes into consideration the need to educate and inform at every level while soliciting feedback to make energy issues relevant to each stakeholder group.

In order to meet the Planning Commission/City Council needs, the outreach and stakeholder process will address the energy efficiency of the City government’s facilities and internal operations, as well as issues associated with planning for energy efficiency in the greater community. Energy efficiency actions taken by the City government will provide a positive example to the community.

It is in the City’s interest that its citizens and businesses make a commitment and take action toward energy efficiency. Identifying latent community values, clarifying their expression and encouraging their communication will be part of the community outreach and education regarding the City’s energy efficiency goals. When stakeholders feel their values and opinions about energy use and conservation are being heard and taken into consideration, this can drive individual and collective action to sustainably eliminate energy waste. Furthermore, behavioral finance research indicates that rational economic incentives do not always translate into action. ESA will attempt to

identify through these workshops the barriers that prevent sustainable energy conservation behavior, and discover ways to promote individual and community-wide behavior changes that increase energy conservation.

2.1 Identification of City Stakeholders

ESA has identified the following stakeholder groups from the City:

- American Canyon Elected Officials
- Local Agency and City Department Staff from several departments and facilities, including:
 - ◆ Community Development
 - ◆ Public Works & Facilities
 - ◆ Building and Engineering
 - ◆ Water Resources
 - ◆ General Services
 - ◆ Fleet Services
 - ◆ Wastewater Treatment
 - ◆ Solid Waste
 - ◆ Parks
 - ◆ Fire
- Appointed Local Officials

In addition, staff from several City departments will be encouraged to participate as stakeholders in the community workshops including representatives from Community Development, Building, Housing, Affordable Housing, Economic Development, Transportation, and Water Resources. The areas of focus for engaging City staff with the EECAP are likely to coalesce around the following issues:

- Managing Federal, State and utility grants and incentive programs
- Community energy efficiency programs
- Community renewable energy programs
- Green building codes for the residential and commercial sectors
- City energy and sustainability guidelines/policies
- Regional resource sharing

2.2 Identification of Community Stakeholders

ESA has identified the following stakeholder groups from the community:

- Neighborhood groups and Homeowner Associations
- American Canyon Chamber of Commerce

- City's large employers, such as: Walmart Supercenter, Amcan Beverages Inc, G.L. Mezzetta Inc, Kona Coast Food Products, American Canyon High School, Cooke & Andrews, Ghilotti Construction Co Inc, Napa Valley Cast Stone, and R E Maher Inc
- Community groups such as Kiwanis or Lion's Club
- City business groups such as contractors
- American Canyon Mom's Club
- Faith-based community groups
- Golden State Manufactured Homeowners League (GSMOL)
- Senior Council (Club 55)
- AC Transit and /or VINE
- Development community
- Sustainable Napa County/Napa County Energy Watch (<http://www.sustainablenapacounty.org/>)

In addition to identifying stakeholders who are in favor of the EECAP, it is important to anticipate that some stakeholders may react negatively to the EECAP process. Ideally the stakeholder engagement process will generate a mix of contrasting ideas competing for relevance. Different views are what make the planning process an opportunity for a shared vision going forward. In order to cultivate a productive conversation across the social and political spectrum, ESA will seek to identify community representatives who may react negatively to the EECAP in advance of the workshops to solicit their input and encourage their respectful participation. Further, ESA will broaden the objectives of the EECAP to include cost savings, job creation, resilience, and improved health and safety when describing the potential benefits to GHG reduction and energy efficiency.

3. Website and Social Networking

3.1 Web page content

ESA will provide the City of American Canyon with content so that the City can develop an interactive EECAP page on the City's website. This page will serve as a central clearinghouse for project information, soliciting and gathering stakeholder input, and providing useful information on local programs, incentives, and workshop promotion. The content will provide community education, gather comments, provide periodic electronic/internet polling, and provide answers to frequently asked questions. The page will also link users to resources and useful tools for assessing energy savings potential and for staying informed about state and utility programs and incentives. A good example is the CPUC's Engage 360 web site (<http://www.engage360.com>) where users can opt to receive emails on savings and incentive programs available in their zip code, and link to relevant information on the PG&E web pages.

Web page content will occur as follows:

- ESA will discuss and refine with the City the goals for the page, what materials would be available on the site, and what external resource materials would be linked into the site.

Also defined would be access requirements, such as needs for bilingual support or disabled access. From this discussion, specific content will be prepared and presented to the City for approval.

- The content will be based on the City of Oxnard's Energy Action Plan pages, <http://energyaction.oxnard.org/>, which were developed by ESA for a similar project.

3.2 Social Networking

Using social networking communication tools will enable the city to communicate better about the EECAP and to provide the opportunity for greater participation and debate in the decision-making process at the local level.

The City is committed to reaching sectors of the population not typically associated with the community planning process. Using community based social networking, the stakeholder engagement and outreach process will strive to connect with individuals and groups to draw them to the workshops and the City's EECAP web page so that their priorities and concerns related to energy conservation can be vetted and incorporated into the EECAP document. These same tools will provide a conduit to disseminate information about local and statewide energy conservation and savings opportunities, raise awareness of incentives and rebates, and improve access to technical assistance and practical tips that facilitate widespread understanding and application of emerging technologies.

4. Workshops and Meetings

Two community workshops will be conducted during the course of the project, one of which will be concurrent with a Planning Commission Meeting. Each workshop will be approximately two hours in length, and will encourage active participation and dialogue through an interactive presentation, demonstrations and local case studies, participant experiences and audience polling. In addition, up to three meetings with local community groups will be conducted, to provide information to and get feedback from sectors within the local population. In addition to the two workshops and three community group meetings, ESA will also provide staff support for a second presentation to the Planning Commission and City Council.

4.1 Workshop Promotion

Workshops will be promoted primarily by the City, with assistance from ESA and PG&E. ESA will collaborate with the City and PG&E to develop outreach materials, to be distributed by the City and/or PG&E via the following channels:

- Local Media
 - ◆ News releases and/or ad placements in English, Spanish, and/or Tagalog, as appropriate
 - ◆ Conversations with area media (PG&E)
 - ◆ Public service (Pandora) radio announcements
 - ◆ American Canyon Eagle press release, Facebook announcement, and Twitter announcement
- City of American Canyon Website

- ◆ Communitywide announcements
- ◆ Community Calendar
- ◆ Project fact sheets: English, Spanish and Tagalog
- ◆ City Manager bi-monthly newsletter
- Targeted Outreach
 - ◆ One-on-one outreach to stakeholders listed in Sections 2.1 and 2.2, above (through City channels)
 - ◆ Evite to existing City distribution lists
 - ◆ Invitation letters to the Chamber of Commerce and other local business-oriented groups such as the Newlevel Group (<http://www.newlevelgroup.com/>)
 - ◆ Invitation letters to local building industry associations
 - ◆ Next Door message (<https://nextdoor.com/>)
 - ◆ High School list-serve and email blasts

4.2 Workshop/Meeting Schedule

Per discussions with the City and PG&E, the community workshops and meetings will occur as follows:

- Workshop #1 : September 2012
- Workshop #2 : October 25, 2012 in conjunction with the Planning Commission meeting
- Community Group Meetings: by end of November, 2012, locations to be determined

In addition, ESA will provide staff support for the City to make a second presentation to the Planning Commission and/or City Council, to occur in early November or December 2012.

4.3 Workshop Agendas

This section provides an overview of the material that will be covered at each workshop and community meeting. Several weeks prior to each event, ESA will draft an agenda and more detailed approach to conducting the meeting and gathering public input, to be reviewed and approved by City staff. At least three days prior to each workshop, ESA will provide the City with draft presentation slides and meeting materials for the City's review and comment. An initial agenda will guide each workshop and keep it on schedule and on task. Results of audience polling and responses may supplement or replace some anticipated content for the breakout sessions.

Workshop #1

The first workshop will be dedicated to gathering stakeholder input and providing education and access to information. The workshop will be designed to educate in a fun and informal way and gather input for the upcoming Draft EECAP.

- ESA will present the background and purpose of the EECAP and describe the City's community-wide energy efficiency goals. ESA will provide an educational overview of

municipal and community GHG emission sources, and present information on costs and benefits of existing and proposed energy efficiency and GHG reduction programs.

- PG&E will staff a table providing information on local programs and energy saving opportunities.
- Using an iPad survey, participants will be asked to weigh in on their concerns about energy efficiency and GHG reductions. Input will be captured through discussions, breakout sessions, and electronic polling of the attendees using the iPad survey (see Appendix A for a list of potential survey questions). ESA will use the instant results of the survey to guide and stimulate the discussion. The iPad survey could also solicit interest in having a guest speaker come to a community or business group meeting to discuss energy efficiency Practices (see Workshop #3 alternative, below.)

Workshop #2

The second workshop will be conducted in conjunction with the Planning Commission meeting on October 25, 2012. The focus at this workshop is to:

- Solicit public and Planning Commission members to comment and provide feedback on the Draft EECAP which will be released earlier in October.
- Provide an overview of the City's updated 2010 GHG inventory, municipal and community GHG reduction targets, and possible strategies and measures for reaching those targets.
- Solicit attendees' opinions, priorities, and expectations regarding City policies and programs, financial incentives, and personal behavior change with respect to energy use.

Community Group Meetings

As an alternative to one large, final workshop, ESA will attend up to three regularly scheduled community group meetings to bring the discussion about implementation of the EECAP to the community. The Kiwanis, the Government Relations subcommittee of the Chamber of Commerce, and the American Canyon Mom's Club have been identified as potential candidates for participation. By serving as a guest speaker at a regularly scheduled meeting, ESA can go to the community and reach portions of the community that might not choose to attend a workshop on energy efficiency or climate action planning. ESA can advertize its interest to speak on the EECAP web page, through communications with local media and through contact with the City's largest employers. In addition, a question related to speaking opportunities could be included in the iPad survey planned for the first workshop.

4.4 Workshop Tracking

Table 1, below, provides a summary of the key elements of each workshop, such as location, roles and responsibilities, required materials, and promotion strategies.

5. Workshop Input

ESA will compile feedback and input collected at the public workshops, identifying attending stakeholders, key themes, barriers, concerns, and priorities. The results will be incorporated into the EECAP programs, policies and measures, as appropriate.

Table 1: Workshop/Meeting Tracking

Workshop/ Location/ Date	Roles and responsibilities of workshop organizers	Required materials (presentations agenda, refreshments, attendance record)	Task/deliverable associated with the workshop	Format (workshop, panel, Council)	How public input will be collected	Purpose/ desired outcome of meeting	Intended use of social media	Marketing Plan to maximize attendance
Workshop #1 Community location, tentatively planned for the Senior Center September, 2012	ESA to provide overview of EECAP project and goals PG& E to staff a "station" to provide information on PG&E programs. ESA to develop a "station" with a game based on "Your Carbon Diet" or similar concept that is visual and engaging.	Provide food to encourage attendance One iPad Develop 2-3 stations for individuals to learn about energy efficiency opportunities Attendance sheet Screen, monitor to show iPad survey results	Identify correct PG& E staff to be present Convey EECAP goals and gauge interest in the suite of possible options contemplated for improving energy efficiency Prepare a follow up memo that captures the sentiments expressed	Presentations by ESA and with "stations" staffed by PG&E and ESA for individuals to explore energy saving opportunities	Use iPad survey	Educate residents and businesses about PG&E programs Educate residents and businesses about the EECAP Compile iPad survey results Obtain input on EECAP process	Post event on City EECAP web page Post event on Next Door and on the City Manger's bi-monthly newsletter	Post event on community event calendar PG&E staff to coordinate outreach to media contacts Work with City outreach coordinator to contact key community stakeholder groups Reach out to largest employers in the City for their assistance to announce the event
Workshop #2 Planning Commission presentation October 25, 2012	ESA to present summary of Draft EECAP	PowerPoint of Draft EECAP that highlights GHG inventory, reduction targets, and energy reduction measures Computer and screen to project presentation Attendance sheet	Solicit public and planning commission input on Draft EECAP	ESA presentation to Planning Commission Solicit questions	Note taking and write up by ESA staff	Educate Planning Commission on the Draft EECAP Engage and receive input from Planning Commission	Post event on EECAP City web page Post event on Next Door and on the City Manger's bi- monthly newsletter Post on American Canyon High School e-blast Develop evite list of specific community leaders	PG&E staff to coordinate outreach to media contacts Work with City outreach coordinator to contact key community stakeholder groups Encourage and solicit community attendance and participation Reach out to largest employers in the City for their assistance to announce the event

Table 1: Workshop/Meeting Tracking (continued)

Workshop/ Location/ Date	Roles and responsibilities of workshop organizers	Required materials (presentations agenda, refreshments, attendance record)	Task/deliverable associated with the workshop	Format (workshop, panel, Council)	How public input will be collected	Purpose/ desired outcome of meeting	Intended use of social media	Marketing Plan to maximize attendance
Community Group Meetings Location and community groups to be determined; likely candidates include Kiwanis, the Government Relations subcommittee of the Chamber of Commerce, and the American Canyon Mom's Club By November 30, 2012	ESA and City to present on opportunities and constraints to implementation	PowerPoint presentation (tailored to the audience) Computer and screen to project presentation Attendance sheet	Solicit public comment and provide feedback to for Final EECAP	ESA and City presentation and the solicitation of questions and feedback	Note taking and write up by ESA staff	Solicit feedback on implementation priorities	Post events on City EECAP web page Post event on Next Door and on the City Manger's bi-monthly newsletter	Work with City outreach coordinator to contact key community stakeholder groups to identify existing gatherings and meetings where ESA and the City could present

