CITY OF POMONA

ENERGY ACTION PLAN
NOVEMBER 2012

Strategic Plan Task 2.B, Deliverable #7

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LIST OF ABBREVIATIONS

Abbreviation	Definition
AB	Assembly Bill
ABAU	Adjusted business-as-usual
AB 32	Assembly Bill 32, California Global Warming Solutions Act of 2006
AB 1493	Assembly Bill 1493, Clean Car Fuel Standard, also referred to as Pavley bill
ADC	Alternative Daily Cover
BAU	Business-as-usual
CAP	Climate Action Plan
CARB	California Air Resources Board
CEESP	California Long-Term Energy Efficiency Strategic Plan
CH_4	methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COG	Council of Governments
CNG	Compressed natural gas
CPUC	California Public Utilities Commission
CSI	California Solar Initiative
DR	Demand response
EAP	Energy Action Plan
EE	energy efficiency
EEMIS	Energy Enterprise Management Information System
ELP	Energy Leader Partnership
GHG	greenhouse gas
GWP	Global warming potential
HVAC	heating, ventilation, and air conditioning
iDSM	integrated demand-side management
JPA	Joint Powers Authority
kW	kilowatt
kWh	kilowatt-hour
MFD	Multi-family dwelling

LIST OF ABBREVIATIONS

Abbreviation	Definition
MT	metric ton
$MTCO_2e$	metric ton of carbon dioxide equivalent
N_2O	nitrous oxide
PEAS	Personal Energy Action Survey
PSC	Project Steering Committee
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SGVCOG	San Gabriel Valley Council of Governments
SGVEWP	San Gabriel Valley Energy Wise Partnership
US EPA	United States Environmental Protection Agency
USGBC	United States Green Building Council
UWMP	Urban water management plan
VMT	vehicle miles traveled

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This Energy Action Plan (EAP) demonstrates the City's commitment to pursue energy efficiency and reduce greenhouse gas (GHG) emissions. The purpose of this EAP is to identify the City of Pomona's long-term vision and commitment to achieve energy efficiency in the community and in municipal operations. Specifically, this EAP includes the following chapters:

- **Chapter 1: Introduction** – Provides an overview of the purpose and scope of the project, as well as the process and outreach efforts involved in developing this EAP.
- **Chapter 2: GHG Inventory and Forecast –** Summarizes the GHG-generating activities occurring within the community and through municipal operations.
- **Chapter 3: Electricity Profile** – Highlights the factors that influence electricity use within the community by comparing energy uses to regional averages and identifies top electricity uses within municipal accounts.
- **Chapter 4: Energy Efficiency Strategy** – Identifies a comprehensive set of electricity-related energy efficiency targets, goals, policies, and actions to help the community and the city become more energy-efficient.
- **Chapter 5: Implementation –** Provides policies and actions to assist with the implementation of the energy efficiency strategy and summarizes the policies, benefits, implementation time frame, and responsible departments for implementing the components of the energy efficiency strategy.
- **Chapter 6: Conclusion –** Reaffirms the City's commitment to implementing energy efficiency projects, programs, and policies to support the goals of the California Long Term Energy Efficiency Strategic Plan and foster energy efficiency throughout the community.

To support the content found throughout the EAP, several technical appendices have been prepared to provide additional detail and information regarding GHG reductions and sources. This Plan includes the following appendices:

- **Glossary –** Defines the key terms used throughout the document.
- **References –** Provides a list of citations and sources used throughout the EAP.
- **Appendix A: Personal Energy Action Survey –** Includes a copy of the survey used to evaluate resident energy efficiency priorities and activities to inform the EAP regarding feasible community actions.
- **Appendix B: Greenhouse Gas Emissions Inventory Report –** Technical memorandum about GHG emissions inventory results and methodologies.
- **Appendix C: GHG Methods and Assumptions Report –** Provides a list of the emissions factors used in calculation of GHG emissions as well as a summary of the sources and assumptions used to estimate the potential range of kilowatt-hours (kWh) and GHG savings for each policy.

CHAPTER 1: INTRODUCTION

Chapter 1 provides a brief overview of the purpose and scope of this EAP and how this Plan was created in partnership with the San Gabriel Valley Council of Governments (SGVCOG) and Southern California Edison (SCE). The City has prepared this Plan not only to follow the guidance of California's Long Term Energy Efficiency Strategic Plan (CEESP) but also to identify a clear path to successfully implementing actions, policies, and goals that will achieve the City's reduction targets.

This project was funded through the technical assistance program of the CEESP that aims to provide local governments with expertise and resources to achieve energy efficiency at municipal facilities and throughout the community. In 2009, as part of CEESP implementation, the California Public Utilities Commission authorized SCE to use funding from the electricity public goods charge to complete strategic plan activities focused on energy efficiency. SCE is implementing the "Big Bold" strategies of the CEESP and through this process, SCE awarded funding to the SGVCOG to provide funding and technical support for preparation of this EAP.

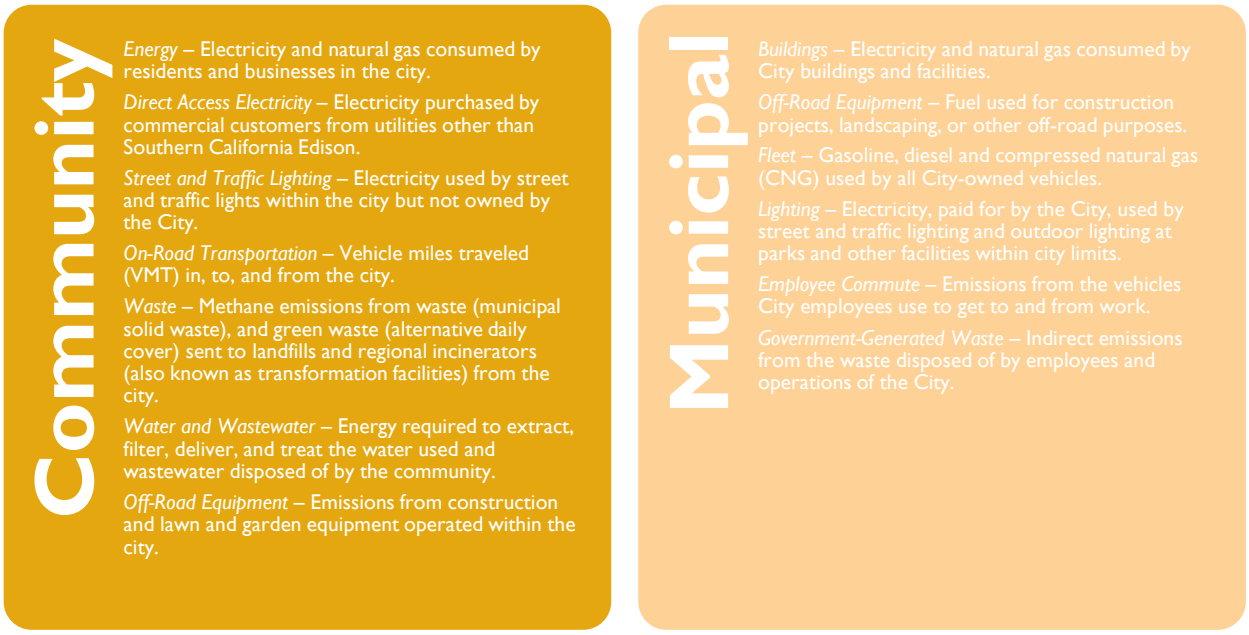
In addition to describing the funding source and collaboration involved in creating this Plan, Chapter 1 describes the community outreach conducted to provide input on this Plan. Through the efforts of City staff, SGVCOG, and the consultant team, a variety of outreach events were completed and summarized in **Figure ES-1**.

Figure ES-1:Summary of Community Outreach Events

CHAPTER 2: GREENHOUSE GAS INVENTORY AND FORECAST

The baseline GHG inventory and forecast assess existing and future GHG emissions based on activities and energy consumption from community and municipal activities (see **Figure ES-2**). A baseline year of 2007 was selected for the inventory, and activity data for 2010 community sectors including energy, transportation, waste, community off-road, wastewater, and water were translated into GHG emissions to serve as a common benchmark that will allow for accurate comparison between all cities in the San Gabriel Valley participating in the EAP process.

Figure ES-2: Community-Wide and Municipal GHG Emissions Sources



Inventories of GHG emissions from community-wide and municipal operations are described in **Chapter 2** and are summarized in **Figure ES-3** and **Figure ES-4** below. In 2007, community activities generated approximately 987,170 $MTCO_2e$, while approximately 14,300 $MTCO_2e$ were attributed to municipal operations. While municipal GHG emissions are typically considered a subset of community, they are included in this analysis as the City has a greater ability to influence municipal GHG emissions through changes to city facilities, purchasing policies, or other City-led efforts to reduce GHG emissions within City operations.

Figure ES-3: Community-Wide GHG Emissions by Sector, 2007 ($MTCO_2e$)

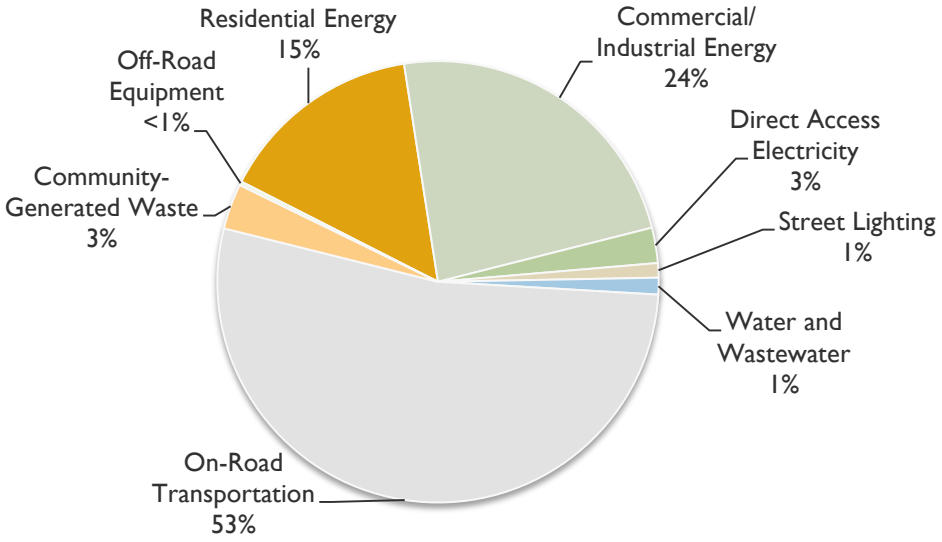
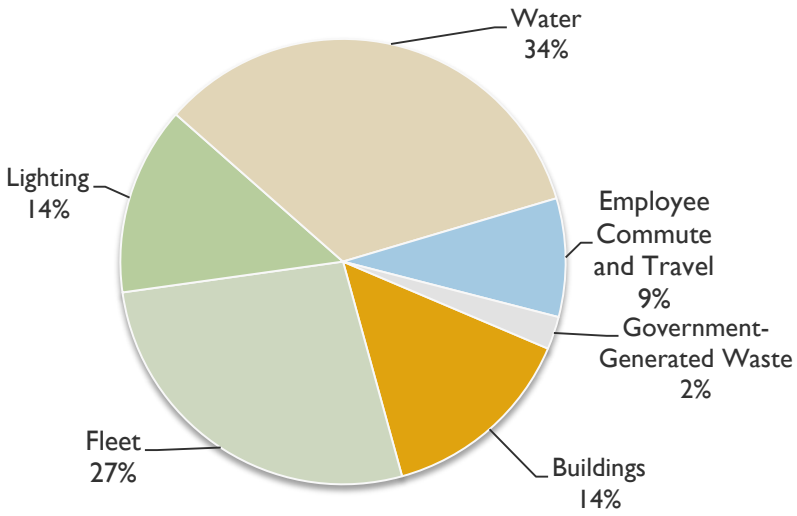
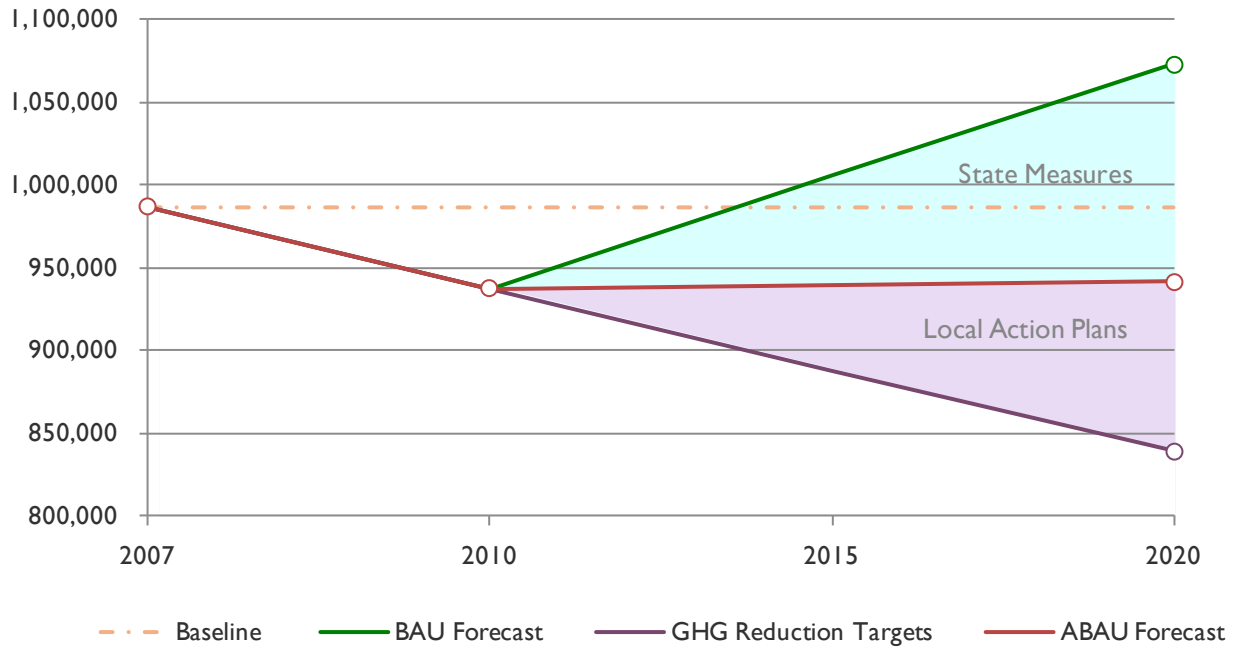


Figure ES-4: Municipal GHG Emissions by Sector, 2007 ($MTCO_2e$)



Following the development of a baseline GHG emissions inventory, GHG emissions are forecasted to 2020 under a business as usual (BAU) scenario based on anticipated growth in the number of residents, jobs, and vehicle travel and the effect that growth will have on GHG emissions without political, technical, or social intervention to reduce GHG emissions. Additionally, the impact that state policies or legislation will have on local GHG emissions are included in an adjusted business as usual (ABAU) scenario and the recommended GHG reduction targets to comply with Assembly Bill (AB) 32 are identified and describe in **Figure ES-5** below and in more detail in **Chapter 2**.