Appendix A – Survey Questions

Residential iSurvey Questions

1. Are you a resident of American Canyon?
 - Yes
 - No
2. How long have you lived in American Canyon?
 - Less than a year
 - 1-5 years
 - 6-10 years
 - More than 10 years
 - I don't live in American Canyon
3. What is your age-group?
 - 24 and under
 - 25-59
 - 60 and over
4. Do you rent or own your home?
 - Rent
 - Own
5. What kinds of energy improvements have you made to your home or residence in the past few years? (check all that apply)
 - Replace old appliances with Energy Star models
 - Weather stripping
 - Sealing electrical conduits, pipes, etc.
 - Attic insulation
 - Wall/floor insulation
 - Heating/Ventilation/Air Conditioning duct sealing or tune up
 - Window replacement
 - Efficient lighting
 - Install solar panels
 - Other
 - None
6. What energy improvements in your residence are you considering over the next year? (check all that apply)
 - Replace old appliances with Energy Star models
 - Weather stripping
 - Sealing electrical conduits, pipes, etc.
 - Attic insulation
 - Wall/floor insulation
 - Heating/Ventilation/Air Conditioning duct sealing or tune up
 - Window replacement
 - Efficient lighting
 - Install solar panels

- Other
 - None
7. If you have completed energy improvements for your residence, what was your main motivation?
- Save money
 - Concern for the environment
 - American energy independence
 - Don't want to provide revenue to utilities
 - Other
8. If you haven't completed energy improvements, what is the main reason why not?
- Concerned that improvements might cost too much
 - Don't have enough information, or the information is confusing
 - Haven't gotten around to it
 - Not concerned about energy use, or its impact on the environment
 - I do not own my home so I'm not sure if can make improvements
9. What is the most important thing your local government can do about energy efficiency?
- Lead by example by making government facilities energy efficient
 - Use City budget to provide financial incentives to residents and businesses
 - Provide educational resources and assistance to the community on how to access energy efficiency rebates and financial assistance
 - Require energy efficiency improvements in the community through building codes or City ordinance
10. How would you describe your awareness of energy efficiency incentives and rebates provided by your utility or local/state government?
- Very aware
 - Somewhat aware
 - Not aware
11. Would you like to receive more information about the development of American Canyon's energy action plan?
- Yes
No
12. What is your e-mail address? (optional)
13. Do you know of, participate in, or host community meetings such as the Kiwanis, PTA, Homeowners Association, faith-based group, or through your work? Would you like to have an EECAP representative come speak at your meeting?
- Yes
No

Commercial iSurvey Questions

1. Is your business in American Canyon?
 - Yes
 - No
2. Do you lease or own your building/facility?
 - Lease
 - Own
3. Do you have a dedicated energy manager on your staff?
 - Yes
 - No
4. Have you benchmarked your building through energy star or similar benchmarking tool?
 - Yes
 - No
5. If you have completed (or are considering) energy improvements for your business, what is your main motivation?
 - Save money
 - Business strategy
 - Concern for the environment
 - American energy independence
 - Don't want to provide revenue to utilities
6. If you haven't completed energy improvements, what is the main reason why not?
 - Concerned that improvements might cost too much
 - Don't have enough information, or the information is confusing
 - Haven't gotten around to it
 - Not concerned about energy use, or its impact on the environment
 - I do not own my building/facility so I'm not sure if can make improvements
7. What is the one most important thing your local government can do about energy efficiency?
 - Lead by example by making government facilities energy efficient
 - Use City budget to provide financial incentives to residents and businesses
 - Provide educational resources and assistance to the community
 - Provide assistance on how to access energy efficiency rebates and financial assistance
 - Require energy efficiency improvements in the community through building codes or City ordinance
8. How would you describe your awareness of energy efficiency incentives and rebates provided by your utility or local/state government?
 - Very aware
 - Somewhat aware
 - Not aware

9. Would you like to receive more information about the development of American Canyon's Energy Efficiency Climate Action Plan?

Yes
No

10. If available, would you have an energy efficiency assessment performed at your business?

Yes
No

11. Your e-mail address? (optional)

12. Do you know of, participate in, or host community meetings such as the Kiwanis, PTA, Homeowners Association, faith-based group, or through your work? Would you like to have an EECAP representative come speak at your meeting?

Yes
No



Appendix B

Outreach and Stakeholder Engagement Report

Stakeholder engagement and outreach was a critical component to the development and implementation of the City of American Canyon Energy Efficiency Climate Action Plan (EECAP). Since energy use and conservation are tied to such a wide array of issues – social, environmental, and economic – the range of stakeholders potentially impacted by a comprehensive energy planning effort is necessarily extensive.

Community engagement involved ongoing communication between the City and the public, a process that spanned the duration of the EECAP project. Multiple engagement strategies targeted all sectors of the community, as described in detail in Appendix A, *Stakeholder Outreach and Engagement Plan for City of American Canyon Energy Efficient Climate Action Plan*. Education and information sharing was an important aspect of this plan. Although many members of the community are conversant with energy issues affecting City operations and the community as a whole, there are many others who are just learning about these issues, or may be completely unaware of them. Thus, the need to educate and inform at every level was considered.

Outreach efforts focused primarily on the following actions:

- EECAP website development
- Public workshops, open to all members of the public
 - ◆ Workshop #1, General Public
 - ◆ Workshop #2, American Canyon Planning Commission
- Public meetings with existing community groups

- ◆ Meeting #3a, American Canyon Chamber of Commerce
 - ◆ Meeting #3b, American Canyon Mom's Club
 - ◆ Meeting #3c, American Canyon Kiwanis Club
- Energy Survey

Details on each of these efforts are summarized in the following sections.

EECAP Website

In coordination with the City's Communication and Public Information staff, Environmental Science Associates (ESA, the City's environmental consultant) developed web content dedicated to the EECAP (<http://www.cityofamericancanyon.org/index.aspx?page=577>) to serve as a central clearinghouse for project information, gathering stakeholder input, and providing useful information on local programs, incentives, and workshops. The website keeps the City's residents and businesses up-to-date on local energy programs, provides information on state and utility programs and incentives for increasing energy savings, and directs users to outside resources for assessing energy savings potential and staying informed about. The user-friendly interface is incorporated into the City's website. A screenshot of EECAP pages is included at the end of this document.

Public Workshops and Meetings

Prior to the release of the Draft EECAP the City conducted two community stakeholder engagement workshops and three public meetings with existing community groups:

- Workshop #1 focused on American Canyon residential and business communities, and was dedicated to gathering stakeholder input and providing education and access to energy conservation information.
- Workshop #2 was a presentation to the City Planning Commission, which provided updated information on EECAP measure development and opportunities for public input on the Draft EECAP.
- Public meeting #3a was a presentation to the Government Affairs Committee of the Chamber of Commerce which focused on ways for the Chamber and the City to partner on strategies for engaging the business community on energy conservation.
- Public meeting #3b was a presentation to the American Canyon Mom's Club to highlight tips and incentives for residents.
- Public meeting #3c was a presentation to the American Canyon Kiwanis Club to emphasize how the business community can save energy and resources.

At every workshop and meeting, a representative from ESA or the City presented the background and purpose of the EECAP, including descriptions of the City's local government and community-wide energy efficiency goals and targets, and discussed the benefits of improving energy efficiency and increasing renewable energy resources in the community. Stakeholder input was captured through discussions, breakout sessions (in some cases), and polling of the attendees. A formalized agenda developed in advance of the workshops/meetings was used to inform stakeholders about the content and to encourage attendance, as well as to guide each workshop and keep it on schedule and on task.

Leading up to the workshops, ESA provided workshop announcements targeted to various stakeholder groups, such as Sustainable Napa County, that were distributed by the City. For some of the workshops and meetings, phone calls were made to key individuals to encourage attendance. ESA drafted and the City finalized and distributed announcements including:

- Press releases to local media announcing the workshops;
- An invitation flyer;
- Announcements on the EECAP website providing information on the various workshop dates and content, local programs, and incentives.

Workshop and Meeting Lessons Learned

ESA has solicited attendees' opinions, priorities, and expectations regarding energy-related strategies and measures, financial incentives, and personal behavior change with respect to energy use. Although the workshops and meetings are targeted to certain stakeholder groups, they have been open to all interested community members. Discussion notes from each workshop are provided below.

Workshop #1, General Public, Discussion Notes

Attendees:

City of American Canyon Planning Department: Brent Cooper and Deanna Parness
ESA: Jeff Caton, Claire Myers, John Hanscom
DNV KEMA: Amy Jewel
PG&E: Jillian Rich, Justin Real
Members of public: approximately 25 individuals

Comments during the ESA/KEMA presentation:

- We need to add the energy use per capita during the 2005-2011 timeframe. Energy use has increased, but so has population. Data needs to be expressed by sector, use a pie graphic.
- Warehouses: could use more solar.
 - ◆ Some roofs not designed for solar, and do not have the structural support necessary
 - ◆ Some warehouses are very efficient, and already take advantage of mild climate and use passive heating and cooling
 - ◆ SB834, Senator Wolk, Solar Gardens
 - ◆ There is another bill that addresses net energy metering; it allows cost savings to be applied to other customers; it would keep rates more equitable
- One question about virtual net metering
 - ◆ This allows solar in neighborhoods
 - ◆ The issue is cost equity. We need to make sure lower income customers are not taking the burden of costs.
- Mandatory approach is ok for new construction, but probably all else should be voluntary.
 - ◆ One person mentioned that they liked the idea of "solar ready" homes.

- PACE Program will start in Napa in 2013. AC will sign resolution and join in. Would PACE pay for roof PV readiness on roof tops?

Small Group Discussions:

- Many new homes are very efficient, and there are neighborhoods with very new homes (within the last 10 years). Limited opportunities for energy efficiency in these neighborhoods.
- Flat screen TVs are a big energy draw.
- One person had a vision of very tough standards for new construction, so that American Canyon would earn a reputation for being green, thus attracting homeowners and raising home values.
- Smart meters allow residents to track energy use, 98% of AC homes are smart metered.
- Suggestion about tracking neighborhoods with homes of the same vintage; they would have similar needs for upgrades.
- Water conservation is very important (Traffic is also a very important issue.)
 - ◆ One idea: No new home should come with a lawn
 - ◆ Tie water and energy together.
 - ◆ Get the Blue Ribbon Water Committee to consider energy issues that also reduce water use.
 - ◆ Some homes: higher monthly water bill than energy bill.
 - ◆ People are very conscious of water use. Have a tiered water rate structure, can really hit you when you use a lot of water.
- Old homes: some neighborhoods date back to the 1950s.
 - ◆ The City needs to do targeted outreach to these neighborhoods.
 - ◆ Need to focus on cost-savings.
 - ◆ There are many incentives for replacing lighting.
- There is a large PG&E Substation in American Canyon. Could it be used as a location for outreach (posters, banners, etc.)?
- What are the barriers to energy efficiency?
 - ◆ Time required to do research and make decisions.
 - ◆ Contracting.
 - ◆ Develop local volunteers to help educate/assist with energy efficiency measures in homes
 - ◆ Weather stripping is an opportunity for older homes
 - ◆ Costs are a question
 - ◆ Need someone who is trusted to come do audits and provide recommendations
 - ◆ There is some lack of trust in PG&E
- This City will mobilize and get behind community-based goals
 - ◆ Idea of a volunteer corps to be trained to do basic audits
 - ◆ Could focus on the low-hanging fruit – the biggest “bang for the buck”
- Might consider development of an Energy Committee, similar to the Water Committee

- There is lots of warehouse space. How about solar on rooftops? Roofs may not support weight.
- Discussion about legislation regarding neighborhood shared solar and net energy metering. However, transmission is an issue. PG&E buys back excess power.
- How does the High School affect energy use?
- Plant trees
- Voluntary v Mandatory actions: Will the City be able to get where they need to be with just voluntary measures?
- What about point-of sale mandatory upgrades for homes?

Workshop #2, Planning Commission, Discussion Notes

Attendees:

Brent Cooper, City of American Canyon
 Members of the American Canyon Planning Commission
 Jeff Caton and Judith Silver, ESA
 Amy Jewel, DNV KEMA

On October 25, 2012, Jeff Caton of ESA presented the EECAP to the City of American Canyon Planning Commission. Using a power point presentation, Jeff described that the EECAP was funded by the CPUC through PG&E, and is focused on energy and natural gas use both community-wide and from municipal operations. Jeff commented that PG&E has a lot of useful information on how energy is being consumed in the City. ESA is using that information to focus the EECAP. Jeff explained the benefits and co-benefits of energy conservation including energy and cost savings, energy security, and a reduction in greenhouse gas (GHG) emissions.

Jeff explained the EECAP process, which includes identifying a baseline of energy use and prioritization of measures (programs) to reduce energy use going forward. The prioritization includes factors such as community input, cost savings, energy savings, and cost and ease of implementation. Jeff further described current residential and business community energy use, highlighting that the largest consumer of energy in the business sector is food processors.

Comments from the commissioners included:

- One of the Commissioners commented on Kendall Jackson's 5,000 square foot wine storage facility and its impact on the City's energy profile.
- During the discussion of Title 24 requirements, there was a commissioner question about the possible advantage of using LEED as a guide rather than Title 24. There was also the idea of exceeding Title 24 to send a strong message to builders about the City's commitment to energy conservation through building codes. Title 24 updates will become mandatory in 2014. Exceeding the Title 24 requirements now would just accelerate compliance.
- The City has signed onto Napa County's participation in California First which facilitates funding for energy conservation and renewable energy projects that are financed and paid off by property taxes. The taxes stay connected to the building even after a change in building ownership. Originally a pilot program, the program is now available in over 20 counties in the State. This is not available to residents. Commissioners expressed concern about what would happen if a business cannot sell the property but goes out of business. There was conjecture that safeguards were in place to manage a situation like this.

The presentation concluded with a discussion of how the EECAP process would be conducted. The document will be available for public comment for one month from November 12 – December 12. It will be brought back to the Planning Commission in early January 2013, and subsequently brought to the full City Council.

Public Meeting #3a, Chamber of Commerce, Discussion Notes

Attendees:

Brent Cooper, City of American Canyon
Members of the Government Affairs Committee, American Canyon Chamber of Commerce
Judith Silver, ESA

On October 18, 2012, staff and ESA presented the EECAP to the American Chamber of Commerce Government Affairs Committee (GAC). The committee was very enthusiastic about the project. Brent Cooper acknowledged PG&E for providing funding (through the CPUC) for the EECAP. Brent clarified that the EECAP was focused on finding savings in energy and gas consumption (rather than transportation). Brent also highlighted that having an EECAP in place will facilitate the CEQA process for future projects.

The GAC members expressed support for partnering with the City in disseminating information about ways energy can be saved in our business community. The GAC expressed support for the City Council to adopt a resolution authorizing the City to join the California First Program on October 17. This is a voluntary program that provides commercial property owners access to funding that can be used to finance renewable energy, energy efficiency and water conservation improvements on their property. Other ideas included:

- Quarterly breakfasts (in conjunction with the Green Island quarterly breakfasts) to share energy efficiency ideas, strategies, incentives and rebate options.
- Share energy conservation links on the Chamber's website in order to create a positive campaign around the EECAP and energy conservation going forward. This could include a "green calculator" that would show energy savings.
- Creating a green business award that would highlight successes in energy conservation and showcase how other businesses could implement energy conserving and cost savings actions.

Susan Lane, offered to take the ideas to the Chamber Board Retreat in December.

The representative from the Napa Community College Board of Trustees was interested in providing training opportunities for their students that would enable them to help implement energy conservation actions in businesses and residences. Some training curriculum has already been purchased and used. There are many out of work construction workers, and there was discussion regarding how to capitalize on Energy Upgrade California. It was noted that there are already individuals going door to door offering education about weatherization; these people could also share information on energy efficiency.

The Committee learned that energy per capita use has increased in American Canyon and which sectors of the business community use the most energy (the food processing sector). Brent suggested focusing on low hanging fruit. Coca Cola has the only operating fuel cell in the County. Could Wal-Mart put solar on their roof? What is happening with the solar farm at the landfill?

Building Codes are becoming more stringent. There was a discussion of the 2014 mandatory codes and questions about how to deal with existing/older structures.

There was a discussion about net metering and the County's new PV project that cost \$3 million (funded by a DOE bond) that will offset energy use by the County. The press must continue to be informed and educated and become an ally of energy conservation.

Brent commented that the Council had approved participation on the PACE program and that the Chamber could help spread the word about that funding mechanism.

Public Meeting #3b, American Canyon Mom's Club, Discussion Notes

Attendees:

Brent Cooper, City of American Canyon
Approximately 15 Members of the American Canyon Mom's Club
Judith Silver, ESA
Amy Jewel, DNV KEMA

On November 14, 2012, City staff and ESA presented the EECAP at the monthly meeting of the American Canyon Mom's Club (Club). Approximately fifteen Club members attended the meeting, including one City Council member. The Club members were very receptive to the concepts of energy conservation and willing to disseminate information to their membership through their e-newsletter and Facebook page. Brent Cooper acknowledged PG&E for providing funding (through the CPUC) for the EECAP. All the participants filled out the energy conservation practices survey. The results are included in the Section below.

The presentation followed the same format as Workshop #2 with a discussion of the EECAP process, which included identifying a baseline of energy use and prioritization of measures (programs) to reduce energy use going forward. The prioritization includes factors such as community input, cost savings, energy savings, and cost and ease of implementation. ESA and KEMA further described current residential and business community energy use, highlighting that the largest consumer of energy in the business sector is food processors.

- One participant shared that because their home was new and equipped with energy conservation features, the anticipated reduction in their energy bills due to energy efficiency allowed them to take on a larger mortgage.
- Another meeting attendee shared that they are leasing solar panels and their PG&E meter is running backwards, so they are not spending any money on electricity, though they are charged a \$10/month administrative fee from PG&E for the program. They also have an electric vehicle.

Public Meeting #3c, American Canyon Kiwanis Club, Discussion Notes

Attendees:

Brent Cooper, City of American Canyon
Approximately 20 Members of the American Canyon Kiwanis Club
Judith Silver, ESA
Amy Jewel, DNV KEMA

On November 14, 2012, City staff and ESA presented the EECAP to the American Canyon Club's regular monthly meeting. Approximately 20 Kiwanis Club members attended, including two City

Council members. The club secretary agreed to disseminate information to the Kiwanis membership through their e-newsletter about how to comment on the draft EECAP and how to find and participate in the energy conservation practices survey. Brent Cooper acknowledged PG&E for providing funding (through the CPUC) for the EECAP. All the participants filled out the energy conservation practices survey. The results are included in the Section below.

ESA described the EECAP process, which included identifying a baseline of energy use and prioritization of measures to reduce energy use going forward. The prioritization includes factors such as community input, cost savings, energy savings, and cost and ease of implementation. ESA further described current residential and business community energy use, highlighting that the largest consumer of energy in the business sector is food processors. The connection between water use and energy use was also emphasized. Recent trends relating to the installation of solar PV were also highlighted.

Amy Jewel from DNV KEMA described some of the specific measures being considered as top priorities for the business community including the PACE program, enhancing education programming to take advantage of existing energy conservation programs, increasing PV installations on commercial roofs, developing a voluntary checklist to describe energy efficiency measures at point of sale and the possibility of a reach code to exceed Title 24 requirements by 15%.

- One attendee, a real estate broker, commented on Energy Upgrade California and how it can improve home sales.
- Another attendee asked about how to get real time information on energy use from PG&E to help understand which appliances were using the most energy.
- The same attendee also asked about solar hot water heaters, and why they are not more prevalent in American Canyon.

Energy Survey and Results

A survey of energy conservation practices was made available at all public workshops and meetings. In addition, the City has provided access to the survey on the EECAP website, and sent an email to community members soliciting input. The survey was available on the City website through the duration of the public comment period on the Draft EECAP.

Below are the survey questions and results, as of the publication of the EECAP (December 20, 2012):

Are you a resident of American Canyon?		
Answer Options	Response Percent	Response Count
Yes	90.3%	28
No	9.7%	3

How long have you lived in American Canyon?		
Answer Options	Response Percent	Response Count
Less than a year	16.1%	5
1-5 years	16.1%	5
6-10 years	22.6%	7
more than 10 years	35.5%	11
I don't live in American Canyon	9.7%	3

What is your age-group?		
Answer Options	Response Percent	Response Count
24 and under	3.2%	1
25-59	64.5%	20
60 and better	32.3%	10

Do you rent or own your home?		
Answer Options	Response Percent	Response Count
Rent	10.0%	3
Own	90.0%	27

What age is your home?		
Answer Options	Response Percent	Response Count
0-10 years	38.7%	12
10-30 years	38.7%	12
30+ years	22.6%	7

What kinds of energy improvements have you made to your home or residence in the past few years? (check all that apply)		
Answer Options	Response Percent	Response Count
Replace old appliances with Energy Star models	45.2%	14
Weather stripping	29.0%	9

What kinds of energy improvements have you made to your home or residence in the past few years? (check all that apply)

Answer Options	Response Percent	Response Count
Sealing electrical conduits, pipes, etc.	9.7%	3
Attic insulation	19.4%	6
Wall/floor insulation	9.7%	3
Air duct sealing or tune up	12.9%	4
Window replacement	25.8%	8
Efficient lighting	58.1%	18
Install solar panels	3.2%	1
Other	3.2%	1
None	16.1%	5

What energy improvements in your residence are you considering over the next year? (check all that apply)

Answer Options	Response Percent	Response Count
Replace old appliances with Energy Star models	23.3%	7
Weather stripping	16.7%	5
Sealing electrical conduits, pipes, etc.	10.0%	3
Attic insulation	6.7%	2
Wall/floor insulation	3.3%	1
Heating/Ventilation/Air Conditioning duct sealing or tune up	20.0%	6
Window replacement	6.7%	2
Efficient lighting	20.0%	6
Install solar panels	6.7%	2
Other	13.3%	4
None	36.7%	11

If you have completed energy improvements for your residence, what was your main motivation?

Answer Options	Response Percent	Response Count
Save money	65.4%	17
Concern for the environment	23.1%	6
American energy independence	0.0%	0
Don't want to provide revenue to utilities	0.0%	0
Other	11.5%	3

If you haven't completed energy improvements, what is the main reason why not?

Answer Options	Response Percent	Response Count
Don't have enough information, or the information is confusing	11.1%	3
Haven't gotten around to it	25.9%	7

If you haven't completed energy improvements, what is the main reason why not?

Answer Options	Response Percent	Response Count
Not concerned about energy use, or its impact on the environment	0.0%	0
I do not own my home so I'm not sure if can make improvements	7.4%	2
N/A	29.6%	8
N/A I have a new home that doesn't yet need improvements	25.9%	7

What is the most important thing your local government can do about energy efficiency?

Answer Options	Response Percent	Response Count
Lead by example by making government facilities energy efficient	32.3%	10
Use City budget to provide financial incentives to residents and businesses	29.0%	9
Provide educational resources and assistance to the community on how to access energy efficiency rebates and financial assistance	35.5%	11
Require energy efficiency improvements in the community through building codes or City ordinance	3.2%	1

How would you describe your awareness of energy efficiency incentives and rebates provided by your utility or local/state government?

Answer Options	Response Percent	Response Count
Very aware	32.3%	10
Somewhat aware	51.6%	16
Not aware	16.1%	5

Would you like to receive more information about the development of American Canyon's energy action plan?

Answer Options	Response Percent	Response Count
Yes	80.0%	24
No	20.0%	6

EECAP Website

The following pages show screenshots of the City's EECAP web pages.

Energy Efficiency Climate Action Plan

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American Canyon Energy Efficiency Climate Action Plan

The Energy Efficiency Climate Action Plan (EECAP) provides a road map for enhancing energy efficiency throughout the City's residential, commercial, and industrial communities. A key goal is to connect American Canyon residents and businesses to resources that will help them use energy more efficiently, save money, and improve the quality of life for current and future residents.

What is the Energy Efficiency Climate Action Plan?

The Plan provides innovative programs to decrease community-wide and municipal energy use, increase the use of renewable energy, and reduce greenhouse gasses in the City of American Canyon.

The Plan will connect American Canyon residents and businesses to resources and programs that help conserve energy, save money, provide ways access to incentives and rebates, and provide technical assistance and practical tips for increasing energy efficiency. The Plan will have the support of and include meaningful input from the community. For more information, click here.

What We Can Do

See a list of public meetings and workshops, learn about energy saving tips for your home or business, and find other community resources and tools that can help you save money on your energy bills. For more information, click here.

Provide Your Input and Stay Informed

Do you have an idea, question or comment about our program? Do you want to be notified when new information is added? For more information, click here.

Take This Survey

Please take this survey - it's quick and your input is very important to us! Click here for the survey.

What is the Energy Efficiency Climate Action Plan?

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The City of American Canyon is now in the process of developing an Energy Efficiency Climate Action Plan (EECAP) to enhance energy efficiency throughout the City's residential, commercial, and industrial communities. The City is inviting community residents and businesses to engage in the EECAP development process, to ensure that the plan is representative of the community and represents a feasible course of action to help the City achieve its energy and sustainability goals.

What is the EECAP?

The City of American Canyon is developing an Energy Efficiency Climate Action Plan (EECAP), which will set forth innovative policies and programs for enhancing energy efficiency in the community, and in the City's local government. The City intends to "lead by example" with its own facilities and energy practices, by reducing City energy use and providing cost savings that can be re-invested in energy programs to sustain efficiency and cost-effectiveness over the long term.

EECAP Purpose

The American Canyon General Plan includes Goal 8F: "Reduce consumption of nonrenewable energy sources and support the development and utilization of new energy sources." The EECAP will focus primarily on electricity efficiency and conservation.

The expected outcomes of the EECAP include the following:

- Promote energy and resource conservation throughout the community.
- Develop and implement policies and programs that increase energy generation from renewable resources.
- Encourage community involvement through community gatherings and workshops, and coordinating with local utility providers to promote public education and energy conservation programs.
- Serve as a model for local governmental leadership and action by sharing the EECAP and lessons learned preparing it with other jurisdictions and organizations.
- Calculate the GHG emissions associated with the energy used in the city, and provide analysis and relevant energy efficiency recommendations.

EECAP Timeline

- The following dates represent key milestones in the development and adoption of the Community and City Government EECAP:
- May to July 2012: Analysis of baseline (2005) and projected future (2020 and 2030) greenhouse (GHG) emissions from buildings and facilities, street lights, water and sewage systems, on-road and off-road vehicles, agriculture, and solid waste.
- July to August 2012: Gap Analysis of existing and programs and policies related to energy efficiency in the City; development of community GHG reduction target.
- August and September 2012: Development of energy efficiency policies and programs; cost-benefit analysis of recommended programs.
- September 25, 2012: Public Workshop at American Canyon Senior Center, 2185 Elliott Drive, American Canyon 6:30 PM - 8:00 PM. See Flyer.
- October 25, 2012: Presentation to the American Canyon Planning Commission, 4381 Broadway, American Canyon 6:30 PM
- November 12, 2012: Draft EECAP published for public review
- December 2012: Final EECAP
- 2013: Resolution adopting EECAP by City Council

Funding Sources

The City of American Canyon was awarded funding from Pacific Gas and Electric (PG&E) for this project.