Figure ES-5: Comparison of BAU Forecast and Reduction Target, 2007-2020

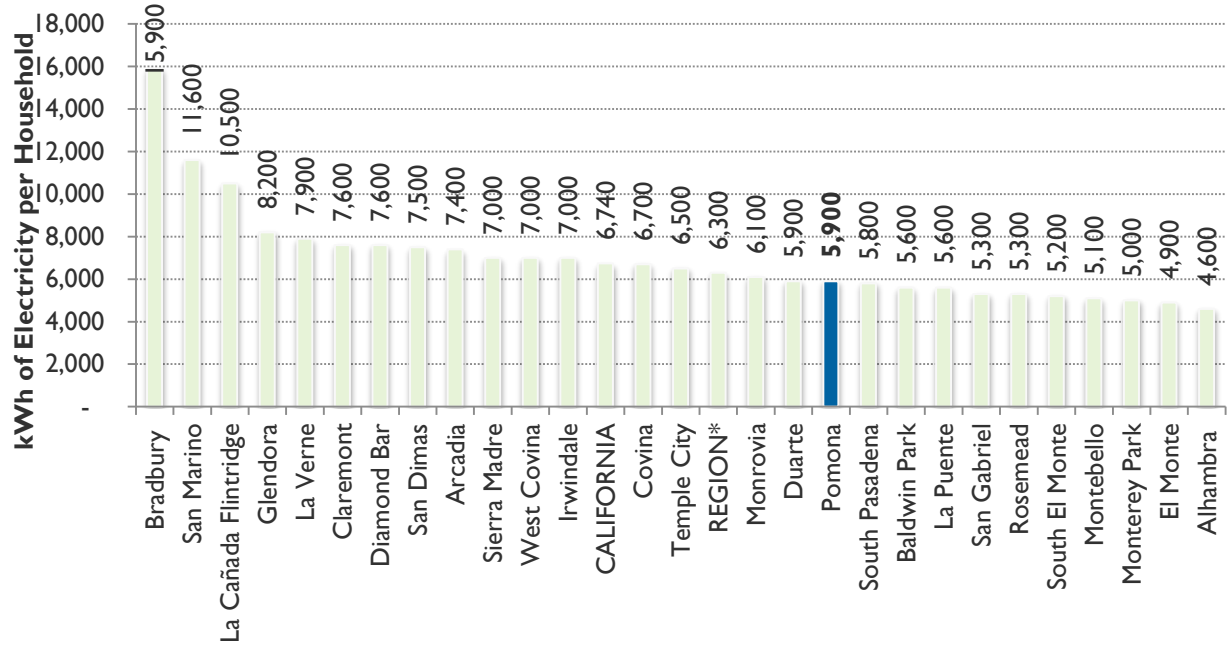


CHAPTER 3: ELECTRICITY PROFILE

The electricity profile describes the residential and nonresidential as well as municipal electricity use in the City of Pomona. Electricity used in Pomona's homes and businesses is provided by SCE. SCE generates electricity from a mix of nonrenewable sources, such as natural gas and coal, and renewable sources, such as biomass, geothermal, hydroelectric, solar, and wind.

Pomona's electricity uses are tied to the built environment that is predominantly characterized by residential land uses. As shown in **Figure ES-6**, each Pomona household used an average of 5,900 kWh in 2010. This amount is less than the California average of 6,740 kWh and less than the SGVCOG project average of 6,300 kWh.

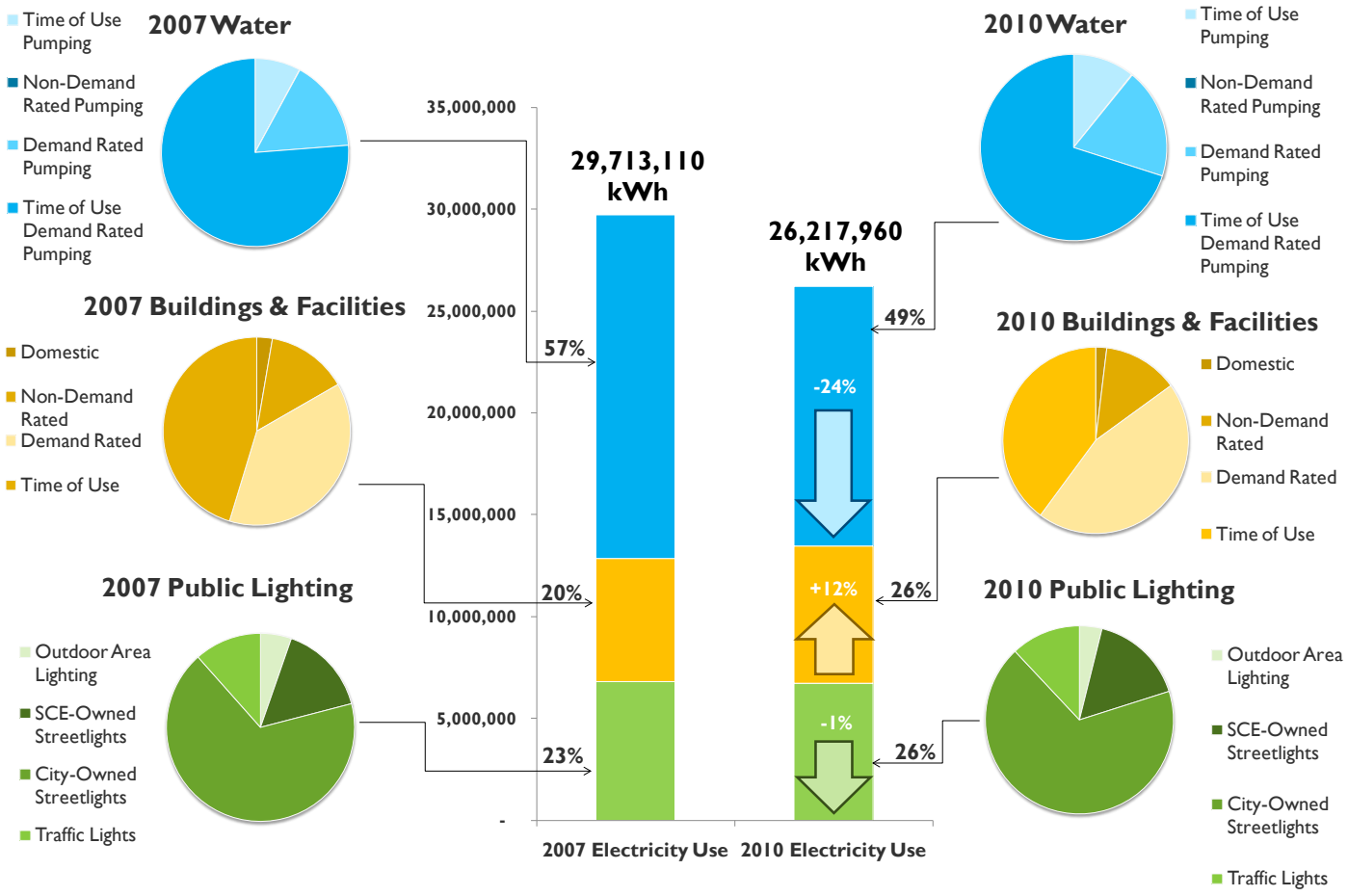
Figure ES-6: Annual Average kWh of Electricity Use per Household, 2010*



**Regional electricity numbers represent the San Gabriel Valley average for all 27 cities participating in the EAP project.*

Municipal electricity use is also described in detail in **Chapter 3** by depicting the changes in electricity use between the baseline year and 2010 (see **Figure ES-7**). This figure also identifies the largest electricity uses by account to highlight the energy efficiency actions already completed or under way at City facilities and, therefore, the largest opportunities for reducing electricity use.

Figure ES-7: Municipal Electricity Use by Account Type, 2007-2010



CHAPTER 4: ELECTRICITY ENERGY EFFICIENCY STRATEGY

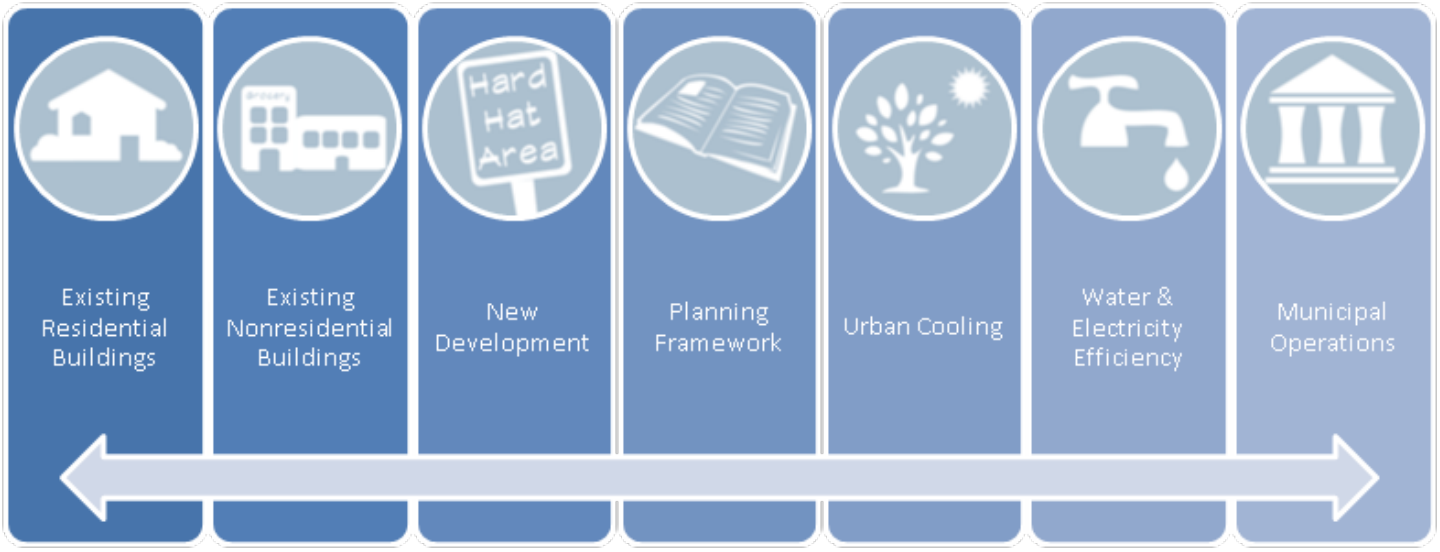
The City of Pomona has identified key electricity efficiency targets, shown in **Figure ES-8**, to support the goals of the Energy Leader Partnership and local planning priorities. To achieve the electricity reduction targets for each electricity sector the City has identified a set of goals, policies, actions, and projects to be implemented, which are listed in **Chapter 4**.

Figure ES-8: Pomona's Energy Efficiency Targets

11,650,910 kWh Reduction	**Residential Electricity** • Reduce residential energy use 5% below baseline by 2020.
60,614,690 kWh Reduction	**Nonresidential Electricity** • Reduce nonresidential energy use 10% below baseline by 2020.
4,456,970 kWh Reduction	**Municipal Electricity** • Reduce municipal energy use 15% below baseline by 2020
Supportive	**Municipal Energy Leader Partnership** • Reach Gold Level status by 2014

The City's EAP is focused around seven strategy topics or goals, as shown in **Figure ES-9** to support electricity reductions and energy efficiency within the community and municipal facilities.

Figure ES-9: Energy Efficiency Strategy Topics



The actions included in this Plan build upon the City's previous efforts and are a diverse mix of programs for both new and existing development. The final topic area of the energy efficiency strategy focuses on municipal electricity use by identifying the completed, near-term, and long-term projects or policies to achieve energy efficiency in municipal

facilities. **Table ES-1** summarizes the near-term municipal projects to be implemented by the City. In addition to the municipal projects, this EAP identifies a clear path for Pomona to achieve the community-wide electricity reduction targets for both residential and nonresidential uses. **Figures ES-10** identifies the potential range of electricity savings (kWh) that can occur by 2020 through the implementation of this strategy.

Table ES-1: Near-Term Municipal Projects

Facility	Project	Project Cost	Annual Electricity Savings (kWh)	Annual Cost Savings	Estimated SCE Inventive	Estimated Completion Date	Funding Opportunities
Pump #14– Address TBC[1]	Pump Replacement	TBC[1]	46,610	$7,320	TBC[1]	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #15– Address TBC[1]	Pump Replacement	TBC[1]	65,560	$10,290	TBC[1]	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #26– Address TBC[1]	Pump Replacement	TBC[1]	117,330	$18,420	$9,150	TBC[1]	On-bill financing, SCREC, CEC loans
City Hall and Council Chambers - 505 S. Garey Ave.	Lighting Upgrades	TBC[1]	30,000	$4,710	TBC[1]	January 2013	On-bill financing, SCREC, CEC loans
Ball Field– Address TBC[1]	Lighting Upgrades	TBC[1]	25,000	$3,930	TBC[1]	January 2013	On-bill financing, SCREC, CEC loans
Chiller – Address TBC[1]	HVAC Upgrade	TBC[1]	100,000	$15,700	TBC[1]	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #7 - 503 E. Arrow Hwy.	Pump Replacement	TBC[1]	35,440	$5,560	$4,320	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #24 – Address TBC[1]	Pump Replacement	TBC[1]	212,180	$33,130	$18,460	TBC[1]	On-bill financing, SCREC, CEC loans

Facility	Project	Project Cost	Annual Electricity Savings (kWh)	Annual Cost Savings	Estimated SCE Inventive	Estimated Completion Date	Funding Opportunities
Pump #25 – Address TBC[1]	Pump Replacement	TBC[1]	224,740	$35,280	$17,080	TBC[1]	On-bill financing, SCREC, CEC loans
VOC Treatment Facility - 1600 Longwood Ave.	Booster Pump Upgrades (3)	TBC[1]	TBC[1]	TBC[1]	TBC[1]	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #17 – Address TBC[1]	Pump Replacement	TBC[1]	210	TBC[1]	$560	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #8 – 1560 E Ganesha Blvd.	Pump Replacement	TBC[1]	48,210	$7,570	$6,070	TBC[1]	On-bill financing, SCREC, CEC loans
Washington Park - 865 E. Grand Ave.	Pool Pump Upgrade	$14,000	25,790	$3,100	$232	TBC[1]	On-bill financing, SCREC, CEC loans
Ganesha Park - 1575 N. White Ave.	Pool Pump Upgrade	$14,000	161,860	$19,420	$7,000	TBC[1]	On-bill financing, SCREC, CEC loans
Ganesha Park - 1575 N. White Ave.	Pool Slide Pump Upgrade	$4,000	5,430	$650	$490	TBC[1]	On-bill financing, SCREC, CEC loans
City Hall - 505 S. Garey Ave.	Change HVAC operating Schedule[2]	$230	30,150	$4,730	$0	TBC[1]	On-bill financing, SCREC, CEC loans
City Hall - 505 S. Garey Ave.	Implement HVAC Reset Controls[2]	$3,130	28,440	$4,470	$3,130	TBC[1]	On-bill financing, SCREC, CEC loans
City Hall - 505 S. Garey Ave.	Schedule HVAC Exhaust Fan Controls[2]	$3,230	11,620	$1,610	$1,390	TBC[1]	On-bill financing, SCREC, CEC loans