EECAP - What We Can Do

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Great News! Energy efficiency can save you money! Below are some tools and resources to make smart and timely decisions regarding energy.

Energy Savings Tips

- There are a variety of ways to save on energy use, such as:
- Replacing old appliances with Energy Star labeled appliances
- Replacing incandescent light bulbs with energy efficient ones (CFLs or LEDs)
- Insulating your home (attic, walls, water heater, and exposed pipes)
- Using cold water for laundry (90% of the energy is used for heating water)
- Air drying laundry and dishes
- Consider installing solar energy

There are rebates available for nearly all of these options. Click here to find rebates and incentives for residents of Napa County.

Energy Saving Resources

Flex Your Power (click here) is California's statewide energy efficiency marketing and outreach campaign. Initiated in 2001, Flex Your Power is a partnership of California's utilities, residents, businesses, institutions, government agencies and nonprofit organizations working to save energy. The campaign includes a comprehensive website, an electronic newsletter and blog, and educational materials.

Energy Upgrade California, Napa County (click here) is your one-stop-shop for home improvement projects that lower your energy use, conserve water and natural resources, and make your home healthier and more comfortable. Homeowners can get up to \$4,000 back in rebates when you make your home more energy efficient, and there are local contractors who are trained and ready to do the work today.

PG&E Rebates and Cash Incentives are available for completing energy-efficiency projects at your home or business. Click here to see PG&E rebates and associated programs for residential customers.

Engage 360 (click here) is a statewide, multi-year communications project with the goal of inspiring and guiding Californians to achieve a 20% reduction in their home energy use by 2020. The Engage 360 website provides insights, tools and connections to help consumers save money and consume less energy. Available resources, rebates, and programs can be identified by zip code.

EECAP - Stay Informed

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Get Involved!

Attend an energy efficiency workshop to learn about American Canyon's Energy Efficiency Action Plan, and learn about how you can increase the energy efficiency of your home or business. Bring your questions, concerns, opinions, and ideas and share them with the City and others in the community. Food and refreshments will be provided.

Stay Informed!

Do you have an idea or comment about the American Canyon EECAP? Would you like to join our mailing list to be notified of upcoming events and developments related to the American Canyon EECAP? Please contact us at info@cityofamericancanyon.org or call Brent Cooper at 647-4336

Upcoming Events:

EECAP Workshop for American Canyon Residents and Businesses
American Canyon Planning Commission
Thursday, October 25, 2012, 6:30 PM
4381 Broadway

American Canyon Kiwanis
Tuesday, November 14
12:00 - 1:00 PM
Doubletree Hotel, American Canyon

Information Links

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Sustainable Napa County Events



Appendix C

Policy Gap Analysis and Framework for Prioritizing Reduction Measures

Introduction

One of the keys to a successful Energy Efficiency Climate Action Plan (EECAP) is building upon previous and existing City initiatives in energy conservation, local generation of renewable energy, water conservation, and other energy-related projects, in conjunction with analyzing and addressing gaps in the planning and program development that has taken place to date.

In this document, Section 1 provides a summary of existing policies, programs, projects, and plans related to energy performance and energy efficiency in the City of American Canyon (City). Section 2 provides a gap analysis, identifying potential opportunities for American Canyon's energy efficiency efforts. Section 3 provides a methodology for prioritizing energy efficiency measures proposed in the Draft EECAP.

1. Existing Policies, Programs, and Projects

This list was developed in coordination with City staff in the Community Development and Public Works Departments, as well as multiple representatives from Pacific Gas and Electric (PG&E). It is organized by the entity that developed the program or policy, including the City of American Canyon, PG&E, and Sustainable Napa County. The key City documents summarized below include the General Plan, the Municipal Code, and the Urban Water Management Plan. Other resources summarized below include programs offered by PG&E, and programs offered by Sustainable Napa County.

1.1 City of American Canyon

City of American Canyon General Plan

The City of American Canyon General Plan was adopted in November of 1994 and last amended in December 2006, with the exception of the Housing Element, which was updated in December 2010 (American Canyon, 2006; American Canyon, 2010a). The primary energy use and energy conservation policies and objectives put forth in the City's General Plan relevant to the EECAP are highlighted below. Policies and objectives related to water conservation are also included, to the extent that they reduce the use of energy resources associated with water use.

Land Use Element

Policy 1.18.3: Require that the onsite lighting of commercial uses be unobtrusive and designed to ensure that only the intended area is illuminated, offsite glare is minimized, and adequate safety is provided. (I 1.1, I 1.4, I 1.5, and I 1.11)

Policy 1.19.11: Ensure that the Town Center is a sustainable, "green" development through the implementation of such features as:

- a. use of recycled water for landscape irrigation
- b. use of drought tolerant vegetation
- c. energy efficient buildings
- d. pedestrian and bicycle circulation system
- e. mix of land uses which reduce travel

Policy 1.32.4: Require developers to incorporate mature and specimen trees and other significant vegetation which may exist on a site into the design of a development project for that site. (I 1.1, I 1.2, I 1.4, I 1.5, I 1.7, and I 1.8)

Policy 1.32.5: Require the use of drought-tolerant species in landscape design in accordance with the provisions of the Water Conservation and Landscape Act. (I 1.1, I 1.2, I 1.4, I 1.5, I 1.7, and I 1.8)

Policy 1.32.6: Require that commercial, industrial, and multi-family residential development incorporate adequate drought-conscious irrigation systems and maintain the health of the landscape. (I 1.1, I 1.2, I 1.4, I 1.5, I 1.7, and I 1.8)

Policy 1.32.8: Promote the use of reclaimed water for the irrigation of public and private landscape, as available. (I 1.24)

Housing Element

Goal 2G: Encourage energy conservation in new housing and existing housing.

Objective 2.21: Promote the use of energy conservation features in the design of residential development.

Policy 2.21.1: Ensure that the design of development is consistent with state laws regarding energy conservation.

Policy 2.21.2: Promote the planting of trees in residential areas to provide cooling during the summer months.

Policy 2.21.3: The City shall encourage innovative site designs and orientation techniques, which incorporate passive and active solar designs and natural cooling techniques.

Policy 2.21.4: The City shall promote energy efficient land use planning by incorporating energy conservation as a major criterion for future decision making.

Objective 2.22: Improve energy conservation in existing residential development.

Policy 2.22.1: Promote the weatherization of existing residential units.

Policy 2.22.2: The City shall promote a weatherization and retrofit program for existing housing units that fall below current state performance standards for energy efficiency.

Policy 2.22.3: The City shall promote opportunities for the use of solar energy by assuring solar access by expediting solar installation through a ministerial review.

Policy 2.22.4: The City shall promote energy conservation through education and outreach programs provided by the Community Development Department.

Utilities Element

Policy 5.2.4: Promote water conservation and wastewater reclamation as additional water supply sources. (I 5.2, 15.16 through I 5.23)

Objective 5.4: Establish a water management program to promote water conservation and wastewater reuse.

Policy 5.4.1: Promote the use of water-saving plumbing fixtures and water-saving landscaping. (I 5.2, I 5.16 through I 5.23)

Policy 5.4.2: Develop a rate schedule structured to promote water conservation. (I 5.8, 15.9, and 15.21)

Policy 5.4.3: Conduct a leak detection survey to identify water lost within the distribution system. (I 5.22)

Policy 5.4.4: Investigate potential uses for and costs of supplying reclaimed wastewater. (I 5.1 and I 5.23)

Policy 5.4.5: Require that development projects consider the appropriateness of the channelization of storm water runoff to facilitate its possible capture and re-use for on-site irrigation and other purposes. (I 5.2)

Policy 5.7.7: Develop a program of public education to encourage water conservation practices. (I 5.19)

Parks and Recreation Element

Goal 7D: Ensure that City parks are properly operated and maintained in the most effective and efficient manner possible.

Objective 7.8: Operate and maintain American Canyon's park and recreation facilities by utilizing programs that are designed for the most effective use and enhancement of park sites at the minimum possible cost.

Natural & Historic/Cultural Element

Goal 8F: Reduce consumption of nonrenewable energy sources and support the development and utilization of new energy sources.

Objective 8.22: Minimize transportation-related energy consumption.

Policy 8.22.1: Encourage the development of mixed use, pedestrian friendly employment/residential centers that help minimize vehicle trips in American Canyon and contribute to a reduction in energy consumption. (I 8.7 and 18.10)

Objective 8.23: Reduce energy consumption in buildings.

Policy 8.23.1: Require that developers employ energy-efficient subdivision and site planning methods as well as building design. Measures to be considered include building orientation and shading, landscaping, building reflectance, use of active and passive solar heating and hot water system, etc. In establishing these energy related design requirements, the City shall balance energy efficient design with good planning principles. (I 8.7, I 8.9, and 18.10)

Policy 8.23.2: Require that new City buildings be energy efficient. (I 8.7 and I8.3S)

Objective 8.24: Increase public awareness of energy conservation needs and means in order to encourage informed choices about energy conservation by the general public.

Policy 8.24.1: Cooperate with local utilities to provide energy conservation information to the public. (I 8.35 and I 8.51)

Policy 8.24.2: Develop public and/or public-private energy conservation educational programs for City employees and the public. (I 8.3S and I8.S1)

Objective 8.25: Increase the energy efficiency of City operations to save energy, reduce municipal costs, and provide an example to the private sector.

Policy 8.25.1: Introduce concepts of energy efficiency and life cycle costing to City planning and operating decisions and to the design of all major City facilities. (18.7, I 8.8, 18.9, and 18.35)

Policy 8.25.2: Work with other agencies and utility companies to develop safe, economical and renewable energy resources. (I 8.35)

Policy 8.25.3: Consider participating in energy conservation demonstration projects and promoting the use of treatment technologies that provide for the reuse of waste and water treatment by products, such as sludge and methane gas. (I 8.51)

City of American Canyon Municipal Code

The City of American Canyon Municipal Code includes several chapters that directly and indirectly address energy use, including the following (American Canyon, 2012):

Title 13, Water Service System

The City has established ordinances and policies requiring the installation of purple pipe with new development and requiring the installation of separate irrigation meters for all non-residential landscapes. These policies facilitate the installation of recycled water infrastructure and incremental conversion to recycled water. Specific chapters are described below.

Chapter 13.10, New Water and Sewer Connections and Services

Section I describes water conditions to be imposed on all parcels (city customers, outside customers and other outside customers) for which new water service is requested, including but not limited to the following:

- **Maximum Allowable Water Use.** Water received from the city for use on parcels within the Airport Industrial Area Specific Plan area and on parcels with similar uses within the city's limits and other outside customers with similar uses shall be limited to an average of six hundred fifty gallons of water per day per acre (measured monthly), and applicants for new or increased city water service for all such parcels shall be required to demonstrate to the city while the city is preparing the Water Supply Report for the applicant the maximum extent to which the applicant can further reduce its water consumption by applying the following best management practices:
- **No Flow or Low Flow Fixtures.** These applicants shall be required to install no flow or low flow water fixtures, and to implement other reasonable water conservation measures that are described in the city's Water Conservation Guidelines adopted in the city's Resolution No. 2008-08 or in new city water conservation guidelines approved by Napa County and adopted in a new city ordinance or resolution.
- **Drought Tolerant Landscape and Irrigation with Recycled Water.** These applicants shall be required to use only drought tolerant landscaping, and they may only irrigate landscaped areas with recycled water, when it is available.
- **Purple Pipe.** These applicants shall be required to dual plumb their buildings and install "purple pipe" in all landscape areas in anticipation of the availability of recycled water and shall use the recycled water when available.
- These applicants shall follow the water conservation methods that are described in the Water Conservation Guidelines adopted in the city's Resolution No. 2008-08 or in new city water conservation guidelines approved by Napa County and adopted in a new city ordinance or resolution.

Chapter 13.14, Water Conservation Plan

This chapter provides a plan for water conservation resulting from a reduced supply of water such as may result from drought, water supply shortages, or limitations of water delivery conditions. The Chapter provides information on water waste prohibitions, requirements for recycled water service, water conservation stages, mandatory conservation phase implementation, duration of conservation stages, drought surcharge, exceptions and application procedures for exceptions, and penalties and enforcement of violations.

Title 16, Building and Construction Codes, Chapter 16.07, California Energy Code

16.07.020 Code adoption. The city of American Canyon does hereby adopt all those certain documents marked and designated, as "California Energy Code, 2010 Edition," published by the International Code Council and copyrighted by the California Building Standards Commission. The documents identified in this section are adopted in their entirety. A copy of the adopted California Energy Code shall be kept on file in the office of the building official for use and examination by members of the public. (Ord. 2011-01 § 3, 2011)

Title 18, Subdivisions, Division 3. Design and Improvement Standards, Chapter 18.40, Design Standards

18.40.105 Solar requirements. All major subdivisions shall provide to the extent feasible for future passive or natural heating or cooling opportunities in the subdivision, as required by Section 66473.1 of the Government Code. (Ord. 98-10 § 1 (part), 1998)

Title 19, Zoning, Division 2, Zoning District Permitted Uses and Development Standards

19.16.110 Development standards. Single-family subdivisions including those proposing lot sizes smaller than the baseline lot size. Q. Passive Solar Design. All dwellings shall have sufficient roof overhangs to promote winter heating and summer shading. Main mass of dwellings shall be oriented so as to take advantage of southerly exposures wherever feasible with consideration also given to prevailing southwest wind flows. Attached garages on the south side of dwellings shall be avoided except where no reasonable alternative exists.

19.16.120 Development standards. Multifamily residential including apartments, townhouses and condominiums. I. Climatic Conditions/Passive Solar Design. All dwellings shall incorporate adequate roof overhangs to provide shading of the high summer sun while allowing passive solar heating from the low winter sun. Main mass of dwellings shall be oriented to take advantage of southern exposures to the maximum extent feasible with consideration also given to prevailing southwest wind flows. Private yard areas shall be oriented on the south or west sides of buildings to ensure penetration of low winter sun angles. Alternatively, the fenced yard area shall have adequate dimensions to ensure adequate direct solar gain to a portion of the private yard;

19.22.010 Purpose. The purpose of this chapter is to ensure that urbanized areas are sufficiently augmented by adequate landscaping and open space in order to:

- A. Shade vehicles in parking lots;
- B. Break up extensive stretches of paving;
- C. Reduce impervious areas;
- D. Provide natural solar insulation for buildings, to screen certain types of land uses where appropriate;

19.22.020 Landscape plans. 2. Tree planting shall consider passive solar heating and cooling opportunities related to building orientation.

Urban Water Management Plan

The City of American Canyon Urban Water Management Plan (UWMP) 2010 serves to evaluate whether the City can meet the water demands of its water customers as projected over a 20- or 25-year planning horizon (American Canyon, 2010b). In addition to helping the City coordinate its water supply plans with other multi-year plans, such as land use plans, the UWMP also identifies policies that will indirectly reduce energy associated with water consumption, such as measures and policies to reduce water demands, and identifying when, how, and with what measures the City will meet the State Legislature's call for a 20 percent per capita reduction in urban water use statewide by 2020. The following projects and policies described in the UWMP are relevant to the EECAP because of their potential for reducing water use and associated GHG emissions:

Recycled Water Project

The City has been working to develop a recycled water project since 2000, including drafting a Recycled Water Master Plan and an updated implementation plan in 2005. Focusing primarily on offsetting urban demand, the Project will provide irrigation system retrofits that will allow delivery of 666 acre-feet per year of recycled water to 47 users. In 2010 the City completed its Recycled Water Distribution System Project (the Phase 1 System), which included: approximately 18,500 lineal feet of 6-inch to 20-inch distribution piping; a one million gallon reservoir to provide for the delivery of recycled water to urban users in and adjacent to the City; installation of a recycled water meter, third recycled water pump and control system improvements at the City's Water Recycling Program (WRP); and connection of the initial 13 users to the recycled water system. The City's grant agreement with the State Water Board requires that remaining users be connected by 2012, and the City is systematically working to retrofit these connections. Expansions and extensions to the system can be made in the future to allow it to reach its full hydraulic capacity. The UWMP identifies potential future use of recycled water in acre-feet per year (AFY) for agricultural irrigation, landscape irrigation, future landscape irrigation, and industrial reuse.

As described under *City of American Canyon Municipal Code*, the City has policies in place that will require new development within the City's water service area to use recycled water. These policies will result in additional, incremental increases to recycled water deliveries concurrent with new development. The City estimates it can provide up to 1,000 AFY of recycled water with extensions to its existing transmission and distribution mains.

Zero Water Footprint (ZWF) Policy

Adopted in October of 2007, this policy requires that new development must be configured in a manner that results in "no loss in reliability or increase in water rates for existing customers due to a requested increase in water demand". Generally, the ZWF set up a system whereby any new development (residential or non-residential), or the expansion of existing commercial and industrial development, occurring after October 23, 2007 needs to mitigate all new water demands. Mitigation can include offsetting new demands with conservation savings elsewhere in the water service area, offsetting demands onsite, or, at its own cost, assisting the City in purchasing new water supplies from other water providers.

Administrative Policies

Administrative Policy 2011-01 on the Management and Allocation of Raw Water: Adopted in May 2011, this policy has a goal of shifting the City's raw water customers (new and existing) from the State Water Supply to alternative supplies. The Policy specifically references recycled water as a possible alternative supply and also provides for the development of an agricultural water conservation program.

Administrative Policy 2011-02 on the Management and Allocation of Recycled Water: Adopted in May 2011, this policy has a goal of providing recycled water as a substitute for potable water as a first priority to the City's parks and then to other users for irrigation purposes. This Policy complements Municipal Code Section 13.10, which requires dual-plumbing with purple pipe, and establishes a framework for allocating the recycled water resource and encouraging the development of privately-owned seasonal, recycled water storage facilities.

Administrative Policy 2011-03 on the Implementation of the Zero Water Footprint Policy: Adopted in May 2011, this policy has a goal of assigning or shifting commercial, industrial and new residential

water demands from the State Water Project supply to more reliable alternate sources of water. This policy further articulates the manner in which the City will consider and evaluate new development proposals and provides guidance on acceptable methods for offsetting new water demands within the existing water system or bringing new water supplies to the City.

1.2 PG&E

PG&E actively collaborates with the City of American Canyon to promote energy conservation programs pertaining to industrial, commercial, municipal, and residential uses. The primary programs currently promoted in American Canyon are described below.

CalPOP Project

PG&E contracts with Quantum Energy Services & Technologies, Inc. (QuEST) to provide the California Wastewater Process Optimization Program (CalPOP) to municipal and other wastewater treatment facilities in its territory. CalPOP provides no-cost engineering services to identify energy saving measures, and provides incentives for the installation of measures that improve wastewater processes, reduce operating costs and save energy (QuEST, 2012). The City of American Canyon owns and operates the American Canyon Wastewater Treatment Plant (WWTP) which treats domestic and industrial wastewater flows. The WWTP participated in CalPOP in 2012, during which time QuEST provided a team of engineering experts who spent time with facility operators, collected information, troubleshot problem areas, assessed system operations and performance, and recommended measures to improve system operations and reduce energy consumption. Specifically, the project entailed optimization of the dissolved oxygen controls and various control upgrades. CalPOP program savings at the American Canyon WWTP totaled over 800,000 kWh (Lacson, 2012).

2010 Street Light Relamping Project (Exterior Lighting Retrofit Program)

In 2010 the City received an Energy Efficiency and Conservation Block Grant (EECBG) from the U.S. Department of Energy, funded by the American Recovery and Reinvestment Act of 2009 (ARRA) to convert a portion of City-owned street lights to more energy efficient light-emitting diode (LED) units (American Canyon, 2010c). PG&E provided the City with a comprehensive inventory of American Canyon's street lights, as well as program guidelines, a list of eligible LED fixtures, guidance during installation of the new fixtures, and rebates for the purchase of the LED fixtures. In total, the 2010 Street Light Relamping project replaced over 200 incandescent street luminaries with LEDs (Lacson, 2012). This represents approximately one-fifth of City-owned street lights, and work was performed on existing street lights on American Canyon Road, Wetlands Edge Road, the Wastewater Treatment Plant, City Hall, and in the following subdivisions: Waterton, Montevino, Ocean View Estates, America, Poppy Meadows, and Entrada. All new street lighting in American Canyon is now required to be LED (Lacson, 2012).

Savings By Design

Savings By Design is a statewide program sponsored by California Utilities that encourages high-performance non-residential building design and construction. The program offers building owners and design teams services including: design assistance to support the integration of innovative design technologies into new construction projects; owner incentives to help offset the costs of energy efficient buildings; design team incentives that reward designers who meet ambitious energy

reduction targets; and energy design resources including analysis tools, training, and in-depth information in efficient technologies and strategies (Savings By Design, 2012).

For the past four years, PG&E has coordinated with the American Canyon Community Development Department to integrate Savings By Design into the City's permit application process. The Community Development Department requests that builders and developers contact PG&E regarding possible incentives, as part of the planning checklist. The City also submits new non-residential construction permit information to a PG&E representative, who provides Savings By Design information to the applicant (Lacson, 2012). During the first three years of the program, PG&E received four leads from the City, of which one participated in Savings By Design (AutoZone). PG&E has not received any notifications for potential Savings By Design projects in the last year, possibly because of a lull in the construction market in American Canyon (Lacson, 2012).

Customized Retrofit Incentives

Under the [2012 Customized Retrofits Incentives](#) program, PG&E provides businesses that install energy-saving equipment with cash payments, based on the actual kWh or therm savings that are achieved (PG&E, 2012). This program has been utilized in American Canyon, focusing mainly on medium to large commercial/industrial customers. However, the participation rates for this program are unknown (Lacson, 2012).

Under the [Technology Incentive for Demand Response Program](#), PG&E offers technology incentives for the installation of equipment or control software that provide demand response for customized retrofit. Businesses that install and utilize demand response equipment are rewarded with incentives based on the amount of peak load reduction they are able to achieve. PG&E pays \$125 per kilowatt (kW) of demand response load reduction (dispatchable load) that will be controlled by the technology, up to 75 percent of the demand response technology project cost. \$50 per kW is paid if either Demand Bidding or the PeakChoice™ Best Effort plan is the chosen Demand Response program (PG&E, 2012). To date, American Canyon has experienced low participation in this program. Due to the nature of businesses that comprise American Canyon's large energy consumers, these businesses will not stop manufacturing or processing in response to demand response, because the amount of money they would receive from the demand response program would not offset their loss in manufacturing (Lacson, 2012).

Customized Energy Efficiency Rebate Applications

For businesses, PG&E offers rebates for the purchase of energy efficient products pertaining to business computing, refrigeration, HVAC, boilers and water heating, lighting, food service, and appliances and general improvements. For homeowners, PG&E offers rebates pertaining to appliances, general improvements, heating and cooling, pool pumps, appliance recycling, and lighting. Catalogues provide specifications and lists of qualifying products, and customers can apply or check the status of their rebate online at www.pge.com/mybusiness/erebates. The PG&E Business Rebate Application Program is heavily subscribed in American Canyon, with many small and medium customers participating (Lacson, 2012).

Commercial HVAC Quality Maintenance Program

PG&E's Commercial HVAC Quality Maintenance Program provides business customers with a way to bring qualifying HVAC units to a higher level of performance, efficiency, and reliability.

Under the Program, customers enroll in a three-year air conditioning maintenance service agreement designed to: lower operating, repair, and replacement costs; improve indoor air quality and thermal comfort; prevent HVAC unit failures that could threaten business operations; and reduce an entity's carbon footprint. This is a new program in American Canyon, first offered in 2011, and participation has been low (Lacson, 2012).

1.3 Sustainable Napa County, Napa County Energy Watch

The Sustainable Napa County (SNC) website offers tips and resources for reducing energy consumption, including links to the U.S. Green Building Council, U.S. Department of Energy, and Energy Star (SNC, 2012). Napa County Energy Watch (NCEW), a three-year program administered by SNC, was formed as a partnership between SNC and PG&E to bring energy efficiency and conservation resources, rebates and incentives to municipal and special district customers, nonprofits, and small commercial/businesses.

SNC is also working with partners in the Napa County community on programs to reach residential customers, including promoting PG&E's Energy Upgrade California Program (SNC, 2012). Energy Upgrade California Napa County helps residents make home improvements to save energy and make homes more comfortable (Energy Upgrade California, 2012). The program provides Whole Home Rebates that reward homeowners for addressing home energy efficiency needs as a system instead of piece by piece. The program's "one-stop shop" guides homeowners through the following process:

- Select an upgrade package that suits your needs
- Decide whether or not to pursue a Whole-House Home Energy Rating
- Find a participating contractor to complete your upgrade and maximize your savings
- Get rebates, incentives and financing to help pay for your upgrade

2. Policy Gaps

There are several potential opportunities that can be considered by the City of American Canyon to increase municipal and community-wide energy efficiency. These opportunities will form the foundation of the specific policies and measures that will be included in the City's EECAP. Many of the potential opportunities outlined below expand upon existing initiatives currently in place or proposed by the City of American Canyon, as described in the earlier portions of this memorandum. Some of the potential opportunities listed below are new recommendations to be incorporated into the EECAP based on this policy gap analysis.

These opportunities are divided between two strategic sectors: Table 1 shows potential opportunities for municipal operations, while Table 2 shows potential opportunities for energy efficiency in the greater community. The draft list of opportunities below is further organized by topic areas which loosely correspond to the various Elements listed in the General Plan and include: New Construction, Existing Development, Procurement Policy & Operations, Renewable Energy, Water & Waste, Outdoor Lighting, and Education/Outreach. Each potential opportunity is given a brief description and a justification for why it may be developed further. The ESA Team will work with the City to further develop, define, and provide details for these opportunities for inclusion in the draft EECAP.