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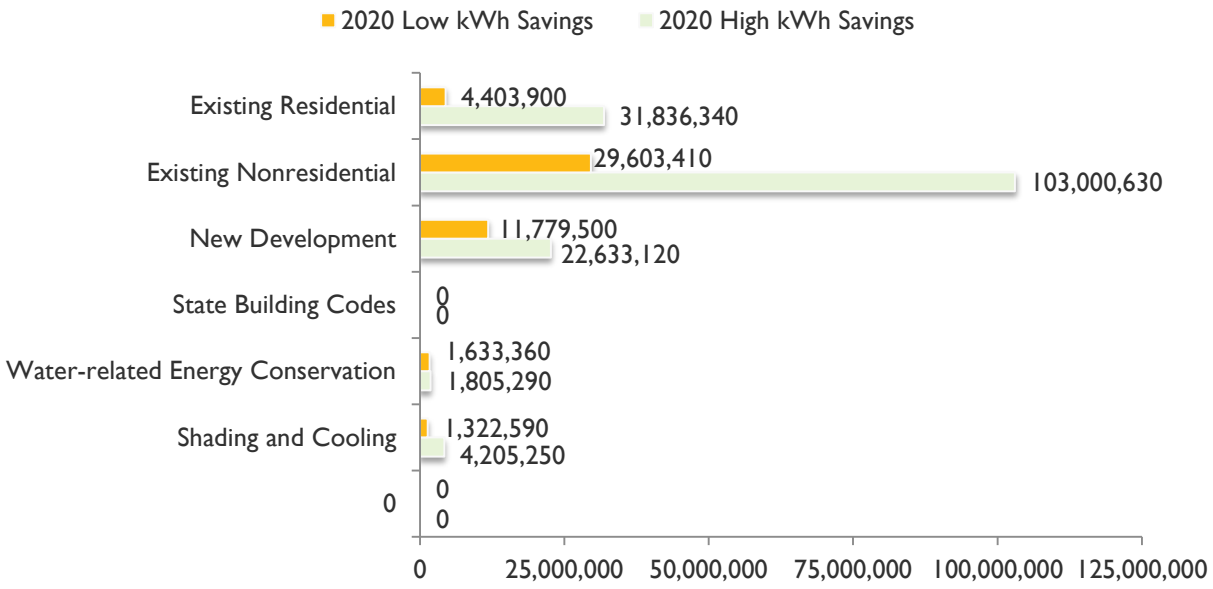
Facility	Project	Project Cost	Annual Electricity Savings (kWh)	Annual Cost Savings	Estimated SCE Inventive	Estimated Completion Date	Funding Opportunities
City Hall - 505 S. Garey Ave.	Retrofit HVAC Pumps with Variable Speed Drives[2]	$9,610	25,640	$3,680	$4,040	TBC[1]	On-bill financing, SCREC, CEC loans
Library – 625 S. Garey Ave	Change HVAC Operating Schedule[2]	$230	37,430	$5,880	$0	TBC[1]	On-bill financing, SCREC, CEC loans
Library – 625 S. Garey Ave	Schedule HVAC Exhaust Fan Controls[2]	$260	25,110	$4,370	$260	TBC[1]	On-bill financing, SCREC, CEC loans
Library – 625 S. Garey Ave	Replace Exterior Lighting With LED Equivalents[2]	$19,810	46,400	$8,100	$2,320	TBC[1]	On-bill financing, SCREC, CEC loans
Police Station and Fire Department - 490 W Mission Blvd	Implement HVAC Reset Controls	$2,300	66,680	$6,720	$2,300	TBC[1]	On-bill financing, SCREC, CEC loans
Police Station and Fire Department - 490 W Mission Blvd	Retrofit HVAC Pumps with Variable Speed Drives	$12,080	83,000	$8,370	$10,540	TBC[1]	On-bill financing, SCREC, CEC loans
Fire Station 181 - 590 S. Park Avenue	Retrocommission Air Handlers #3 and #4	$3,890	78,340	$12,300	$3,890	TBC[1]	On-bill financing, SCREC, CEC loans
	Total[3]	$86,770	1,484,560	$217,990	$91,230		

[1] *To be confirmed. At the time of report preparation, estimated project completion dates unavailable. The SGVCOG, SCE, and SCREC are working to confirm project information.*

[2] *Source: EMCOR audit, prepared for the City of Pomona through the Energy Wise Partnership.*

[3] *Total represents sum of available data and is not reflective of complete costs and savings for all projects due to lack of information.*

Figure ES-10: Estimates 2020 kWh Savings by Goal



CHAPTER 5: IMPLEMENTATION

To ensure successful implementation of the EAP, several strategies and supporting actions have been included in **Chapter 5**, the implementation chapter. This chapter also includes an implementation matrix with details specific to each policy such as the electricity and GHG reductions that can be achieved. The implementation matrix will be a critical tool in monitoring the City's progress toward implementing the EAP.

CHAPTER 6: CONCLUSION

This EAP is an opportunity for the City to create and achieve a long-term vision for energy efficiency. The City of Pomona has developed this EAP as part of a regional framework that allows for close coordination and consistency between communities located in the San Gabriel Valley while responding to local community characteristics, values, and planning frameworks. Although the primary focus of this Plan is on reducing electricity and related GHG emissions, the policies and actions in this Plan also provide the ancillary benefits of improving air quality and the quality of life, enhancing natural areas, and stimulating the local economy through incentives for energy efficiency.

CHAPTER 1

INTRODUCTION

This Energy Action Plan (EAP) identifies an overarching vision that captures the City of Pomona's long-term goals for energy efficiency. The intent of this Plan is to achieve optimal energy performance throughout the community, increasing operational productivity, cost savings, and the quality of life for residents, employees, and business owners. This Plan also identifies programs to achieve cost savings in City facilities through energy reductions and more efficient maintenance and operational practices.

CHAPTER 1

PURPOSE AND SCOPE

The purpose of this EAP is to identify the City of Pomona's long-term vision and commitment to achieve energy efficiency in the community and in government operations. The rationale for Pomona's energy efficiency efforts includes demonstrating leadership in implementing cost-effective energy efficiency improvements, minimizing costs associated with energy and utilities, and protecting limited energy and natural resources. Local governments play an important role in leading the community by example. This EAP shows the benefits of efficiency that the City will realize in government operations, providing a foundation for more comprehensive community efficiency strategies. Strategies in this EAP provide a path toward optimizing energy use in the City increasing the quality and comfort of homes and businesses, reducing utility costs, and maximizing operational productivity of local businesses.

The EAP is a stand-alone document that meets multiple objectives of the City and Southern California Edison. The EAP supports the City's status in the Energy Leader Partnership with SCE. In addition, the EAP serves as the equivalent of an electricity efficiency chapter of a climate action plan (EECAP). It is designed to integrate into a comprehensive climate action plan when the City's resources support the preparation of a climate action plan to address the reduction of greenhouse gas (GHG) emissions from electricity, natural gas, waste, transportation, and other sectors.

Created in partnership with the San Gabriel Valley Council of Governments (SGVCOG) and Southern California Edison (SCE), this EAP identifies municipal and community strategies to achieve the City's longer-term electricity efficiency goals. This integration of municipal and community strategies allows the City to lead by example. Specifically, the objectives of this EAP are to:

- Create a long-term vision for energy efficiency.
- Provide and assess information related to energy use and GHG emissions.
- Establish reduction targets for energy efficiency.
- Identify goals, policies, and actions to achieve energy reductions.
- Provide a framework implementing the identified goals, policies, and actions.

Key Partners in Development of the EAP

San Gabriel Valley Council of Governments (SGVCOG): A Joint Powers Authority representing 31 incorporated cities and unincorporated areas in the San Gabriel Valley. The SGVCOG works with member agencies to collectively address transportation, housing, economic growth, and environmental issues that are most effectively addressed at a regional scale.

Southern California Edison (SCE):

An investor-owned utility that is the primary electricity provider to the San Gabriel Valley.

SOUTHERN CALIFORNIA EDISON AND THE LONG-TERM ENERGY EFFICIENCY STRATEGIC PLAN

California's Long Term Energy Efficiency Strategic Plan (CEESP) is the State's roadmap for achieving energy efficiency between 2009 and 2020. The California Public Utilities Commission adopted the CEESP in 2008 following a collaborative planning effort among the California Public Utilities Commission (CPUC), the governor's office, the California Energy Commission, the California Air Resources Board, and more than 500 individuals and organizations. The CEESP provides a menu of options that local governments can use to address the "Big Bold" strategies found in the strategic plan. These "Big Bold" strategies are shown in **Figure 1**.

Figure 1: "Big Bold" Strategies of the CEESP

In addition, the CEESP identifies two primary goals that this EAP seeks to achieve:

- CEESP Section 12.5 Goal 3: Local governments lead by example with their own facilities and energy usage practices.
- CEESP Section 12.5 Goal 4: Local governments lead their communities with innovative programs for energy efficiency, sustainability, and climate change.

The EAP meets these goals by providing goals, policies, and actions for municipal operations as well as for community activities. The CEESP also identifies a long-term vision and energy efficiency goals for California, as well as outlining specific near-term, mid-term, and long-term implementation strategies to assist each economic sector in achieving its goals.

The CPUC identified several policy tools to assist in the market transformation to more energy-efficient products or practices including:

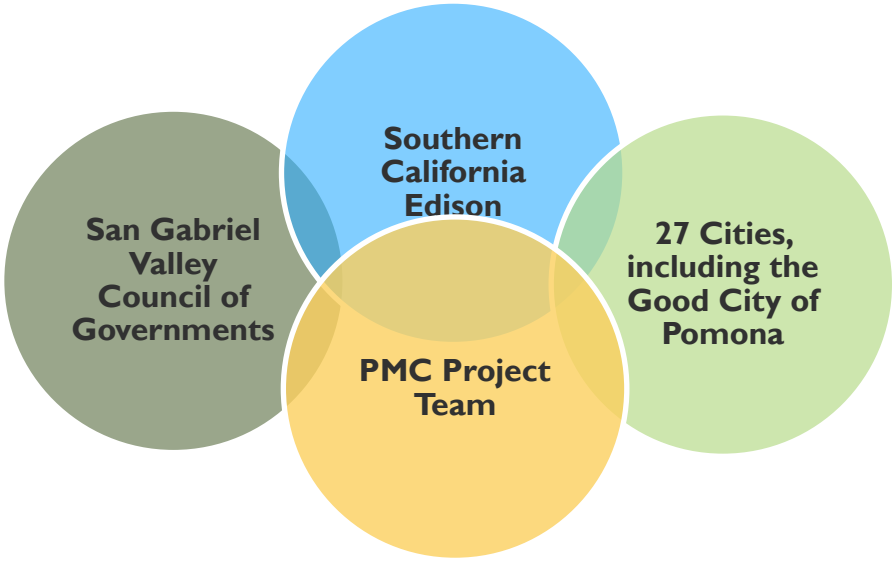
- Customer incentives
- Codes and standards
- Education and information.
- Technical assistance
- Emerging technologies

The City prepared this EAP through the technical assistance program of the CEESP, which aims to provide local governments with the technical expertise and financial resources to achieve energy efficiency at municipal facilities and throughout the community. In 2009, as part of CEESP implementation, the CPUC authorized SCE to use funding from the electricity public goods charge to complete strategic plan activities focused on energy efficiency. SCE is implementing the "Big Bold" strategies of the CEESP. Through this process, SCE awarded funding to the SGVCOG and participating cities to provide funding and technical support for preparation of a regional framework and tailored city-specific EAPs through a regional planning process.

The SGVCOG managed the project, through partnership with SCE, 27[1] member cities of the SGVCOG that receive electricity service from SCE, and a consultant team led by PMC. The project included preparation of customized EAPs for each participating city, including a GHG emissions inventory, forecast of community activities and municipal operations, and longer-term goals, policies, and actions. This EAP has been prepared as part of a coordinated effort among the SGVCOG, SCE, the City of Pomona, and PMC (see **Figure 2**).

[1] While there were 31 cities in the SGVCOG at the time of this project, the cities of Azusa and Pasadena are not eligible to participate in SCE-funded programs as they are their own electricity providers. Additionally, the cities of Industry and Walnut have elected to not participate in this planning process.

Figure 2: Partners in the EAP Planning Process

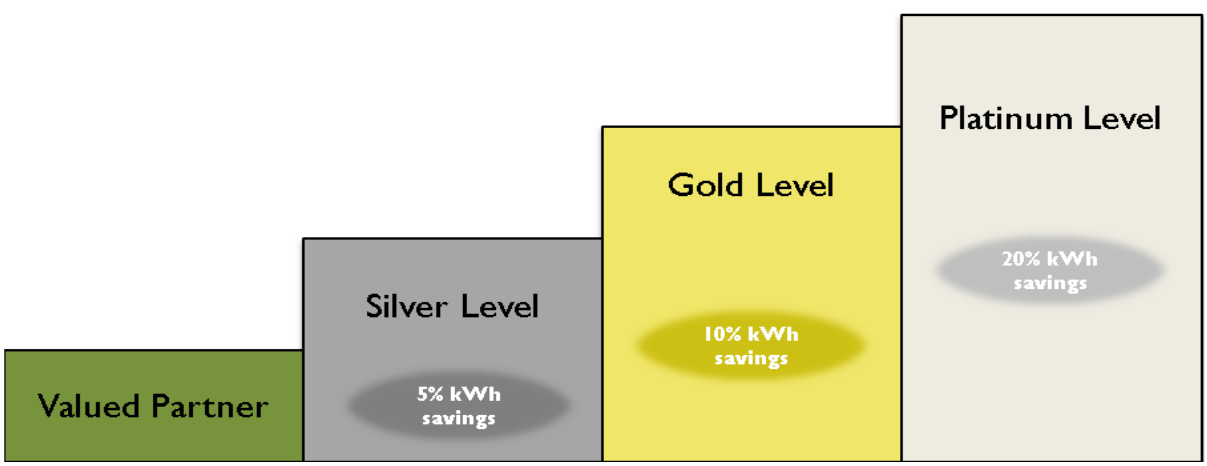


THE ENERGY LEADER PARTNERSHIP MODEL

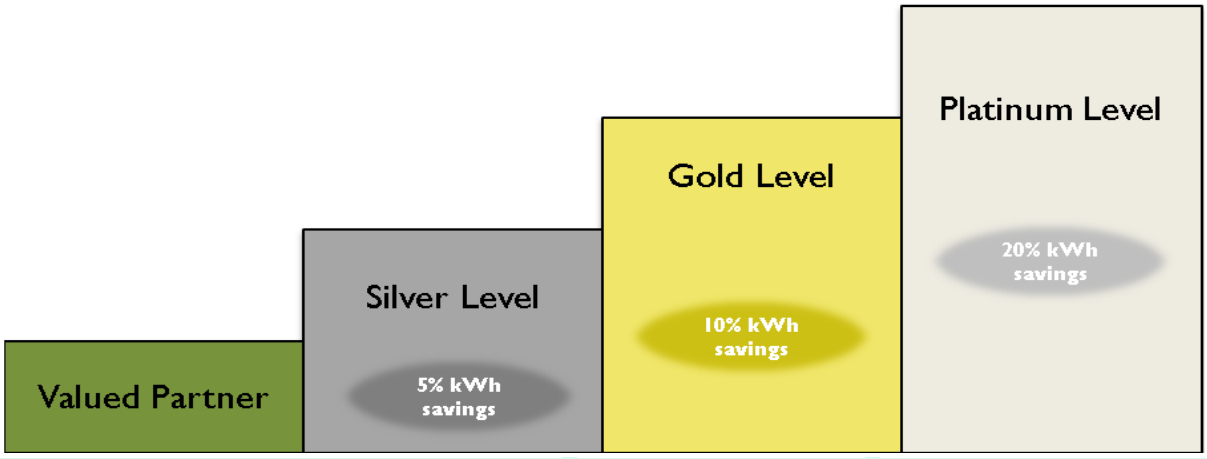
SCE developed the Energy Leader Partnership (ELP) model to provide support to local governments in identifying and implementing opportunities to improve energy efficiency in municipal facilities and promoting community awareness of demand side energy management opportunities. By participating in SCE's ELP, local governments are taking actions to support the CEESP while saving energy and fiscal resources for their community. In the San Gabriel Valley, the SGVCOG is leading the implementation of the ELP with SCE and 27 of the 31 member cities in the SGVCOG.