Table 1: American Canyon Municipal Policy Gap Analysis

Topic	Potential Municipal Opportunity	Justification
New Construction	Continue to use the Savings by Design program for all new municipal buildings and attempt to achieve 15% savings over Title 24	Continue to leverage the existing relationship with PG&E and the Savings by Design Program Team to set realizable goals for municipal projects and achieve high energy efficiency in new designs
Existing Development (Retrofits & Audits)	Partner with PG&E to conduct energy efficiency assessments and audit the largest municipal buildings for energy saving opportunities (See GHG Inventory report for a list of the city's top 10 energy consuming buildings/facilities)	Leverage partnership to extend energy efficiency building retrofits and upgrades
	Conduct benchmarking to analyze the performance of high energy-using municipal facilities (for example, use the EnergyStar Portfolio Manager tool for benchmarking)	Measure and compare energy performance of similar buildings. PG&E may provide training, guidance, or funding for benchmarking
	Explore energy management systems and performance displays in all public buildings	Establishes system to measure, track and analyze building energy performance
	Colored, "cool" or "green" roofs be established on all City buildings, especially as roofs are replaced at the end of their useful lives	Builds upon and expands City's incorporation of passive solar design language in the zoning and development standards; Intention is to further mitigate the urban heat island effect. (Cool roofs provide insulation and reduce energy demand.)
	Require "Cool" or reflective pavement be established on all exposed municipal parking lot projects	Builds upon and expands City's incorporation of passive solar design language in the zoning and development standards. Intention is to further mitigate the urban heat island effect
	Continue participation in relevant PG&E programs, such as: PG&E SmartRate Program, PG&E SmartAC, PG&E Commercial HVAC Quality Maintenance Program, PG&E Energy Savings Assistance Program, and PG&E Zero Net Energy Pilot Program	Leverage partnership to extend energy efficiency building retrofits and upgrades. Programs encourage energy savings through financial savings, design features, and automated energy management devices
Procurement Policy & Operations	Develop a formal Environmental Procurement Policy that focuses on energy, recycled content, and the minimization of hazardous chemicals; Could also consider Energy Star compliant equipment and energy efficiency criteria in evaluation of proposals and permit applications	Expands upon initiative to introduce concepts of energy efficiency and life cycle costing to City planning
	Upgrades to the computer network or server optimization to increase energy efficiency	Technology improvement to improve energy efficiency
	Plug-in smart power strips from PG&E	Technology improvement to improve energy efficiency; new equipment may be provided by PG&E
Renewable Energy	Explore financing opportunities for solar panels or wind generators	Supports City policy to develop safe, economical renewable energy resources
	Establish a goal for renewable energy generation and use (10% of total energy used)	Supports City policy to develop safe, economical renewable energy resources
Water & Waste	Have City of American Canyon Water participate in PG&E's Agricultural Pumping Efficiency Program	Supports numerous City water conservation initiatives
	Expand low-water landscaping for existing parks	Supports initiative to promote water conservation and use of drought-tolerant species in landscape design
	Install semi-pervious surfaces	Supports initiative to reduce impervious areas

Table 1: American Canyon Municipal Policy Gap Analysis (continued)

Topic	Potential Municipal Opportunity	Justification
Outdoor Lighting	Expand Street Light Relamping project	Build upon existing program and complete remaining 80% of streetlight conversion to more efficient fixtures
	Conduct audits of outdoor lighting of parks and parking lots and retrofit as possible	Build upon existing program and consider retrofits in other outdoor lighting fixtures
Education/ Outreach	Encourage City staff to continue to have open lines of communication with PG&E	Gain full potential leverage from PG&E relationship
	Continue staff training and regularly disseminate information relating to energy awareness.	Supports initiative to promote energy conservation through education and outreach programs

Table 2: American Canyon Community Policy Gap Analysis

Topic	Potential Community Opportunity	Justification
New Construction	Develop a voluntary energy efficiency checklist for new residential and nonresidential construction; Incorporate energy efficiency standards outlined in LEED, Build It Green or CalGREEN protocols	Supports policies to increase energy efficiency for new construction and interest in encouraging new development to be energy efficient
	Provide a streamlined permit process for new construction projects that incorporate energy efficiency improvements over Title 24, or include all items on the voluntary checklist.	Supports policies to increase energy efficiency for new construction and interest in encouraging new development to be energy efficient
	Continue to work with PG&E and the Savings by Design Program for all new nonresidential new construction projects	Continue to leverage the existing relationship with PG&E and the Savings by Design Program Team to set realizable goals for nonresidential projects and achieve high energy efficiency in new designs.
	Require solar ready roofs that are pre-wired and ready for the installation of PV panels and solar water heating systems	Supports policy relating to solar requirements for all major subdivisions and expediting solar installation through ministerial review
	New development to exceed California's Title 24 energy efficiency standard by 15% or more	Supports land use initiatives for new development in the General Plan when the new development occurs
	New development to reduce water use 20% by 2020	Supports land use initiatives for new development in the General Plan /when new development occurs
Existing Development (Retrofits & Audits)	Develop a residential and nonresidential energy efficiency checklist to be used at the time of building sale	Expands energy efficiency standards beyond new development and municipal buildings; Supports goal in the City's Housing Element of the General Plan to encourage energy conservation in new housing and existing housing
	Partner with PG&E to encourage residents and businesses to conduct energy efficiency assessments and upgrades	Leverages utility programs and expands energy efficiency standards beyond new development and municipal buildings; Consider other funding sources, such as Community Development Block Grants
	Partner with PG&E to develop a Heat Map	Used to target energy efficiency improvements
	Encourage home and commercial/industrial energy benchmarking	Able to measure and compare energy performance of similar buildings
	Work with landlords to take advantage of energy efficiency programs for leased units	Expands energy efficiency standards beyond new development and municipal buildings to include renter-occupied housing

Table 2: American Canyon Community Policy Gap Analysis (continued)

Topic	Potential Community Opportunity	Justification
Education and Outreach	Use PG&E data to target specific customer sectors for participation in PG&E programs	Examples include food processing and storage customers, as well as sectors that currently have low or medium participation rates and/or low savings-to-use ratios
	Encourage participation in PG&E programs and other programs, such as: PG&E SmartRate Program, PG&E SmartAC, Energy Upgrade California, PG&E Energy Savings Assistance Program, PG&E Zero Net Energy Pilot Program, and PG&E CARE Program	Programs encourage energy savings through financial savings, design features, and automated energy management devices
	Expand Education and Outreach to developers, architects, students, and contractors, and the community at large	Need to build capacity in the community; Supports the following objective in the General Plan: Increase public awareness of energy conservation needs and means in order to encourage informed choices about energy conservation by the general public Capitalize on existing programs, such as the outreach in the Family Services Component of the Parks Master Plan
Water & Waste	Explore additional rebate programs for water conservation	Supports numerous water conservation initiatives
	Consider a food-to-waste biomass facility. Consider partnering with Napa County or Recology.	Expands energy efficiency measures to include waste; Supports City policy to develop safe, economical renewable energy resources

3. Framework for Prioritizing Energy Efficiency Strategies

Energy efficiency programs and policies (strategies) developed for American Canyon will be evaluated to identify the greatest opportunities for energy reduction in the community that can be achieved with minimum cost. Strategies proposed in the EECAP will be broadly prioritized as 1 (high priority), 2 (medium priority), and 3 (low priority), based on the following matrix:

Prioritization Matrix

		Costs		
		High	Medium	Low
Benefits	Low	3	3	2
	Medium	3	2	1
	High	2	1	1

In this framework, cost analysis includes qualitative evaluation of:

- Estimated costs (both construction and annual operating/staffing if applicable) or potential monetary savings to the city government and to the community
- Feasibility of implementation, including assessment of effort, required staff time, potential barriers, and suitability as an “early action” program

- Potential funding sources
- Implementation timeframe, typical “payback” period (if applicable) and expected participation rates

Benefits consider qualitative evaluation of:

- Energy and/or GHG reduction potential
- Co-benefits, including mitigation of risk from adverse impacts of climate change
- Educational impact and potential for demonstrating leadership to community

Subsequent to prioritization of the measures, ESA/KEMA will quantify the energy efficiency effectiveness of up to 10 measures, as well as associated monitoring and implementation actions, starting with measures that have been identified as Priority 1 according to the prioritization matrix.

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Appendix D

Energy and GHG Inventory Methodology

Emissions Inventory Boundaries

Establishing the boundaries of an emissions analysis is an important first step in the GHG inventory process. A city exerts varying levels of control or influence over the activities occurring within its borders. The community-wide GHG inventory should be defined broadly enough to include all emissions sources that fall within the local government's direct and indirect control. These sources tend to be those that are affected by land use decisions, municipal codes, and General Plan policies, and correspondingly are included in a city's GHG reduction measures. The Bay Area Air Quality Management District (BAAQMD) has issued inventory guidelines that are consistent with this notion, recommending inclusion of all sources that correlate to a mitigation measure included in the City's Climate Action Plan. In general, the inventory should encompass sources that are within the purview of the city's discretionary actions and regulatory authority, including sources of indirect emissions that can be influenced by the city policies or programs, such as water conservation or waste reduction.

American Canyon's Organizational Boundary

Setting an organizational boundary for a GHG inventory involves identifying the facilities and operations that are to be included. National and International GHG accounting standards¹ define the organizational boundary as the boundary that determines the operations owned or controlled by the reporting entity. The City of American Canyon's community-wide inventory encompasses the GHG emissions resulting from activities taking place within the City's geopolitical boundary,

¹ The Greenhouse Gas Protocol (GHG Protocol) from WRI/WBCSD (2008) forms the basis for most GHG accounting protocols, available at: <http://www.ghgprotocol.org/>

where the local government has jurisdictional authority. Although the City government has limited control over many of the emissions-producing activities of its residents and businesses, the jurisdictional boundary is appropriate for a community-wide inventory because it should represent the entire city's emissions, not just the local government's emissions. The City of American Canyon's municipal inventory encompasses the GHG emissions resulting from actions governed directly by the local government, such as municipal buildings, fleet, and streetlights.

Emissions Sources in American Canyon

The GHG Protocol defines the operational boundary as the sum of all sources of direct and indirect emissions that are included in the inventory. The GHG Protocol divides the operational boundary into three different Scopes, defined as follows:

- **Scope 1** emissions are those that come from sources that are owned or controlled by the reporting entity. From the community perspective, Scope 1 emissions are direct GHG emissions from sources owned or controlled by residents, businesses, government, and any other property owners or leasers within the entity's jurisdictional boundaries. Such sources include stationary emitters like furnaces and boilers, and mobile emitters like vehicles and construction equipment.
- **Scope 2** emissions are indirect GHG emissions related to the consumption of purchased energy (i.e., electricity) that is produced by third-party entities such as power utilities. From the community perspective, the emissions associated with all power purchased by the community (residential, commercial/industrial, and government) are considered Scope 2.
- **Scope 3** emissions are other indirect GHG emissions not covered by Scope 2 that are associated with community activities. For a community inventory this generally includes emissions occurring upstream or downstream of a community activity, such as the methane emissions resulting from degradation of the community's solid waste deposited at a landfill outside of city limits; or the electricity used to pump water to the City from upstream reservoirs. Quantification and reporting of Scope 3 emissions is generally considered optional, but including them in a community-wide inventory is appropriate where there is local control over an activity that has an indirect emissions reduction impact, such as diverting waste from landfills.

The community-wide inventory includes emissions from the following sectors. As shown below, emissions from most sectors derive from multiple sources that sometimes represent more than one scope:

- **Commercial/Industrial Energy:** This sector is comprised of direct stationary emissions from combustion of natural gas and other fuels (Scope 1) and indirect emissions from purchased electricity (Scope 2);
- **Residential Energy:** This sector includes direct stationary emissions from natural gas combustion (Scope 1) and indirect emissions from purchased electricity (Scope 2);
- **On-Road Transportation:** This sector is comprised of emissions from on-road gasoline- and diesel-powered vehicles in addition to emissions from off-road vehicles such as construction equipment and lawnmowers (Scope 1);
- **Off-Road Transportation:** This sector is comprised emissions from off-road lawn and garden equipment, construction equipment, industrial equipment, and light commercial equipment (Scope 1);

- **Agriculture:** This sector includes emissions from off-road gasoline- and diesel-powered agricultural vehicles (Scope 1);
- **Solid Waste:** This sector includes indirect methane (CH₄) emissions from the anaerobic decomposition of organic material sent to landfill (Scope 3); and
- **Wastewater:** This sector includes indirect process and fugitive emissions from septic tanks and wastewater treatment processes (Scope 3).

The municipal inventory includes emissions from the following sectors:

- **Buildings/Facilities:** This sector is comprised of direct stationary emissions from natural gas combustion (Scope 1) and indirect emissions from purchased electricity (Scope 2), for City buildings and facilities;
- **Streetlights:** The sector includes purchased electricity (Scope 2) for City streetlights and traffic signals;
- **Water:** The sector is comprised of indirect emissions from electricity used to convey water and wastewater within the City (Scope 2);
- **Municipal Fleet:** This sector includes direct emissions from fuel combustion in fleet vehicles (Scope 1); and
- **Solid Waste:** This sector is comprised of solid waste sent to landfill from government-owned and/or operated facilities (Scope 3).

Emissions Quantification Methodology

Over the past several years, a need has been developing for a standardized approach to quantifying community (community-wide and municipal) GHG emissions. ICLEI has worked with the California Air Resource Board (CARB), BAAQMD, and other state and regional agencies to develop standardized methods for inventorying community emissions. ICLEI, along with CARB, the California Climate Action Registry (CCAR), and the Climate Registry (TCR), has co-developed methods for quantifying and reporting GHG emissions from local government sources, which have been incorporated into the Local Government Operations Protocol (LGOP).²

The City of American Community GHG 2010 Inventory was developed using guidance, methodology, and emission factors from the LGOP, the GHG Protocol from WRI/WBCSD, and TCR's General Reporting Protocol. Guidance from BAAQMD³ was also used where appropriate, for local data and regionally-specific methodology.

In addition, ESA reviewed the methodology and activity data used to create the 2005 base year GHG Inventory contained in the Draft Napa Countywide Community Climate Action Plan (Climate Protection Campaign & MIG, 2009). For some emission sources (e.g. electricity, natural gas, solid waste, wastewater, and on-road vehicles), the 2005 inventory was revised to incorporate data that more accurately represents emissions-generating activities in the City of American Canyon and/or robust methodologies appropriate for climate action plans.

² LGOP version 1.1, published May 2010, available at: <http://www.theclimateregistry.org/resources/protocols/local-government-operations-protocol/>

³ GHG Plan Level Quantification Guidance, BAAQMD, April 15, 2010.

Community-wide Inventory

Commercial/Industrial Energy Emissions

Commercial/Industrial energy emissions account for the second largest source of City emissions. Activity data for 2005 and 2010 (metered electricity and natural gas use within the City's jurisdiction) were obtained from PG&E.⁴ Direct emissions from natural gas combustion were calculated using standard emission factors for natural gas published by the California Climate Action Registry and PG&E.⁵ Indirect emissions from electricity generation were calculated using the verified emission factors reported by PG&E for its 2005 and 2010 operations for CO₂, as well as LGOP v.1.1 emission factors for CH₄ and N₂O.⁶

Estimates of electricity purchased through Direct Access (DA) contracts are derived from county level DA consumption figures provided by the California Energy Commission.⁷ Due to the lack of available DA data specific to American Canyon, the City's proportion of electricity was pro-rated based on the City's share of population relative to that of Napa County as a whole.