The ELP comprises four focus areas: 1) municipal retrofits, 2) demand response, 3) strategic plan support, and 4) energy efficiency programs coordination. The ELP program has four incentive tiers for participating cities: 1) Valued Partner, 2) Silver, 3) Gold, and 4) Platinum. Each city begins the program as a valued partner; to advance to the next incentive tier, each participating city needs to achieve the pre-determined energy savings and requirements for City facilities and community as shown in **Figure 3.** The City of Pomona is currently at the Silver level.

Figure 3: Energy Leader Partnership Model



	Valued Partner Level enhanced incentives	Silver Level enhanced incentives	Gold Level enhanced incentives	Platinum Level enhanced incentives
Offerings	• Technical support • Strategic Plan support • Co-branded marketing and outreach support	• Technical support • Strategic Plan support • Co-branded marketing and outreach support	• Technical support • Strategic Plan support • Co-branded marketing and outreach support	• Technical support • Strategic Plan support • Co-branded marketing and outreach support • Incentives for customized city/community offerings
Energy Efficiency Criteria	Basic EE Criteria: • Commitment to Long Term Energy Efficiency Leadership	Basic EE Criteria Plus: • City initiative Energy Action Plan • Target at least 25% of City facilities to complete specified EE upgrades • Target 5% kWh reduction for City facilities • Co-sponsor marketing and outreach to the community on EE programs	Basic EE Criteria Plus: • City initiative Energy Action Plan • Target at least 50% of City facilities to complete specified EE upgrades • Target 10% kWh reduction for City facilities • Co-sponsor marketing and outreach to the community on EE programs	Basic EE Criteria Plus: • City implements Energy Action Plan (policies, ordinances, and procedures) • Target 100% of City facilities to complete specified EE upgrades • Target 20% kWh reduction for City facilities • Co-sponsor marketing and outreach to the community on EE programs



Demand Response Criteria	Basic DR Criteria: • Enroll in California's Statewide Flex Alert and implement an internal educational campaign	Basic DR Criteria Plus: • At least one (1) eligible facility to participate in one (1) SCE Demand Response program • At least one (1) eligible facility to develop a Demand Reduction Action Plan to be followed during a Flex Alert event • Distribute Energy Solutions brochure to partner employees • Complete an integrated Demand Side Management (iDSM) audit at all eligible facilities	Basic DR Criteria Plus: • Have at least 25% of eligible facilities participate in an SCE Demand Response program • Conduct co-branded marketing and outreach to residential customers on SCE's Demand Response programs • At least one (1) eligible facility implement a DR measure recommended from the iDSM audit	Basic DR Criteria Plus: • At least one (1) eligible facility to participate in one (1) SCE Demand Response program • Have at least 50% of eligible facilities participate in an SCE Demand Response program and develop a Demand Reduction Action Plan for the participating facilities • Organize a local outreach event during the spring/summer season to promote Demand Response/iDSM

Source: Southern California Edison, 2012.

ROLE OF THE EAP

The role of this EAP is to serve as a strategic plan to achieve electricity efficiency in the community. This is a unique plan that identifies Pomona's role in reducing electricity use, both as a steward of the community and as a leader through its own operations. Strategies in the EAP will shape the City's planning framework, prioritize ongoing outreach responsibilities, and guide government operations. Pomona will use the EAP as a tool to facilitate electricity efficiency while achieving other local economic and planning objectives, refining the EAP as programs are implemented and tested over time. Strategies in this EAP will be an integral part of resource management, planning, and development in the community. The EAP is an analytical link for the City between electricity reduction targets, local development, and State and regional electricity planning efforts.

The EAP provides Pomona with the added benefit of a foundation to assess local contributions to and impacts of climate change. While the primary focus of this EAP is electricity efficiency, the GHG emissions inventory in this plan also provides the City with an understanding of the local equivalent of the State-recommended GHG emissions reduction target to achieve 1990 GHG emissions levels by 2020. The local responsibility was identified in the AB 32 Scoping Plan, which clarified the 1990 target is equivalent to a 15% reduction below baseline emissions by 2020. The Scoping Plan also identified a variety of measures, including regulations, incentives, voluntary actions, and market-based approaches, to achieve the target reduction. The California Natural Resources Agency has also directed local governments to assess GHG emissions through the California Environmental Quality Act review process. The inventory in this EAP allows the City to identify the local equivalent of the State-recommended reduction target. The EAP also allows the City understand the GHG mitigation potential of the strategies outlined in this Plan.

Based on the funding opportunity provided through the CEESP, the EAP's primary focus is electricity efficiency. While this EAP presents a comprehensive GHG emissions inventory and forecast, unlike more comprehensive climate action plans or GHG reduction strategies, mitigation strategies in the EAP focus only on electricity efficiency. Nonetheless, this plan lays out Pomona's role in achieving State-recommended GHG reduction targets.

Assembly Bill (AB) 32

Establishes a comprehensive program of regulatory and market mechanisms to achieve real, quantifiable, cost-effective reductions of GHG for California.

CITY PROFILE

SETTING

Pomona is located about 30 miles east of downtown Los Angeles, along the eastern edge of the San Gabriel Valley contiguous to the western border of San Bernardino County. It is surrounded by a number of other communities, including La Verne and Claremont to the north, Montclair and Chino to the east, Chino Hills and Diamond Bar to the south, and Walnut and San Dimas to the west. Pomona covers approximately 23 square miles and is home to 149,058 residents as of 2010. Interstate Freeway 10 runs through the City, along with State Routes 57, 60, and 71. Pomona's rail station is serviced by a Metrolink commuter rail line, as well as Amtrak's long-distance Texas Eagle and Sunset Limited routes.

HISTORY

The history of the city dates back to a land grant from the Mexican governor of California in 1837, covering the current area occupied by Pomona and a number of neighboring cities. Although the owners intended to use the land for agricultural purposes, a series of natural disasters forced them to sell the land for settlement. The arrival of the Southern Pacific Railroad in 1874 accelerated growth in the community, and the burgeoning citrus industry in the area caused the new town to be named Pomona after the Roman goddess of fruit. The City incorporated in 1888.

The citrus industry in turn caused Pomona to become a business and manufacturing center, leading to steady growth in the first half of the 20th century. The city grew even more rapidly in the post-World War II years, as much of Pomona's agricultural land was converted to tract housing. A second period of growth in the 1980s saw much of the city's vacant land and older structures redeveloped for a variety of uses, but particularly residential land uses.

POMONA TODAY

Present-day Pomona is mostly built out, although an appreciable amount of land remains vacant. The single largest land use in the City is residential, mostly single-family houses, although a sizeable amount of commercial and industrial land exists. Public land is also a major component of Pomona's land use pattern, occupying nearly a quarter of the total city area (see **Table 1**).

Table 1: Pomona Existing Land Uses

Land Use Designation	Size (acres)	Percentage
Residential	5,120	35%
Commercial	580	4%
Professional office	150	1%
Industrial	1,170	8%
Public land	3,510	24%
Streets and other Right of Ways	3,510	24%
Vacant land	580	4%
Total	**14,620**	**100%**

Source: Pomona General Plan

Pomona has a relatively young population, in part due to the large diversity of the community, and the presence of several colleges and universities in and around the city. The largest age cohorts are all under 30, with the biggest being those 20 to 24 years old. The median age in the city is 29.5, lower than any community bordering Pomona (see **Table 2**).

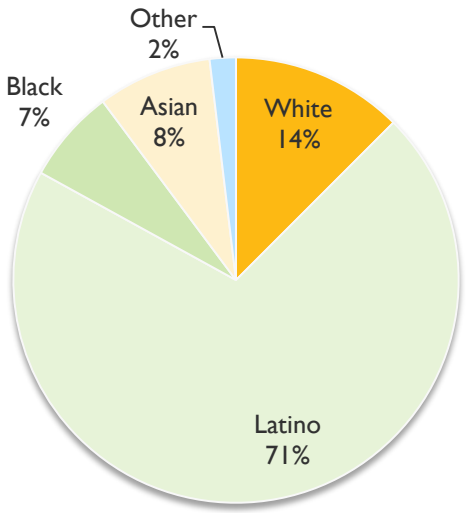
Table 2: Pomona Age Cohorts

Age Cohort	Numbers	Percentage
Under 5 years	12,010	8%
5 to 9 years	11,710	8%
10 to 14 years	12,140	8%
15 to 19 years	13,480	9%
20 to 24 years	14,660	10%
25 to 29 years	11,540	8%
30 to 34 years	10,450	7%
35 to 39 years	10,260	7%
40 to 44 years	10,060	7%
45 to 49 years	9,610	6%
50 to 54 years	8,960	6%
55 to 59 years	7,390	5%
60 to 64 years	5,410	4%
65 to 69 years	3,600	2%
70 to 74 years	2,700	2%
75 to 79 years	2,080	1%
80 to 84 years	1,530	1%
85 years and over	1,460	1%
Total	**149,050**	**100%**

Source: US Census, 2010, Table DP-1

Pomona is a minority-majority community, as over 70% of the city's residents are Latino and the city has significant Asian American and African American populations. Only about one-third of Pomona's residents speak only English at home and those who speak another language predominantly speak Spanish. The city has a significant immigrant population; more than a third of Pomona's residents were born outside of the United States, mostly in Latin America (see **Figure 4**).

Figure 4: Racial and Ethnic Composition



Pomona's economy is highly diverse, although professional jobs such as management, sales, and office-related occupations make up nearly half of all jobs in the city. The management, business, science, and art sector includes the five biggest employers in Pomona and jobs that are in the education and health care fields, which comprises over 20 % of employment. Retail and construction firms also have a major presence in Pomona (see **Table 3**).

Table 3: Employment Snapshot

Occupation	Number	Percentage
Management, business, science, and art	12,650	20%
Service	12,460	20%
Sales and office	15,670	25%
Natural resources, construction, and maintenance	7,360	12%
Production and transportation	14,440	23%
Total	**62,580**	**100%**

Source: US Census, American Community Survey 2006 – 2010, Table DP-03

Even though there are a number of professional jobs in Pomona, income levels in the city are lower than in any neighboring communities. The median household in Pomona has a yearly income of $48,072 and the average household's income is $58,525, with about 15% of households earning $100,000 or more annually. About 22% of Pomona's residents are below the poverty level, including nearly 30% of children under 18 (see **Table 4**).

Table 4: Household Income in Pomona

Income Group	Numbers	Percentage
Less than $10,000	2,220	6%
$10,000 to $14,999	2,190	6%
$15,000 to $24,999	4,220	11%
$25,000 to $34,999	4,100	11%
$35,000 to $49,999	6,270	16%
$50,000 to $74,999	8,460	22%
$75,000 to $99,999	5,260	14%
$100,000 to $149,999	4,120	11%
$150,000 to $199,999	1,120	3%
$200,000 or more	580	2%
Total	**38,540**	**100%**

Source: US Census, American Community Survey 2006 – 2010, Table DP-03

POMONA'S RECENT SUSTAINABILITY EFFORTS

The City of Pomona is in the process of upgrading its street lights, which will save the City approximately 1,576,750 kWh.

The City has reduced 20% of its electricity use since 2007, the baseline year. Additionally, Pomona has achieved a Silver level status in SCE's Energy Wise Partnership program. The City conducted energy audits at many City facilities and implemented number of actions to improve energy efficiency in recent years. The City accrued annual savings of over $1 million as a result. The energy efficiency items already implemented include replacing inefficient light bulbs and appliances, installing occupancy sensors, and upgrading heating, ventilation, and air conditioning (HVAC) systems to improve performance, and upgrading streetlights. A number of other measures, such as using insulating covers on swimming pools to reduce heat loss, and installing more energy-efficient windows at City facilities, are currently in progress or being planned. Most importantly, Pomona has implemented a street light upgrade program that has saved the City 1,576,748 kilowatt-hours (kWh). Pomona is also considering installing photovoltaic panels, having already identified seven City properties capable of supporting solar arrays. Pomona also experienced water contamination that resulted in the need to install new city water wells. These new water wells include water pump upgrades that allow the City to more efficiently transport water, resulting in a large decrease in energy demand in kWh at these locations.

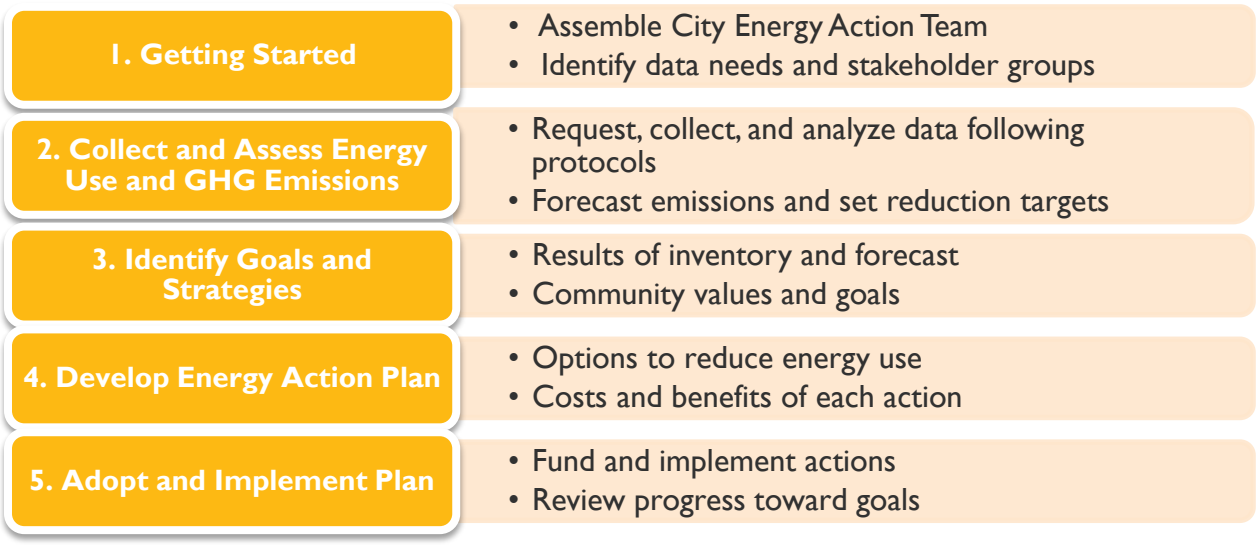
THE EAP PLANNING PROCESS

The City of Pomona worked through a five-step planning process, as depicted in **Figure 5**, to develop and implement the EAP. Following this five-step process allows the City to adequately identify, collect, and analyze the relevant energy and GHG data prior to developing and implementing strategies to improve energy efficiency and reduce GHG emissions.

The EAP's outreach process engaged City staff, residents, business owners, and stakeholders in the identification and refinement of electricity efficiency issues and strategies. The goal of the outreach process was to help Pomona staff make better decisions and develop effective local strategies for electricity efficiency. City staff also facilitated public outreach through stakeholder focus group meetings, a presentation to the Environmental Stewardship Subcommittee, and an online survey.

The development process for the EAP relied on a multi-pronged outreach strategy involving City staff, public stakeholders (residents, employees, and business owners), and guidance from a regional Project Steering Committee (PSC).

Figure 5: EAP Development Process



PROJECT STEERING COMMITTEE

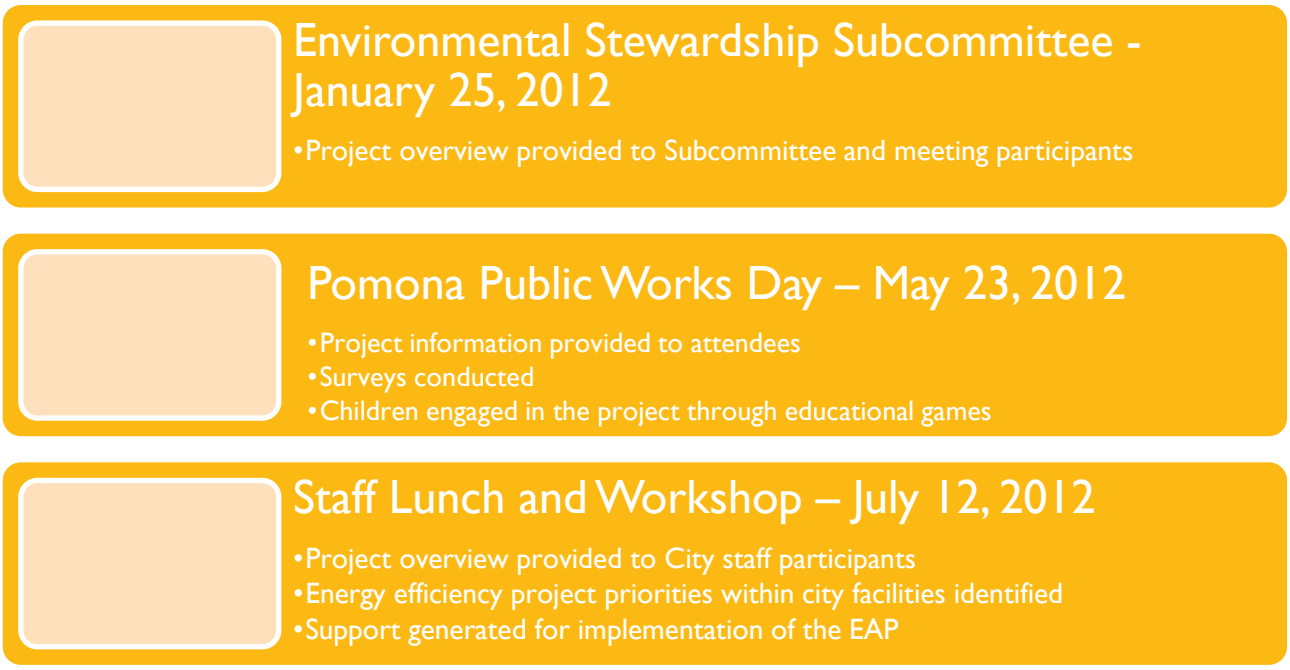
Along with staff representing other San Gabriel Valley cities taking part in the regional EAP project, City staff participated in a regional Project Steering Committee (PSC). The committee included representatives from all 27 cities participating in the project. The purpose of the PSC is to confirm a regional approach to EAP development, guide the project, share best practices among jurisdictions, and support tailored, local EAPs. The PSC convened approximately once a month from June 2011 through September 2012. During PSC meetings, representatives from SGVCOG staff and the technical consultant project team facilitated discussions and presentations to review options to achieve electricity efficiency.

PSC members regularly voted on topics through an instant polling tool, TurningPoint, to provide input on a variety of topics including the regional framework, GHG data collection process, GHG scopes and sources, reduction policies and programs, and engagement options for the EAPs. The polling tool collected staff responses, which were used to inform the recommendations that the project team used to prepare this EAP. Other PSC topics included options to conduct public outreach and engage City staff. PSC members also presented case studies, sharing success stories and lessons learned from project implementation.

COMMUNITY EVENTS

Public participation encompasses many levels of involvement, engagement, and collaboration among community members, key stakeholders as well as advocates, elected officials, and staff. As a first step in the public participation process, the project team worked with City staff to develop an outreach strategy appropriate for Pomona, which focused on reaching the public through community events and a workshop for City staff. Outreach efforts allowed residents to share ideas, collect input, and assess community and stakeholder preferences. Community and staff participation also builds local and internal capacity for project implementation, helping to build momentum for implementation. A summary of these events is shown in **Figure 6**.

Figure 6: Summary of Outreach Events



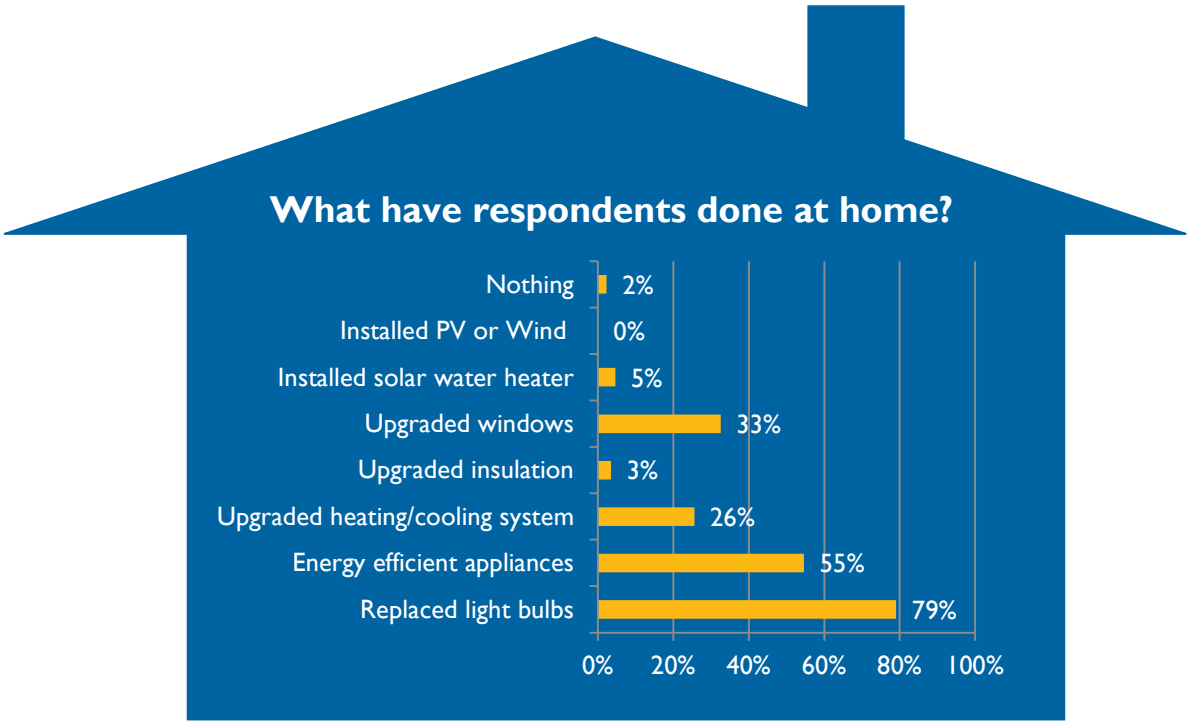
In addition to supporting development of the EAP, community participation efforts provided information and education to the community about electricity use and opportunities for savings. Outreach efforts helped the community to think about strategies to reduce electricity use and improve the quality of homes and businesses.

PERSONAL ENERGY ACTION SURVEY

As part of the regional partnership with the SGVCOG, the City of Pomona distributed a Personal Energy Action Survey during the Pomona Public Works Day community event (a blank version can be found in **Appendix A**). Although the survey was not conducted as a "statistically valid" survey, it provides decision-makers with a useful picture of opinions, actions, and motivating factors involving energy efficiency. In total, 79 people completed the survey, which was offered in English and Spanish. Most respondents were residents of Pomona (93%) and owned their home (58%).

The vast majority of respondents (95%) have already taken actions to reduce the energy use of their home or business. Although installing more energy-efficient light bulbs was the most popular action, many respondents had also upgraded their appliances, HVAC, and/or windows to more energy-efficient models. A small but noteworthy number of respondents had taken more ambitious actions, including installing solar water heaters and renewable energy systems. **Figure 7** provides the full results of respondents' actions.

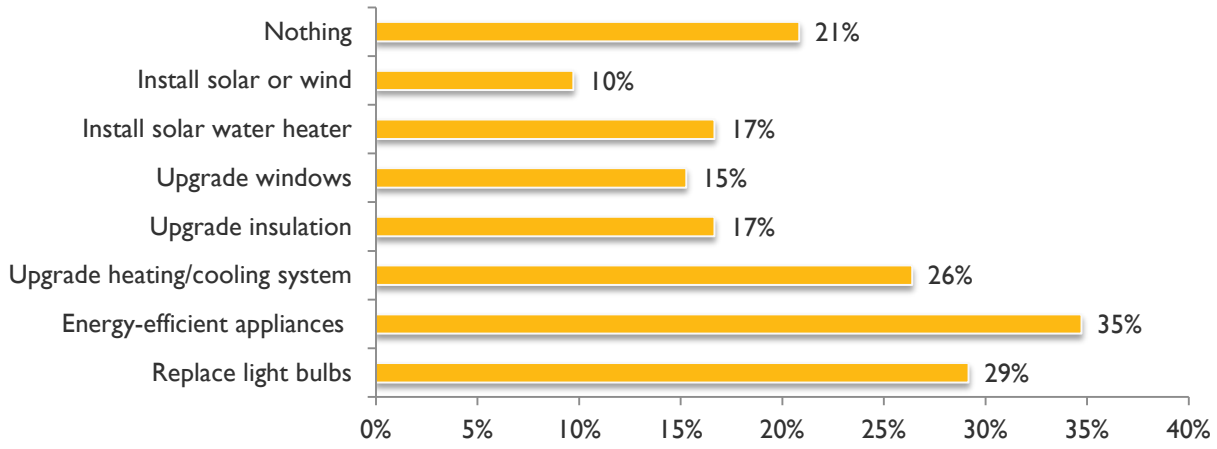
Figure 7: Completed Energy Efficiency Upgrades



Note: Percentages in the figure above show the percentage of respondents that have completed each type of energy-efficient upgrade (e.g., 79% of respondents installed energy-efficient light bulbs, and 55% installed energy-efficient appliances).

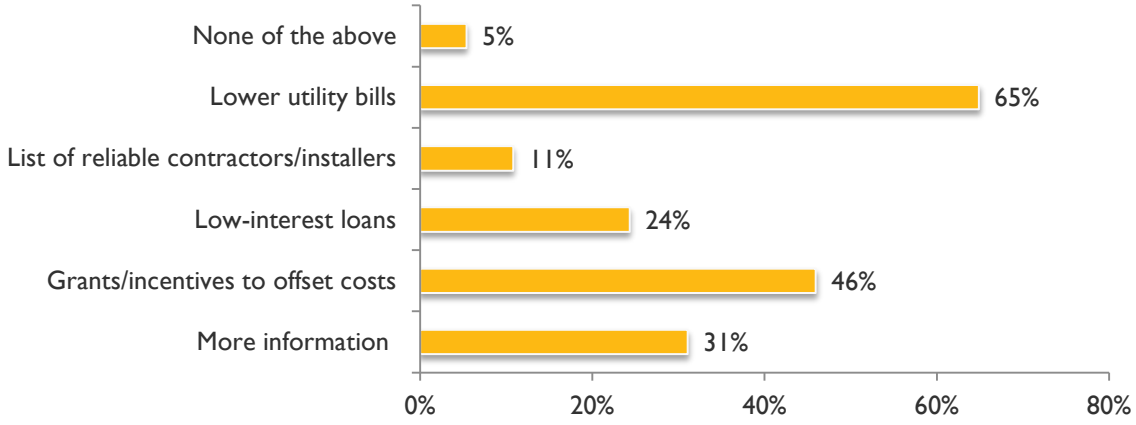
In addition to asking about actions already taken, the survey asked respondents what energy efficiency upgrades they would consider doing in the future, both in the next year and in the next five years. When asked about what they would do in the next year, many respondents favored smaller-scale upgrades such as continuing to replace light bulbs with more energy-efficient models. Over a five-year time frame, responders were willing to make greater investments and take actions such as installing solar panels on their roof to generate electricity. The survey results indicate that many energy-saving actions are feasible in Pomona and that none are being clearly ruled out by residents and workers. **Figure 8** shows the full list of actions respondents would be willing to consider within the next five years.

Figure 8: Energy Efficiency Upgrades that Would Be Considered in the Next 5 Years



Lastly, respondents were asked what would motivate them to make the energy efficiency upgrades discussed above. While financial incentives such as grants and lower utility bills were the biggest motivators among respondents, many also reported that they could be encouraged by educational campaigns. Both types of incentives will be discussed later in this EAP. Answers to this question are illustrated in **Figure 9**.

Figure 9: Incentives or Motivators for Energy Efficiency Upgrades



CHAPTER 2

GREENHOUSE GAS INVENTORY AND FORECAST

CHAPTER 2

INTRODUCTION

INVENTORY AND FORECASTING PURPOSE

This greenhouse gas emissions (GHG) inventory and forecast (Inventory) provides a detailed summary of community and municipal GHG emissions. This information is used to create reduction strategies in the City of Pomona's Energy Action Plan (EAP). The Inventory also provides a detailed summary of GHG emissions, which can be used as a foundation for future climate action planning projects.