Estimates of stationary combustion emissions from fuels other than utility-supplied natural gas are based on information provided in the BAAQMD's Source Inventory of Bay Area Greenhouse Gas Emissions.⁸ This regional inventory lists the 200 facilities in the Bay Area contributing the highest levels of direct GHG emissions; however, none of these facilities are located in American Canyon. Any unidentified sources smaller than this are considered de minimis, or inconsequential to the accuracy of the total inventory. As such, this inventory does not include stationary combustion from fuels other than utility-supplied natural gas.

Residential Energy Emissions

Residential energy-related emissions are a large contributor to the City's community inventory. Activity data (metered electricity and natural gas use within the City's jurisdiction) for 2005 and 2010 were obtained from PG&E.⁹ Direct emissions from natural gas combustion and electricity emissions were calculated using the same methodology as for commercial/industrial energy emissions, with residential-specific emission factors, as appropriate.

Community Transportation (On-road and Off-road) Emissions

As with many Bay Area cities, vehicle travel in American Canyon is the City's largest single source of GHG emissions. Vehicle miles traveled (VMT) is an important metric since most methods for estimating transportation emissions are based on VMT. Community-wide VMT estimates are highly dependent on the accounting rules and analytical tools used. For American Canyon, estimates of VMT for on-road vehicular transportation were derived using the Napa-Solano Transportation Demand Model (TDM), from Fehr and Peers (2011¹⁰). The methodology used by the TDM Model is consistent with guidelines being developed for implementation of

⁴ PG&E, 2012 a. Community Wide GHG Inventory Report for City of American Canyon 2003 to 2011. May 27, 2012.

⁵ 11.7 lbs CO₂/therm

⁶ 489 lbs CO₂, 0.3 lbs CH₄, and 0.011 N₂O generated in 2005; 445 lbs CO₂, 0.29 lbs CH₄, and 0.01 lbs N₂O for 2010.

⁷ CEC, 2012. Napa County Direct Access Energy. Received July 6, 2012.

⁸ Inventory of Bay Area Greenhouse Gas Emissions, Base Year 2007, BAAQMD, Updated: February 2010, available at: <http://www.baaqmd.gov/Divisions/Planning-and-Research/Emission-Inventory-and-Air-Quality-Related/Emission-Inventory/Greenhouse-Gases.aspx>

⁹ PG&E, 2012a.

¹⁰ ICF, 2011. Draft Napa County Climate Action Plan, January 2011.

SB 375, following the Regional Targets Advisory Committee (RTAC) recommendations for VMT accounting:¹¹

- Include 100% of all trips on city roadways traveling between origins and destinations within American Canyon;
- Include 50% of the trips traveling between American Canyon and other destinations;
- Exclude trips where the origin and destination are both located outside of American Canyon, otherwise known as “through” trips.

CARB’s EMFAC2007 model was used to calculate base year and future CO₂ emissions associated with local conditions and vehicle fleet information. CH₄ and N₂O emissions were incorporated following EPA guidance, which assumes that 5% of all GHG emissions from passenger vehicles derive from CH₄, N₂O, and HFCs.¹²

To estimate mobile off-road emissions, non-point source off-road emissions were obtained from CARB, as provided in the Draft Napa Countywide Climate Action Plan.¹³ Sources of off-road emissions include lawn and garden equipment, construction equipment, industrial equipment, and light commercial equipment.

Agriculture

CARB’s Offroad 2007 model was used to find agriculture vehicle emissions. Emissions were apportioned to the City based on the city’s percentage of total County population. Since American Canyon does not have active agricultural land within its City limits, there were no agriculture emissions related to fertilizer use or enteric fermentation within the City.

Solid Waste Emissions

Methane (CH₄) emissions from solid waste were calculated using EPA’s LandGEM software¹⁴ using the following assumptions:

- Landfill disposal of 2010 waste = 9909.77 short tons per year¹⁵;
- 100-year timeframe for waste decomposition;
- Landfill gas capture rate = 75%;
- LandGEM parameters:
 - ◆ Methane generation rate (k) = 0.02;
 - ◆ Potential methane generation capacity (Lo) = 170;
 - ◆ NMOC concentration = 600;
 - ◆ Methane content = 50%

¹¹ Recommendations of the Regional Targets Advisory Committee (RTAC) Pursuant to Senate Bill 375, 2009. Available at: <http://www.arb.ca.gov/cc/sb375/rtac/report/092909/finalreport.pdf>

¹² Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle (Step 4), EPA, Updated February 2005. Available at: <http://www.epa.gov/otaq/climate/420f05004.htm#step4>

¹³ Climate Protection Campaign & MIG, 2009. Draft Napa Countywide Community Climate Action Plan (Internal Review Only, Not for Public Distribution). October 2009.

¹⁴ EPA’s Landfill Gas Emissions Model (LandGEM version 3.02, released May 12, 2005) is available at <http://www.epa.gov/lmop/publications-tools/>

¹⁵ Calrecycle, 2010. Jurisdiction Diversion/Disposal Rate Detail for American Canyon 2010. Accessed July 9, 2012. Publicly available at: <http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionDetail.aspx?JurisdictionID=14&Year=2010>

Wastewater Emissions

This category includes indirect emissions from electricity used to convey water from the point of collection to the City boundary (upstream water supply emissions) and emissions that result from wastewater treatment processes and septic system infrastructure. Methane (CH₄) is emitted from treatment processes at the American Canyon Wastewater Treatment Plant (WWTP) that result in the incomplete combustion of digester gas. CH₄ also escapes from septic systems throughout the city. Nitrous oxide (N₂O) emissions result from the nitrification/ denitrification treatment process and from WWTP effluent discharged to aquatic environments.

Process, fugitive, and stationary emissions associated with wastewater treatment and septic systems were estimated using the LGOP.¹⁶ Wastewater emissions were calculated using the relevant population-based method. Wastewater-related stationary CH₄, process CH₄, fugitive CH₄, and process N₂O emissions are included.

Municipal Inventory

Energy Emissions (Buildings/Facilities, Streetlights, and Water)

Activity data (metered electricity and natural gas use within the City's jurisdiction) for 2005 and 2010 municipal operations were obtained from PG&E.¹⁷ Equivalent methodologies were used for municipal energy as for community energy emissions. Data was sorted as buildings/facilities, streetlights, or water based on account premise type, business activity, and rate schedule.

This inventory does not include emissions from stationary sources, such as on-site fossil fuel-based energy production, including for emergency generators and boilers (Scope 1). City staff confirmed that the City's boilers do not use fuel that is not captured in PG&E data.¹⁸ As of publication of this document, ESA was waiting for confirmation that the city's emergency generators did not use additional fuel.

Fleet

Napa Valley Petroleum provided data for all fuel purchased by the City of American Canyon in 2010 for use in fleet vehicles, including fuel used as part of the card-lock program. Direct emissions from unleaded gasoline and diesel were calculated using the standard emission factors published by the LGOP.

Solid Waste

Methane (CH₄) emissions from government operations solid waste were calculated using data obtained from Recology¹⁹, input into EPA's LandGEM software²⁰ using the same assumptions that were used for community solid waste.

¹⁶ LGOP (Version 1.1, released May 2010) is available at <http://www.arb.ca.gov/cc/protocols/localgov/localgov.htm>

¹⁷ PG&E, 2012 b. Municipal GHG Inventory Report for City of American Canyon 2003 to 2011. May 27, 2012.

¹⁸ City of American Canyon, 2012. Phone conversation with Mary Holstein and Henry Davidson (City of American Canyon) and Josh Smith (ESA), June 2012.

¹⁹ Recology, 2012. Recology American Canyon Quarterly Reporting Tonnage Data for Calendar Year 2010.

²⁰ EPA's Landfill Gas Emissions Model (LandGEM version 3.02, released May 12, 2005) is available at <http://www.epa.gov/lmop/publications-tools/>



Appendix E

Cost Benefit Analysis Methodology

This appendix describes the measure-specific key assumptions, calculation methodologies, and data sources used to estimate the energy and greenhouse gas (GHG) savings associated with the City of American Canyon (City) Energy Efficiency Climate Action Plan (EECAP) Priority 1 measures. This information is provided separately for each measure, and also includes supporting information such as links to resources available to support the development and implementation of each measure (e.g., links to information from utilities, U.S. EPA, U.S. Department of Energy (DOE), etc.).

As discussed in EECAP Chapters 3 and 4, measures categorized as ‘supporting measures’ do not result in direct reductions in energy use but are necessary to support implementation of other EECAP measures. Therefore, this appendix does not include calculations of energy and cost savings for supporting measures, including:

- Measure C-6: Savings by Design for new non-residential construction
- Measure C-9: American Canyon “Green Team”
- Measure C-10: Work with NCEW and PG&E to expand outreach
- Measure C-11: Solar ready roofs for new construction
- Measure M-3: Benchmark Municipal Facilities
- Measure M-6: Communication with PG&E and NCEW
- Measure M-7: Staff Training

Furthermore, measures categorized as Priority 2 and Priority 3 are also not quantified at this time. These include:

- Measure C-13: Community Water Reduction
- Measure M-4: Street Light Retrofits
- Measure M-5: New Municipal Construction Energy Standards
- Measure M-8: Renewable Energy Target

- Measure M-9: Advanced Pumping Efficiency Program

Measure C-1	Targeted energy efficiency outreach to non-residential energy customers
Key assumptions and calculation methodology	<p>Currently, there are 625 licensed businesses in the City. This measure assumes that each year 5% of businesses will voluntarily make changes or perform upgrades to reduce energy consumption, and each business will achieve 20% energy (natural gas and electricity) savings. The 20% savings is a general average of the savings-to-use ratio achieved by non-residential PG&E customers in the past.</p> <p>To calculate the energy and cost savings for this measure, the average energy usage per business was calculated, which was based on the total energy use in the non-residential sector divided by the number of businesses in the City. Once the average energy use per business was calculated, energy savings were estimated according to the participation rate noted above (5% per year) and the energy savings assumption noted above of 20% for each participating business.</p>
Annual electricity savings by 2020:	5,126,744 kWh
Annual natural gas savings by 2020:	368,754 therms
Annual GHG savings by 2020:	3,005 MTCO ₂ e
Annual energy cost savings by 2020:	\$1,265,755
Upfront and first cost to City:	<\$50,000
First year electricity savings:	640,843 kWh
First year natural gas savings:	46,094 therms
First year cost savings:	\$158,219
Supporting information:	<p>Additional information regarding non-residential energy efficiency programs is available on the PG&E website: http://www.pge.com/mybusiness/energysavingsrebates/</p>
Data Sources:	<p>PG&E, 2012, for 2010 energy consumption in the non-residential sector.</p> <p>The number of business licenses issued is based on data from the City's website: http://www.ci.american-canyon.ca.us/Modules/ShowDocument.aspx?documentid=221</p>

Measure C-2	Voluntary non-residential energy efficiency checklist
Key assumptions and calculation methodology	<p>This measure assumes 1% of businesses will be sold each year, for a total of 6.25 buildings sold annually. (The total number of business licenses in the City is 625). This measure also assumes 30% of the businesses sold will use the checklist to achieve energy savings. Total energy savings are assumed to be 15% for each business that uses the checklist.</p> <p>To calculate the energy and cost savings for this measure, the average energy usage per business was calculated, which was based on the total energy use in the non-residential sector divided by the number of businesses in the City. Once the average energy use per business was calculated, energy savings were estimated according to the participation rate noted above (30% of the non-residential buildings sold each year) and the energy savings assumption noted above of 15% for each participating business.</p>
Annual electricity savings by 2020:	201,866 kWh
Annual natural gas savings by 2020:	14,520 therms
Annual GHG savings by 2020:	118 MTCO _{2e}
Annual energy cost savings by 2020:	\$49,839
Upfront and first cost to City:	<\$50,000
First year electricity savings:	28,838 kWh
First year natural gas savings:	2,074 therms
First year cost savings:	\$7,120
Supporting information:	<p>This measure builds upon the requirements of AB1103/AB 531, which is described more fully on the following website : http://www.energy.ca.gov/ab1103/</p>
Data Sources:	<p>PG&E, 2012, for non-residential energy use information. The website www.loopnet.com was used to determine the approximate number of non-residential buildings sold each year.</p> <p>The number of business licenses issued is based on data from the City's website: http://www.ci.american-canyon.ca.us/Modules/ShowDocument.aspx?documentid=221</p>