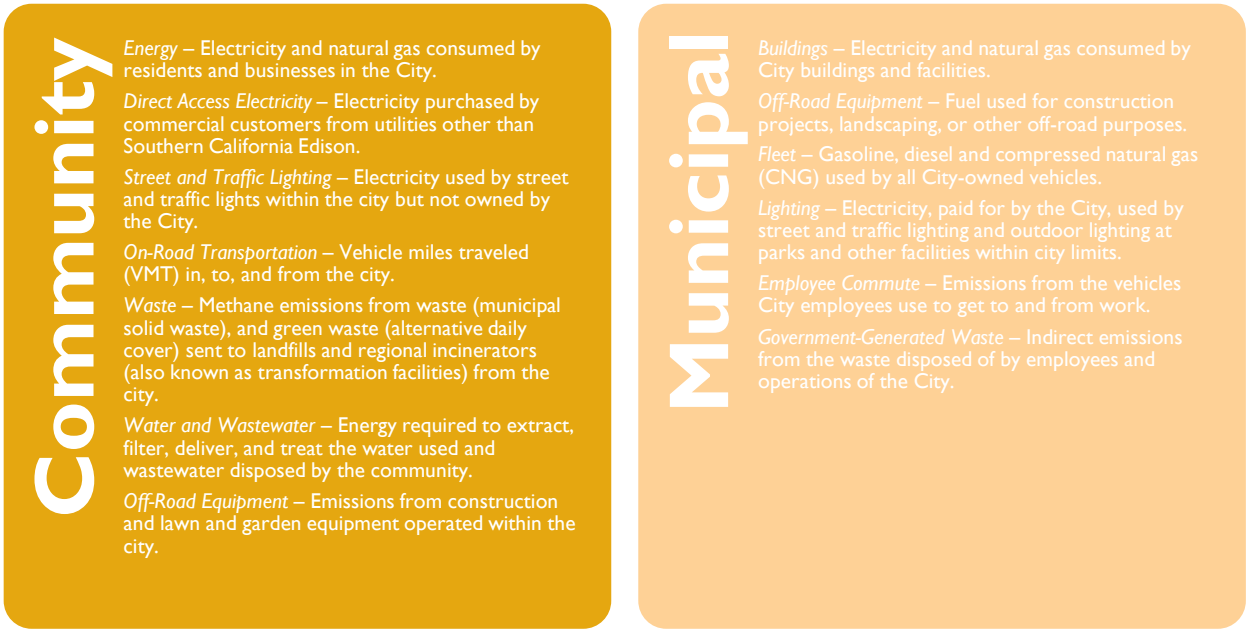
Specifically, the GHG Inventory:

- Presents GHG emissions from community and municipal activities in calendar year 2007.
- Provides a snapshot of total GHGs and electricity-specific emissions from community and municipal activities in calendar year 2010.
- Forecasts how community total emissions and electricity specific emissions will increase by 2020 if no behavioral or regulatory changes are made (known as a business-as-usual scenario).
- Adjusts the GHG forecasts to account for reduction efforts mandated by the state of California, such as new energy efficiency and vehicle standards.
- Provides City staff, decision-makers, and stakeholders with adequate information to direct development of this EAP and to establish GHG emissions reduction and energy efficiency targets.

DESCRIPTION OF RELEVANT EMISSIONS AND KEY CONCEPTS

The Inventory includes the major sources of GHGs caused by activities in the city. These sources are included based on a regionally consistent approach using statewide best practices and California Air Resources Board (CARB) recommendations. The Inventory analyzes GHG emissions from community and municipal sources as described in **Figure 10**. Refer to **Appendix B** for detailed activity data and emissions by sector and subsector and **Appendix C** for activity data sources and specific emissions factors for each subsector.

Figure 10: Community and Municipal GHG Emissions Sources, 2007



COMMUNITY INVENTORY SUMMARY

In the baseline year of 2007, the City of Pomona emitted approximately 987,170 $MTCO_2e$, as shown in **Figure 11** and **Table 5**. Transportation was responsible for about 53% of total community emissions, or around 522,890 $MTCO_2e$. Commercial and industrial energy use was the next largest sector, resulting in 232,170 $MTCO_2e$ or 24% of the total, and residential energy use was third with 148,460 $MTCO_2e$ (15%). For a detailed description of activity data, such as the breakdown of residential electricity and natural gas uses, refer to **Appendix B**.

Figure 11: Community-Wide GHG Emissions by Sector, 2007

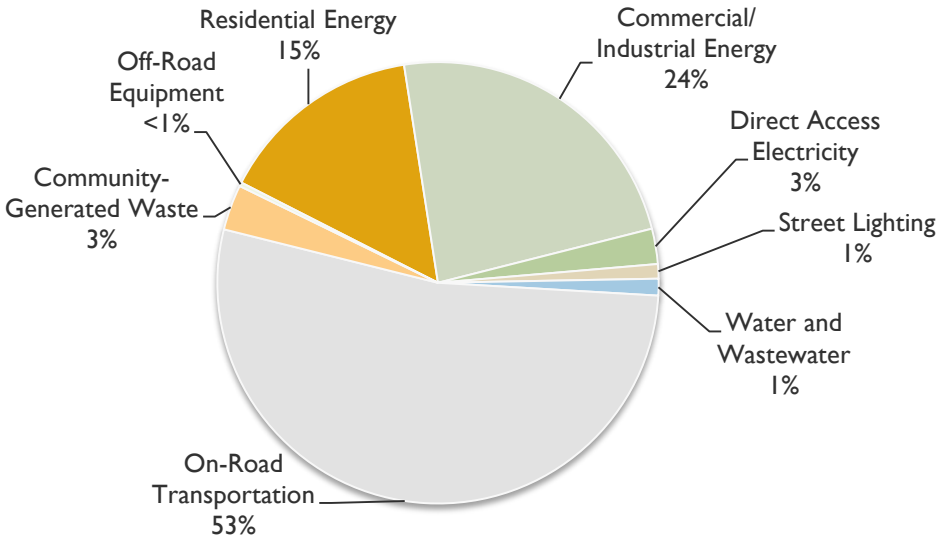


Table 5: Community GHG Emissions by Sector, 2007

Sector	$MTCO_2e$	Percent of Total
Residential Energy	148,460	15%
Commercial/Industrial Energy	232,170	24%
Direct Access Electricity	25,540	3%
Street & Traffic Lighting	10,470	1%
Water & Wastewater	12,100	1%
On-Road Transportation	522,890	53%
Community-Generated Waste	32,880	3%
Off-Road Equipment	2,660	<1%
Total*	**987,170**	**100%**

** Due to rounding, the total may not equal the sum of component parts.*

2010 COMMUNITY EMISSIONS UPDATE

Activity data for 2010 was available for many community sectors. This information has been translated into GHG emissions for Pomona and all other participating cities and will serve as a common benchmark that will allow activities for accurate comparison between all cities in the San Gabriel Valley participating in the EAP process. This 2010 interim inventory will also help cities track GHG and energy reductions from programs implemented since the baseline year.

Table 6 summarizes activity data for 2010 and compares emissions from 2007 and 2010 for the community of Pomona. Out of 14 sectors and subsectors, all but two saw a reduction in GHG emissions. Overall, community emissions declined by almost 50,000 $MTCO_2e$, or about 5%. Commercial/industrial electricity and natural gas saw a 12% and 11% decreases in activity data and emissions respectively, with the overall economic recession as a probable cause. Decreases in commercial/industrial electricity use also correlate to the 31% decrease in direct access electricity use for two reasons: 1) all direct access customers are likely commercial or industrial in nature and 2) the percent of nonresidential electricity use purchased through direct access dropped from 10.7% in 2007 to 8.6% in 2010. The electricity used in the community for water pumping decreased 14% from 2007 to 2010 as a result of the City's efforts to increase the efficiency of City-owned water pumps. Population estimates for 2007 turned out to be higher than official US Census figures for 2010, resulting in a substantial decrease in the water, waste, and wastewater sectors. The large increase in green waste and decrease in community-generated and transformed waste do not appear linked to any specific policy or activity, although it is common among participating cities to see significant fluctuations in these activities.

Off-road construction emissions decreased 59%, while there was a larger decrease in construction permits issued in the same period, an 81% decrease. This divergence came from the shortfalls of the model used to estimate off-road emissions, OFFROAD2007, and the methods used to relate countywide emissions to Pomona. OFFROAD2007 outputs construction emissions for all of Los Angeles County, and those emissions are assigned to Pomona using the city's proportion of countywide construction permits issued. In the housing construction decline between 2007 and 2010, fewer permits were issued throughout the county; however, OFFROAD2007 did not show the associated decrease in construction equipment emissions.

Table 6: Community-Wide GHG Emissions Comparison, 2007 and 2010

Sector	2007 Activity Data	2010 Activity Data	Percent Change 2007 – 2010	Units	2007 $MTCO_2e$	2010 $MTCO_2e$	Percent Change 2007 – 2010
Residential Electricity	233,018,150	226,682,260	-3%	kWh	67,070	65,250	-3%
Residential Natural Gas	15,299,680	15,078,710	-1%	Therms	81,390	80,210	-1%
Commercial/Industrial Electricity	508,833,090	449,921,160	-12%	kWh	146,470	129,510	-12%
Commercial/Industrial Natural Gas	16,110,860	14,319,590	-11%	Therms	85,700	76,170	-11%
Direct Access Electricity	60,968,800	42,333,940	-31%	kWh	25,540	17,730	-31%
Street and Traffic Lighting	36,347,720	36,765,530	1%	kWh	10,470	10,580	1%
Water Pumping	3,169,270	2,714,080	-14%	kWh	910	780	-14%
On-Road Transportation	987,762,520	1,002,479,360	1%	VMT	522,890	518,940	-1%
Waste – Community-Generated Waste	168,390	139,230	-17%	Tons of Waste	31,310	25,890	-17%
Waste – Alternative Daily Cover	9,420	15,070	60%	Tons of ADC	1,450	2,320	60%
Waste – Transformed	390	260	-33%	Tons transformed	120	80	-33%
Off-Road Equipment – Construction	160	30	-81%	Permits Issued	2,620	1,080	-53%
Off-Road Equipment – Lawn and Garden	38,980	39,460	1%	Households	40	40	0%
Water	27,278,030	21,129,820	-23%	kWh	7,850	6,080	-23%
Wastewater – Indirect	11,609,760	9,353,900	-19%	kWh	3,340	2,690	-19%
				Total*	**987,170**	**937,350**	**-5%**

** Due to rounding, the total may not equal the sum of component parts.*

MUNICIPAL INVENTORY SUMMARY

The municipal inventory includes GHG emissions from the operations and activities conducted by the City of Pomona. GHG emissions were calculated from activity data collected by the City. Operations and activities by the City in 2007 resulted in approximately 14,300 $MTCO_2e$ with about 34% (4,850 $MTCO_2e$) coming from Pomona's water service. The City's vehicle fleet was responsible for a further 27%, or 3,870 $MTCO_2e$, reduction with other activities causing the remaining 39% of emissions. **Figure 12** and **Table 7** depict the contribution of each activity to total GHG emissions.

Figure 12: Municipal GHG Emissions by Sector, 2007

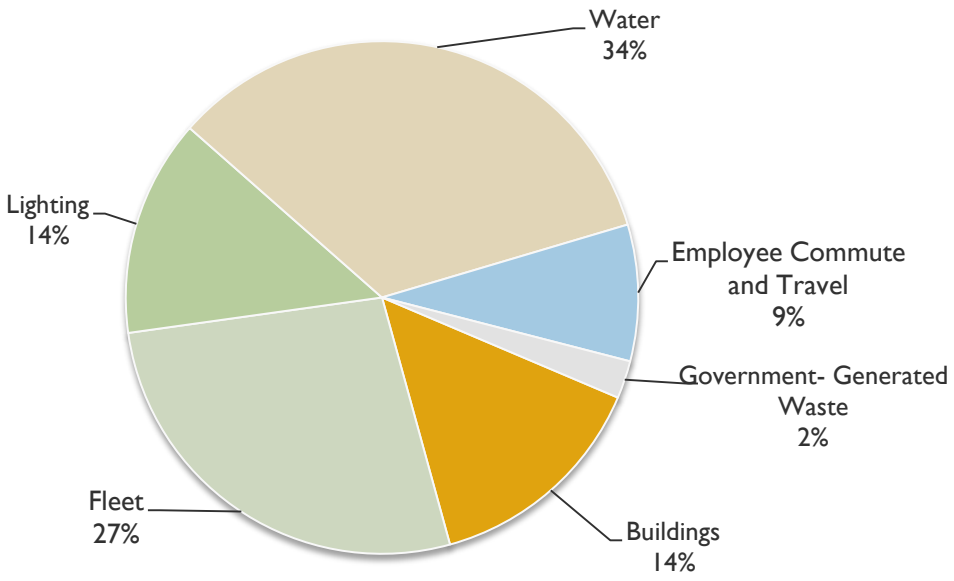


Table 7: Municipal GHG Emissions by Sector, 2007

Sector	$MTCO_2e$	Percent
Buildings	2,050	14%
Fleet	3,870	27%
Lighting	1,960	14%
Water	4,850	34%
Employee Commute and Travel	1,230	9%
Government-Generated Waste	340	2%
Total*	**14,300**	**100%**

** Due to rounding, the total may not equal the sum of the component parts.*

2010 MUNICIPAL EMISSIONS UPDATE

As with the community data, municipal activity data was available for 2010 for a number of sectors. This information, shown in **Table 8**, has been used to create a snapshot of 2010 municipal GHG emissions. Emissions from Pomona government operations in 2010 were estimated at 12,330 $MTCO_2e$, more than a 14% decrease from 2007. Building electricity use increased 12% from 2007 to 2010. Both subsectors of fleet fuel use, gasoline and diesel, saw decreases in emissions ranging from 24% to 18% lower than 2007. These decreases are likely a result of increases in fuel efficiencies of the City fleet and overall decreases in fuel use. Municipal water pumping electricity saw decreases similar to the

community, accounting for a 25% decrease in emissions. Employee commute decreased 11% as a result of a decrease in number of employees from 2007 to 2010.

Table 8: Municipal GHG Emissions Comparison, 2007 and 2010

Sector	Subsector	2007 Activity Data	2010 Activity Data	Percent Change 2007–2010	Unit	2007 $MTCO_2e$	2010 $MTCO_2e$	Percent Change 2007–2010
Buildings	Electricity	6,035,870	6,752,600	12%	kWh	1,740	1,950	12%
	Natural Gas	57,600	62,010	8%	Therms	310	330	6%
Fleet	Gasoline	274,080	208,940	-24%	Gallons	2,530	1,930	-24%
	Diesel	125,140	102,820	-18%	Gallons	1,340	1,100	-18%
Lighting	City-Owned Streetlights	4,592,310	4,561,960	-1%	kWh	1,320	1,310	-1%
	Traffic Lights	786,100	805,960	3%	kWh	230	230	0%
	SCE-Owned Streetlights	1,062,650	1,089,990	3%	kWh	310	310	0%
	Other Public Lighting	362,490	260,200	-28%	kWh	100	70	-30%
Water	Water Electricity	16,873,690	12,747,250	-24%	kWh	4,850	3,660	-25%
Employee Commute and Travel	Employee Commute	2,932,850	2,636,130	-10%	VMT	1,230	1,100	-11%
	Employee Travel	20,760	18,660	-10%	Miles Traveled	<10	<10	0%
Government -Generated Waste*	Tons Disposed	1,910	1,910	0%	Tons	340	340	0%
					Total**	**14,300**	**12,330**	**-14%**

** Activity data was not available for 2010 so 2007 information is used as a proxy.*

***Due to rounding, the total may not equal the sum of the component parts.*

BUSINESS-AS-USUAL (BAU) GHG EMISSIONS FORECAST

Table 9 lists the various growth indicators and sources used in the forecasting of Pomona's community emissions. For a detailed explanation of indicator methodology for all sectors, see **Appendix B**. Future energy use (including electricity) was forecast by assuming that the energy consumption per household and per job would remain roughly the same over time. For residential energy use, household growth rates are calculated and multiplied by the per-household energy use rate. Similarly, for commercial and industrial energy use, emissions are assumed to grow with the number of jobs.

Table 9: Community BAU Growth Projections

Growth Indicator	Emissions Sector	2007	2010	2020	Sources
Jobs	Commercial and Industrial Energy	51,700	55,080	57,000	2010 Census, SCAG 2012 RTP
Service Population (Residents + Jobs)	Solid Waste, Water, Wastewater	212,510	204,140	225,500	2010 Census, SCAG 2012 RTP, SCAG 2003 RTP
Households	Residential Energy, Off-Road	38,980	38,480	43,400	Fehr & Peers, SCAG 2003 RTP
Daily VMT	Transportation	2,846,580	2,888,990	3,035,100	2010 Census, SCAG 2012 RTP

COMMUNITY BUSINESS-AS-USUAL FORECAST

Without any policies or programs to reduce GHG emissions, community emissions for the City of Pomona are expected to rise close to 9% (86,050 $MTCO_2e$) by 2020, compared to 2007 levels. **Table 10** below describes this rise in emissions in further detail.

Table 10: Community GHG Emissions and BAU Forecast, $MTCO_2e$

Sector	2007	2010	2020	Percent Change (2007-2020)
Residential Energy	148,460	145,460	165,280	11%
Commercial/Industrial Energy	232,170	205,680	255,980	10%
Direct Access Electricity	25,540	17,730	28,160	10%
Street and Traffic Lighting	10,470	10,580	10,470	0%
Water Pumping	910	780	970	7%
On-Road Transportation	522,890	518,940	557,520	7%
Community-Generated Waste	32,880	28,290	34,890	6%
Off-Road Equipment	2,660	1,120	8,060	203%
Water	7,850	6,080	8,330	6%
Wastewater	3,340	2,690	3,540	6%
Total*	**987,170**	**937,350**	**1,073,220**	**9%**

** Due to rounding, the total may not equal the sum of component parts.*

MUNICIPAL BUSINESS-AS-USUAL FORECAST

Pomona's municipal forecast is based on a no-growth scenario, as the City has not made any specific plans to grow its operations. The change in emissions is expected to result from the City's role as a water provider, which will emit more GHGs under the BAU forecast because of a growing service population (see **Table 11**).

Table 11: Municipal GHG Emissions and BAU Forecast $MTCO_2e$

Sector	2007	2010	2020	Percent Change (2007-2020)
Buildings	2,050	2,280	2,280	11%
Fleet	3,870	3,030	3,030	-22%
Lighting	1,960	1,920	1,920	-2%
Water	4,850	3,660	4,040	-17%
Employee Commute and Travel	1,230	1,100	1,100	-11%
Government-Generated Waste *	340	340	340	0%
Total**	**14,300**	**12,330**	**12,710**	**-11%**

** Activity data was not available for 2010 so 2007 information is used as a proxy.*

***Due to rounding, the total may not equal the sum of the component parts.*

STATE ADJUSTMENTS TO BUSINESS AS USUAL (ABAU) FORECAST

STATE REDUCTIONS

The State has been a proactive force in reducing GHG emissions. Regulations affecting vehicle standards, building standards, and the renewable energy content of electricity will reduce GHG levels in the city. The state actions listed below are incorporated into the BAU forecast to create a more realistic estimate of the City's future emissions. For a detailed description of these actions, see **Appendix B**.

- *Clean Car Fuel Standard (Assembly Bill 1493—Pavley)*. Requires carmakers to reduce GHG emissions from new passenger cars and light trucks beginning in 2011. CARB anticipates that the Pavley standards will reduce GHG emissions from California passenger vehicles by approximately 22% in 2012 and by around 30% in 2016.
- *Renewables Portfolio Standard (RPS)*. Requires utility providers to increase the portion of energy that comes from renewable sources to 20% by 2010 and to 33% by 2020. Due to potential implementation issues, the ABAU forecast assumes that energy providers will achieve a minimum 28% renewable portfolio by 2020.
- *California Building Code (Title 24, CALGreen)*. Requires each new building constructed in California to incorporate direct electricity, natural gas, and water savings.
- *California Solar Initiative*. The California Solar Initiative (CSI) is a state program that provides cash rebates for the installation of an electric solar panel system.

COMMUNITY ABAU FORECAST

All State programs highlighted above are included in the community ABAU forecast. As summarized in **Table 12**, these State reduction efforts are anticipated to reduce emissions by 131,590 $MTCO_2e$ in 2020 from 2007 levels. More than half of reductions as expected to come from the Pavley standards, with another significant portion coming from the RPS. In comparison to the BAU scenario, 2020 emissions with State reduction measures are 5% below baseline 2007 levels rather than nearly 9% above (see **Table 13**).

Table 12: Impact of State Policies on Community GHG Emissions, 2020 ($MTCO_2e$)

State Reductions Summary	2020
Pavley I Reductions	-86,060
RPS Reductions	-35,380
CSI Reductions	-2,060
CA Building Code Reductions	-8,090
Total*	**-131,590**

** Due to rounding, the total may not equal the sum of the component parts.*

Table 13: Comparison of Community BAU and Adjusted BAU Forecasts, 2020 ($MTCO_2e$)

State Reductions Summary	2007	2010	2020
BAU Forecast	987,170	937,350	1,073,220
Total State Reductions from BAU	0	0	-131,590
Adjusted BAU Forecast	987,170	937,350	941,630
Percent Change from 2007	0%	-5%	-5%

MUNICIPAL ABAU FORECAST

Only certain State reduction programs affect the municipal BAU forecast, including the RPS, the Pavley standards, and the Title 24 efficiency standards. The primary reductions will occur from the Pavley standards and the RPS (see **Table 14**). The CSI is not applicable to municipalities and is not quantified, and no reductions came from compliance with Title 24, because the City does not have any set plans to expand buildings in the future. **Table 15** shows the effect of the included State reduction efforts on BAU emissions. Emissions in 2020 are expected to be reduced by 23% in 2020.

Table 14: Impact of State Reductions on Municipal Emissions, 2020 ($MTCO_2e$)

State Reductions Summary	2020
Pavley Reductions	-650
RPS Reductions	-980
CA Building Code Reductions	0
Total*	1,630

** Due to rounding, the total may not equal the sum of the component parts.*

Table 15: Comparison of Municipal BAU and Adjusted BAU Forecasts ($MTCO_2e$)

State Reductions Summary	2007	2010	2020
BAU Forecast	14,300	12,330	12,710
Total State Reductions			-1,630
Adjusted BAU Forecast	14,300	12,330	11,080
Percent Change from 2007		-14%	-23%

REDUCTION TARGETS

As previously mentioned, this EAP can serve as the foundation for future climate action planning projects. Community GHG reduction targets have been included as an informational item. While this overall GHG emissions reduction target was consulted when establishing community and municipal electricity reduction targets, the two are not linked directly. For electricity-specific community reduction goals, see Chapter 4.

STATE RECOMMENDED 2020 REDUCTION TARGETS

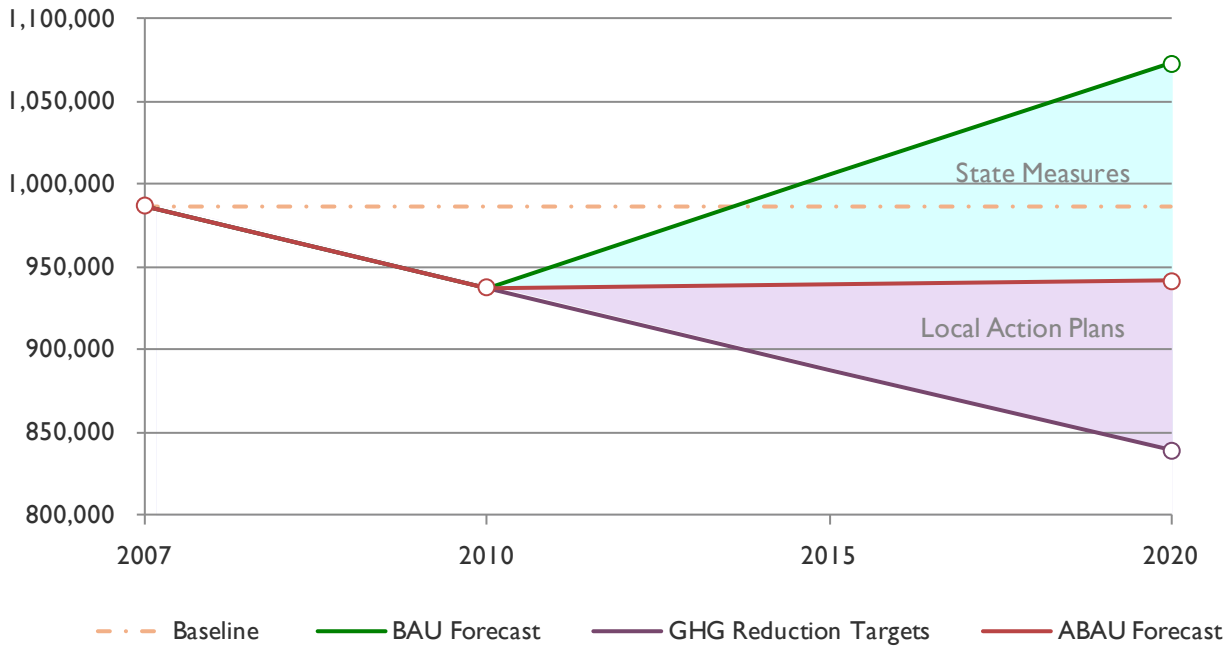
AB 32 recommends that local governments adopt a GHG reduction target of 15% below baseline levels by 2020. The State has not adopted GHG reduction targets beyond 2020; however, in 2005, then-Governor Schwarzenegger signed Executive Order S-3-05, which created a goal to reduce GHG emissions to 1990 levels by 2020 and to 80% below 1990 levels by 2050.

As shown in **Table 16** and **Figure 13**, the City would need to facilitate a reduction in emissions of 102,540 $MTCO_2e$ to meet the State-recommended AB 32 Scoping Plan goal of 15% below baseline levels by 2020.

Table 16: State-Recommended 2020 GHG Reduction Target

	2020
AB 32 Percent Reduction from 2007	15%
Emissions Goal ($MTCO_2e$)	839,090
Adjusted BAU Forecast with State Reductions ($MTCO_2e$)	941,630
Local Reductions Needed from Adjusted BAU ($MTCO_2e$)	102,540

Figure 13: Comparison of BAU Forecast and Reduction Target, 2007–2020



CHAPTER 3

ELECTRICITY PROFILE

INTRODUCTION TO ELECTRICITY AND EFFICIENCY

Electricity used in Pomona's homes and businesses is provided by Southern California Edison (SCE). SCE generates electricity from a mix of nonrenewable sources, such as natural gas and coal, and renewable sources, such as biomass, geothermal, hydroelectric, solar, and wind. SCE operates the Big Creek Hydroelectric Plant and San Onofre Nuclear Generating Station in the region. The amount of electricity used to power homes and businesses determines how much power SCE needs to generate and the quantity of GHGs emitted. If the energy needed for daily activities is decreased, reductions can be achieved in the amount of electricity SCE needs to generate and transmit. In addition, the GHGs associated with electricity generation would decrease. The most common uses of electricity are for lighting and heating/cooling buildings, for powering appliances such as refrigerators, computers, and washing machines, and for pumping water around the city and into homes or to treatment plants. An example of a home with energy-efficient features is shown in **Figure 14**.

Figure 14: Efficient Homes Features

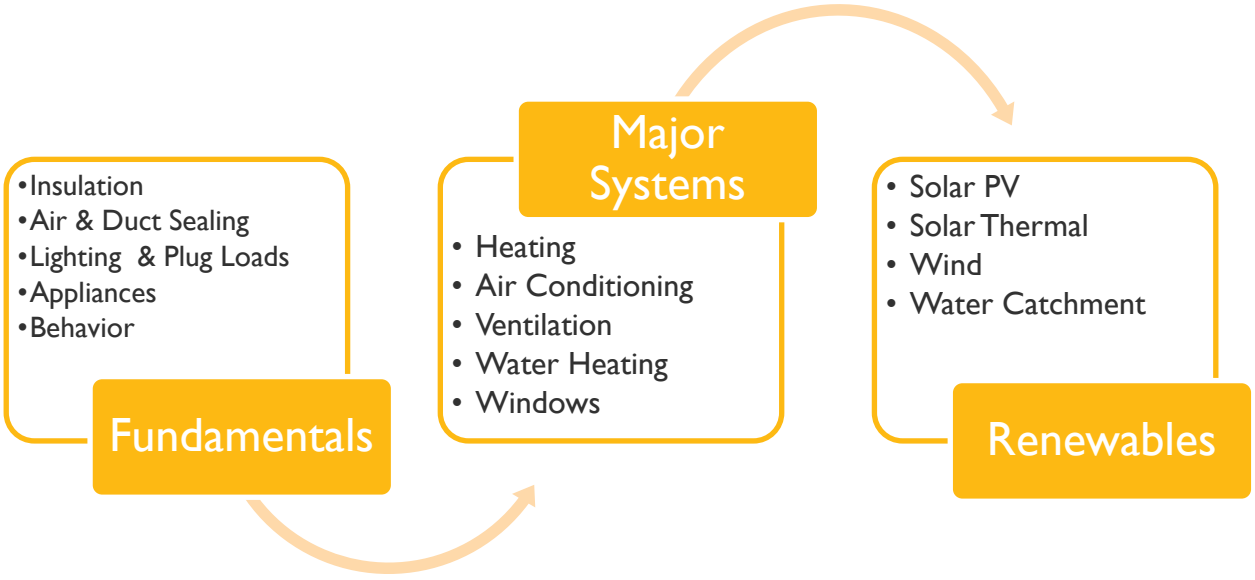
Source: PMC, 2012

THE ELECTRICITY REDUCTION LOADING ORDER

GHGs from electricity use can be reduced, primarily through increasing conservation (for example, avoiding using electricity) and improving efficiency (for example, using less electricity for the same activity) when conservation cannot be realized. Common conservation practices include unplugging appliances and electronics when not in use and turning off lights during the day or when the room is empty. Increasing energy efficiency means replacing incandescent light bulbs with compact fluorescent lights and inefficient or older models of appliances and electronics with new, preferably Energy Star (or other efficiency label) models in order to use less energy when it is necessary. Using small renewable solar panels can also reduce demand from SCE for daily electricity use. Reductions in electricity used for water pumping in the community can be achieved by using less water for irrigation and other household uses. More efficient toilets, showerheads, faucets, and drip irrigation systems can help conserve water. These examples are just some of the energy efficiency and conservation measures, which individuals and households can undertake. This Energy Action Plan (EAP) outlines programs and policies to support efficiency and conservation of electricity use in the community.