Measure C-3	Participate in a non-residential PACE Program
Key assumptions and calculation methodology	<p>This measure quantifies the impact of multiple businesses utilizing PACE financing for energy efficiency improvements. Measure C-12 quantifies the impact of utilizing PACE financing for renewable energy installations.</p> <p>This measure assumes that 3.5% of businesses will use PACE financing for energy efficiency upgrades each year, and that each business using PACE financing for energy efficiency upgrades will achieve 20% reduction in energy use.</p> <p>To calculate the energy and cost savings for this measure, the average energy usage per business was calculated, which was based on the total energy use in the non-residential sector divided by the number of businesses in the City. Once the average energy use per business was calculated, energy savings were estimated according to the participation rate noted above (3.5% of the non-residential buildings to participate each year) and the energy savings assumption noted above of 20% for each participating business.</p>
Annual electricity savings by 2020:	3,140,131 kWh
Annual natural gas savings by 2020:	225,862 therms
Annual GHG savings by 2020:	1.841 MTCO _{2e}
Annual energy cost savings by 2020:	\$775,275
Upfront and first cost to City:	\$50,000 - \$250,000
First year electricity savings:	448,590 kWh
First year natural gas savings:	32,266 therms
First year cost savings:	\$110,754
Supporting information:	<p>Additional information on PACE Programs: PACE Now : http://pacenow.org/</p> <p>Sonoma County PACE Program: http://www.sonomacountyenergy.org/lower.php?url=about-us</p> <p>Other cities with a non-residential PACE program : http://www.figtreecompany.com/commercial-pace-areas/</p>
Data Sources:	<p>PG&E, 2012, for non-residential energy use information.</p> <p>Used results from the Sonoma County PACE program to develop assumptions regarding participation rates and energy savings : http://www.sonomacountyenergy.org/lower.php?url=sceip-reports</p> <p>The number of business licenses issued is based on data from the City's website: http://www.ci.american-canyon.ca.us/Modules/ShowDocument.aspx?documentid=221</p>

Measure C-4	Targeted energy efficiency outreach to residential energy customers
Key assumptions and calculation methodology	<p>According to the California Department of Finance, there were 5,982 households in American Canyon in 2010. This measure assumes that each year, 2% of existing households will voluntarily make changes or perform upgrades to reduce energy consumption, and each household will achieve 30% energy (natural gas and electricity) savings. The reduction of 30% is based on average reductions achieved in the Energy Upgrade California program.</p> <p>To calculate the energy and cost savings for this measure, the average energy usage per household was calculated, which was based on the total energy use in the residential sector divided by the number of households in the City. Once the average energy use per household was calculated, energy savings were estimated according to the participation rate noted above (2% per year) and the energy savings assumption noted above of 30% for each participating household.</p>
Annual electricity savings by 2020:	1,849,106 kWh
Annual natural gas savings by 2020:	132,959 therms
Annual GHG savings by 2020:	1,084 MTCO _{2e}
Annual energy cost savings by 2020:	\$487,072
Upfront and first cost to City:	\$50,000 - \$250,000
First year electricity savings:	231,138 kWh
First year natural gas savings:	16,620 therms
First year cost savings:	\$60,884
Supporting information:	<p>Additional information on Energy Upgrade California: http://www.pge.com/myhome/saveenergymoney/energysavingprograms/euca.shtml</p> <p>Additional information on PG&E residential energy saving opportunities: http://www.pge.com/myhome/saveenergymoney/moneysaver/</p>
Data Sources:	<p>PG&E, 2012, for residential energy use information.</p> <p>CA DOF, 2012, for number of households in 2010: http://www.dof.ca.gov/research/demographic/</p>

Measure C-5	Voluntary energy efficiency checklist for residential development
Key assumptions and calculation methodology	<p>This measure assumes 5% of homes will be sold each year, and that there are roughly 5,982 homes in the City (which is the number of households in the City). Thus, approximately 300 homes are sold annually. This measure also assumes 30% of the homes sold will use the checklist to achieve energy savings. Total energy savings are assumed to be 15% for each home that uses the checklist.</p> <p>To calculate the energy and cost savings for this measure, the average energy usage per household was calculated, which was based on the total energy use in the residential sector divided by the number of households in the City. Once the average energy use per household was calculated, energy savings were estimated according to the participation rate noted above (30% of the homes sold each year) and the energy savings assumption noted above of 15% for each participating household.</p>
Annual electricity savings by 2020:	606,738 kWh
Annual natural gas savings by 2020:	43,627 therms
Annual GHG savings by 2020:	356 MTCO ₂ e
Annual energy cost savings by 2020:	\$159,820
Upfront and first cost to City:	<\$50,000
First year electricity savings:	86,677 kWh
First year natural gas savings:	6,232 therms
First year cost savings:	\$22,831
Supporting information:	<p>The City of Berkeley has developed a mandatory checklist to be completed at the time of home sale ; details on the Berkeley program are provided on this website: http://www.ci.berkeley.ca.us/reco/</p>
Data Sources:	<p>PG&E, 2012, for residential energy use information.</p> <p>The website www.zillow.com was used to determine the approximate number of homes sold each year.</p> <p>CA DOF, 2012, for number of households in 2010: http://www.dof.ca.gov/research/demographic/</p>

Measure C-7	Require energy efficiency beyond state code for new non-residential construction
Key assumptions and calculation methodology	<p>To calculate energy and cost savings for this measure, the average energy usage per business was calculated, which was based on the total energy use in the non-residential sector divided by the number of businesses in the City. The average number of jobs per business was also calculated, by taking the total number of jobs in 2010 and dividing by the current number of licensed businesses in the City. The number of new businesses by 2020 was then estimated by taking the projected number of jobs in 2020 and dividing by the average number of jobs per business. (The average number of jobs per business is 5 and 88 new businesses are estimated to be added by 2020). Finally, the estimated electricity and natural gas use in 2020 attributed to new jobs and businesses was calculated by multiplying the estimated number of new businesses by the average energy used per business.</p> <p>The average energy savings per new business was assumed to be 15%. The total energy savings were calculated by multiplying 15% by the total energy use attributed to new businesses by 2020. Total energy savings were divided by ten years to determine the average savings that would occur in one year. For the mandatory component, this annual savings number was then multiplied by the number of years the measure will be in effect, which is 4 years if the implementation year is 2017. For the voluntary component, the participation rate is assumed at 25% for 4 years (2013 – 2016).</p>
Annual electricity savings by 2020:	680,347 kWh
Annual natural gas savings by 2020:	48,936 therms
Annual GHG savings by 2020:	399 MTCO _{2e}
Annual energy cost savings by 2020 by 2020:	\$167,973
Upfront and first cost to City:	\$50,000 - \$250,000
First year electricity savings:	34,017 kWh
First year natural gas savings:	2,447 Therms
First year cost savings:	\$8,389
Supporting information:	Case studies on other cities that have adopted similar ordinances are available from this link : http://californiaseec.org/documents/best-practices/local-reach-codes
Data Sources:	<p>PG&E, 2012, for non-residential energy use information.</p> <p>Source for the number of jobs in 2010 and projected number of jobs in 2020: Association of Bay Area Governments (ABAG), 2012. Plan Bay Area, Jobs-Housing Connection Strategy. Revised May 16, 2012.</p> <p>The number of business licenses issued is based on data from the City's website: http://www.ci.american-canyon.ca.us/Modules/ShowDocument.aspx?documentid=221</p>

Measure C-8	Require energy efficiency beyond state code for new residential construction
Key assumptions and calculation methodology	<p>To calculate the energy and cost savings for this measure, the average energy usage per household was calculated, which was based on the total energy use in the residential sector divided by the number of households in the City. The average number of persons per household (currently 3.3) was calculated by taking the total population in 2010 and dividing by the number of households in 2010. Next, the population in 2010 was subtracted from the total projected population in 2020 to determine the expected growth in population between 2010 and 2020; this difference is 7,135 persons. Finally, the estimated number of new homes was determined by dividing the total expected growth in population (7,135) by the average number of persons per household (3.3) and multiplying by 80%, as it is assumed that only 80% of the new households will need new housing, and the remaining 20% will fill currently vacant housing that is already available in the City. Thus, the total new homes expected by 2020 is 1,755.</p> <p>The average energy savings per new household was assumed to be 15%. The total energy savings were calculated by multiplying 15% by the total energy use attributed to new households by 2020. Total energy savings were divided by ten years to determine the average savings that would occur in one year. For the mandatory component, this annual savings number was then multiplied by the number of years the measure will be in effect, which is 4 years if the implementation year is 2017. For the voluntary component, the participation rate is assumed at 25% for 4 years (2013 – 2016).</p>
Annual electricity savings by 2020:	847,729 kWh
Annual natural gas savings by 2020:	60,956 therms
Annual GHG savings by 2020:	497 MTCO _{2e}
Annual energy cost savings by 2020:	\$223,300
Upfront and first cost to City:	\$50,000 - \$250,000
First year electricity savings:	42,386 kWh
First year natural gas savings:	3,048 therms
First year cost savings:	\$11,165
Supporting information:	Case studies on other cities that have adopted similar ordinances are available from this link: http://californiaseec.org/documents/best-practices/local-reach-codes
Data Sources:	PG&E, 2012, for residential energy use information. California DOF, 2012, for number of households in 2010 and population in 2010. City of American Canyon Urban Water Management Plan for population in 2020.

Measure C-12	Promote the installation of solar PV on existing buildings
Key assumptions and calculation methodology	This measure assumes that 0.5% of businesses and 1% of homes will purchase a PV system each year beginning in 2014. Using data from PG&E, the average size of each non-residential system is assumed to be 174 kW, and the average size of each residential system is assumed to be 4kW. The newly installed systems are assumed to have an overall efficiency of 19%.
Annual electricity savings by 2020:	8,887,292 kWh
Annual natural gas savings by 2020:	0 therms
Annual GHG savings by 2020:	1,809 MTCO ₂ e
Annual energy cost savings by 2020:	\$1,599,713
Upfront and first cost to City:	\$50,000 - \$250,000
First year electricity savings:	1,269,613 kWh
First year natural gas savings:	0 Therms
First year cost savings:	\$228,530
Supporting information:	One potential funding source is the PACE program, which is also described in Measure C-3.
Data Sources:	<p>PG&E, 2012, for data on the average size of currently installed PV systems.</p> <p>The number of business licenses issued is based on data from the City's website: http://www.ci.american-canyon.ca.us/Modules/ShowDocument.aspx?documentid=221</p> <p>California DOF, 2012, for number of households in 2010.</p>

Measure M-1	Increase participation in PG&E programs applicable to municipal operations
Key assumptions and calculation methodology	This measure assumes that 5% of existing municipal accounts in the Buildings and Facilities sector will participate each year in a new program to reduce energy. Each account to participate will achieve 20% energy savings, on average.
Annual electricity savings by 2020:	57,606 kWh
Annual natural gas savings by 2020:	897 Therms
Annual GHG savings by 2020:	16 MTCO ₂ e
Annual energy cost savings by 2020:	\$11,204
Upfront and first cost to City:	\$50,000 - \$250,000
First year electricity savings:	7,201 kWh
First year natural gas savings:	112 therms
First year cost savings:	\$1,400
Supporting information:	See the PG&E website for updated information about “Money-Back Solutions” for local governments, including information on simple improvement for municipal buildings, at: http://www.pge.com/mybusiness/energysavingsrebates/incentivesbyindustry/government/local/ .
Data Sources:	Current electricity and natural gas consumption provided by PG&E, 2012.

Measure M-2	Partner with PG&E to conduct energy efficiency assessments and audit the largest municipal buildings and operations for energy saving opportunities.
Key assumptions and calculation methodology	The total electricity and natural gas use in the top 10 energy consuming facilities was calculated using data provided by PG&E. This measure assumes that 25% of electricity and 25% of natural gas at the top 10 energy consuming facilities will be reduced through this measure.
Annual electricity savings by 2020:	701,880 kWh
Annual natural gas savings by 2020:	1,630 therms
Annual GHG savings by 2020:	152 MTCO ₂ e
Annual energy cost savings by 2020:	\$127,855
Upfront and first cost to City:	\$250,000 - \$1,000,000
First year electricity savings:	100, 269 kWh
First year natural gas savings:	233 therms
First year cost savings:	\$18,265
Supporting information:	<p>As documented in a case study, the City of Visalia, California implemented the following three high-priority projects to increase energy efficiency in their operations:</p> <ol style="list-style-type: none"> 1. Upgraded HVAC systems 2. Replaced indoor building lighting 3. Installed LED lighting in traffic signals <p>The City received rebates for each of these projects, and also borrowed money to implement energy-saving projects and repaid the loan with the funds from the energy savings. At the end of the 10-year loan, the money spent will be less than or equal to the savings from reduced utility bills. The total cost of the retrofits, after rebates, was estimated at \$775,825, while the total net present value of the retrofits for 10 years was estimated at \$1,263,890.</p>
Data Sources:	Current electricity and natural gas consumption provided by PG&E, 2012.

Measure M-10	Reduce municipal water use through building and landscape improvements
Key assumptions and calculation methodology	<p>Currently 7.3% of the electricity used in the City is used for municipal operations.</p> <p>Also, the total consumption of electricity in the municipal water supply sector is approximately 7.78 million kWh/year.</p> <p>This measure assumes that 7.8% of the 7.78 million kWh of electricity used in the municipal water supply sector is used to supply water to municipal facilities (i.e. for landscape irrigation at municipal parks). This measure also assumes that 15% of the electricity used for water supply to municipal facilities will be reduced by implementing further water conservation efforts.</p>
Annual electricity savings by 2020:	59,779 kWh
Annual natural gas savings by 2020:	0 therms
Annual GHG savings by 2020:	12 MTCO ₂ e
Annual energy cost savings by 2020:	\$10,750
Upfront and first cost to City:	\$50,000 - \$250,000
First year electricity savings:	8,540 kWh
First year natural gas savings:	0 therms
First year cost savings:	\$1,537
Supporting information:	<p>Outdoor water usage typically comprises 60 percent of water usage in most California cities. All new irrigation equipment should consider products that have earned the WaterSense label from the U.S. EPA.</p> <p>The efficiency of indoor water usage can be addressed by replacing older fixtures, such as faucet aerators and toilets. Using the water fixture flow rates found in the LEED for Existing Buildings Standard, a set of buildings serving 80 employees that upgrades from the Uniform Plumbing Code water fixtures to high efficiency water fixtures would save 104,000 gallons per year.</p>
Data Sources:	Current electricity and natural gas consumption provided by PG&E, 2012.