When completing energy efficiency retrofits to buildings, there is a loading order that should be followed to maximize energy savings while minimizing added costs. **Figure 15** depicts the recommended loading order for undertaking energy efficiency projects and retrofits.

Figure 15: Retrofitting Loading Order



COMMUNITY ENERGY COMPARISONS

Pomona is a predominantly residential community, although commercial and industrial land uses cover around 13% of the city. Some vacant land exists in Pomona, located mostly in industrial areas and in the older parts of the city. As is typical for communities in the San Gabriel Valley, Pomona experienced significant growth between 1950 and 1990, particularly in the period immediately following World War II. The city achieved almost full buildout following the implementation of the 1976 General Plan, causing growth rates to decline dramatically.

Pomona's residential units are mostly single-family houses, though not overwhelmingly so, and the city does have a fair amount of larger multi-family complexes, as illustrated in **Table 17**. The average home in Pomona is relatively small, with a median home size of 1,350 square feet; only about 7% of houses in the city are 2,400 square feet or larger. Although a majority of Pomona's houses is owner-occupied, the city does have a large number of rental units (44%). Overcrowding is also an issue in Pomona; the average household size is 3.77 people and the average family size is 4.15.

Table 17: Housing Units by Type in Pomona, 2010

Housing Type	Number	Percentage
1 unit, detached	25,060	61%
1 unit, attached	3,050	7%
2 units	900	2%
3 or 4 units	2,640	6%
5 to 9 units	2,200	5%
10 to 19 units	2,020	5%
20 or more units	3,550	9%
Mobile home	1,980	5%
Boat, RV, van, etc.	40	<1%
Total*	41,440	100%

Source: US Census, American Community Survey, 2006 – 2010, Table DP-04

**Due to rounding, the total may not equal the sum of the component parts.*

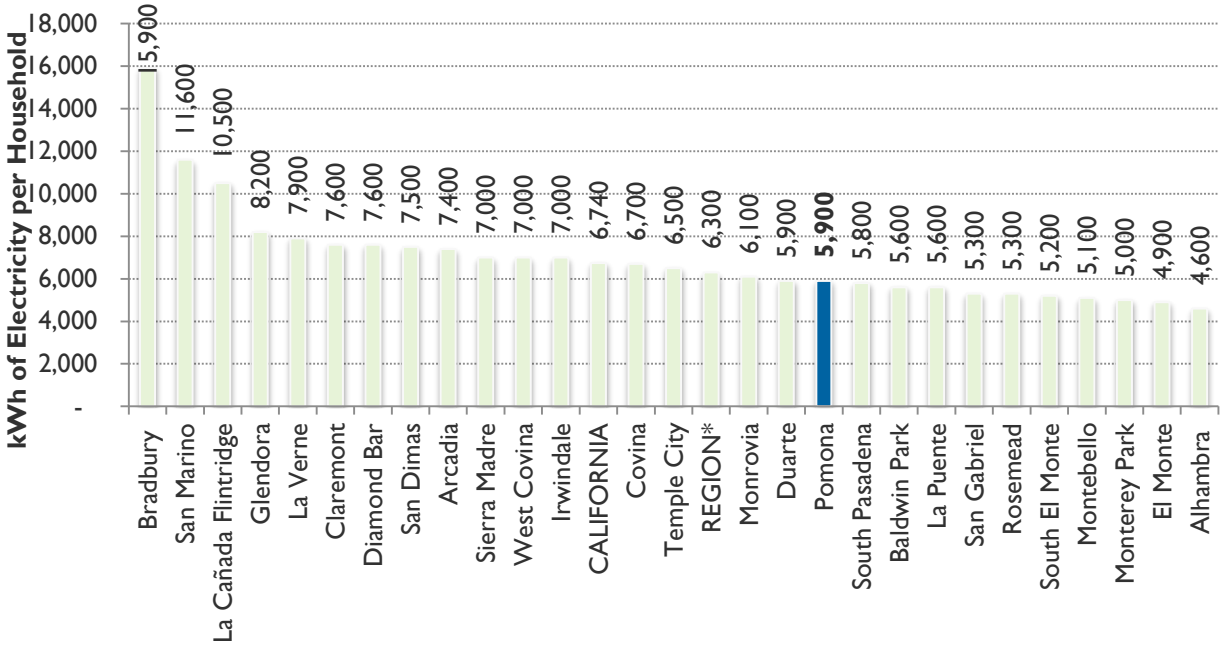
FUTURE DEVELOPMENT

Future development in Pomona will be focused on infill development to increase the number of housing units and economic vitality. The City has identified eight areas that show strong potential for such development: Downtown Pomona, the Crossroads Center, the junctions of State Routes 60 and 71, the North Pomona Center, Cal Poly, the Lanterman Center, the Fairplex, and the Holt Avenue corridor; these areas are not mutually exclusive and some overlap. In general, Pomona's development plans consist of mixed-use projects, higher density residential complexes, and expanded transit options as well as connectivity.

COMMUNITY COMPARISON TO REGIONAL AND COUNTY USE

A typical household in Pomona uses 5,900 kilowatt-hours (kWh) per year, lower than the regional average of 6,300 kWh annually for participating communities, as shown in **Figure 16**. Although the majority of the housing stock pre-dates the state's building and energy efficiency codes, the average, smaller size of Pomona's houses somewhat reduces the energy inefficiencies caused by older buildings. In addition, Pomona's large number of pre-war houses might also bring down community energy use (such houses often have energy-saving features such as passive solar design).

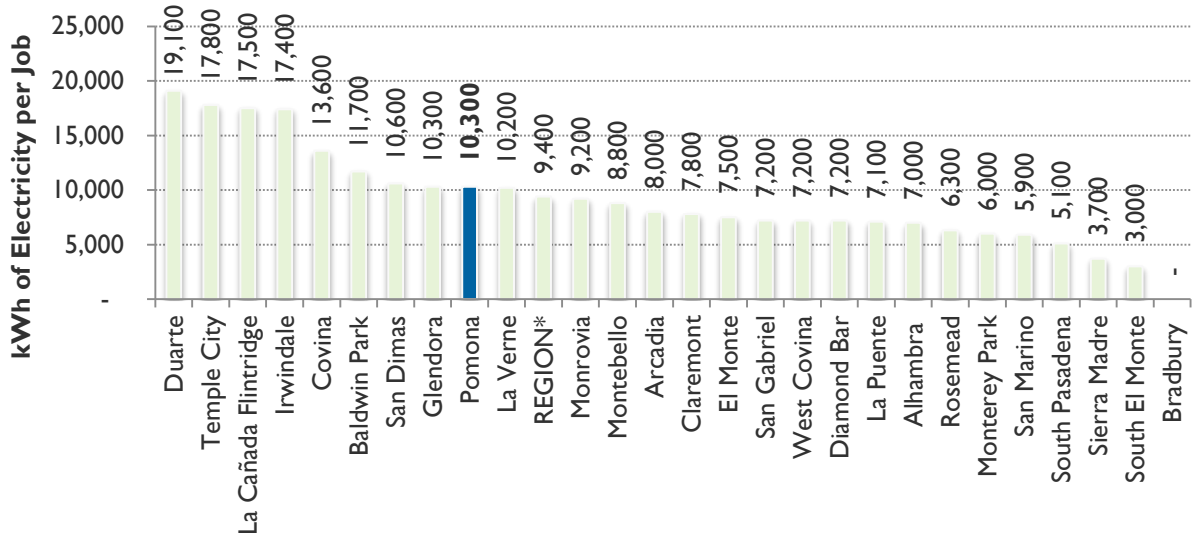
Figure 16: Annual Average kWh of Electricity Use per Household, 2010



**Region electricity use represents the San Gabriel Valley average for all 27 cities participating in the EAP project.*

Nonresidential units located in Pomona are generally less energy efficient compared to residential units, as illustrated in **Figure 17**. A typical job in the city uses 10,300 kWh per year, ranking Pomona ninth out of the 27 participating communities and above the regional average of 9,400 kWh annually. This is probably due to the nature of Pomona's jobs; a large number of residents work in health care, manufacturing, and other energy-intensive occupations.

Figure 17: Annual Average kWh of Electricity Use per Job, 2010



**Region electricity use representing the San Gabriel Valley average for all 27 cities participating in the EAP project.*

MUNICIPAL ELECTRICITY USE

In 2007, the City of Pomona used approximately 29,713,110 kWh in its municipal operations. This electricity use falls into three categories: 1) buildings and facilities, 2) outdoor lighting, and 3) water pumping. Within each category are a number of different rate groups, discussed below and illustrated in **Table 18**. The buildings and facilities sector contains the domestic, general service non-demand rated (GS-1), general service demand rated (GS-2), and time-of-use (TOU-GS) rate groups. The domestic and GS-1 groups contain small buildings, irrigation controls, and other low-level electricity users. The GS-2 group is made up of larger buildings and facilities (e.g., City Hall or the Pomona Library), and the TOU-GS group contains the biggest operations (e.g., the Pomona Police Department). Both the GS-2 and TOU-GS rate groups are demand rated, meaning the more electricity facilities in these groups use, the higher the cost per kWh. Overall, the buildings and facilities sector used 6,035,870 kWh in 2007.

Within the public lighting sector are the outdoor area lighting (AL-2), SCE-owned streetlights (LS-1), City-owned streetlights (LS-2 and LS-3), and traffic signals and controllers (TC-1) rate groups. Lights in these four groups used a combined total of 6,803,550 kWh in 2007, with about two-thirds of lighting electricity being used by the City-owned streetlights.

The water pumping sector, used to pump and store water distributed by the City in its role as a water provider, contains the time-of-use pumping (TOU-PA-B), pumping (PA-1), demand-metered pumping (PA-2) and time-of use demand-rated pumping (TOU-PA-5) rate groups. This sector contains the largest electricity users in the City's operations; the TOU-PA-5 rate group alone used 12,863,250 kWh in 2007, more than buildings and facilities and public lighting combined.

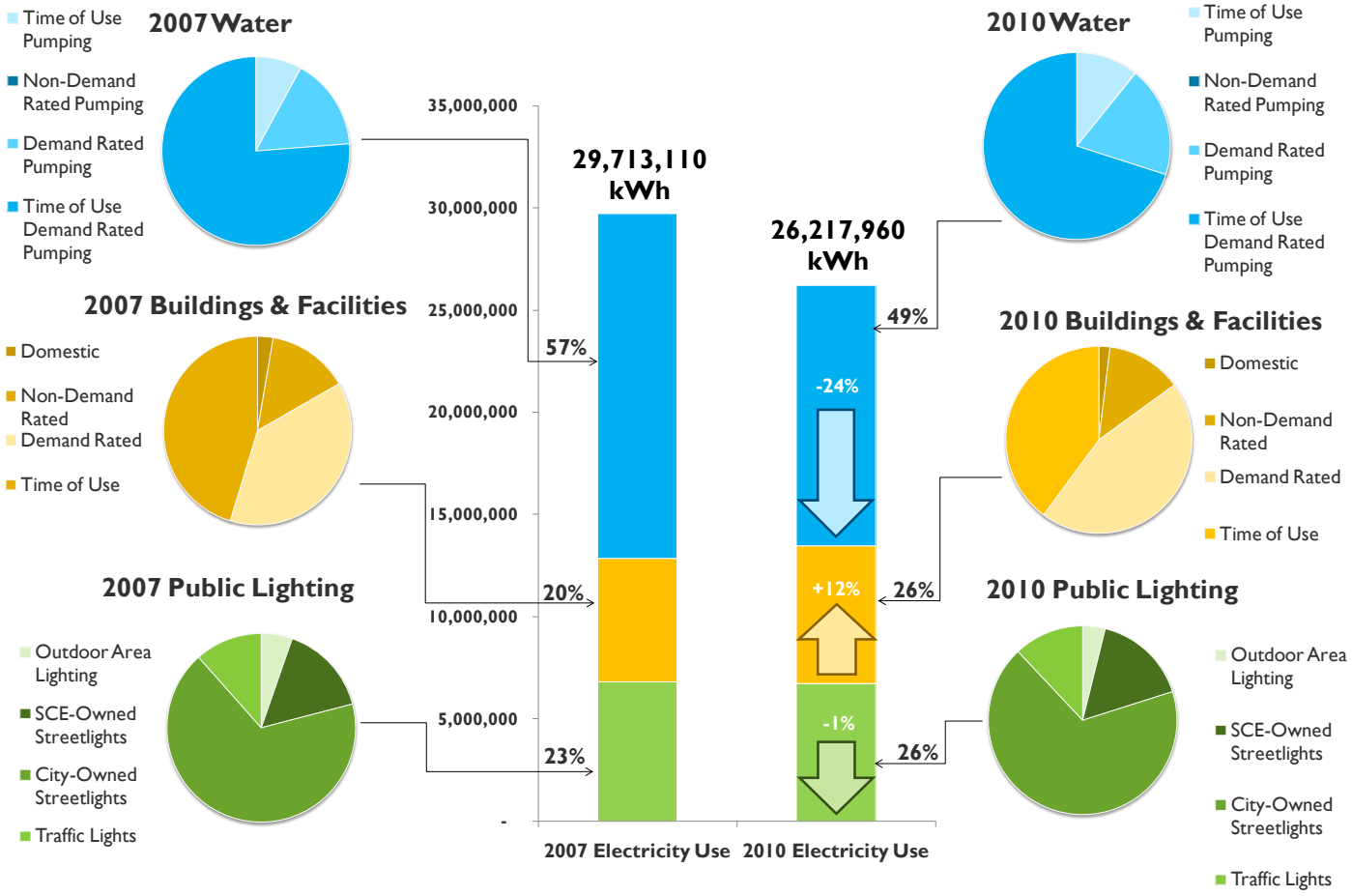
Table 18: City of Pomona Municipal Electricity Use by Rate Class, 2007

Buildings and Facilities	2007 Annual kWh	Percent of 2007 Total kWh
Domestic	162,110	1%
Non-Demand Rated (GS-1)	845,930	3%
Demand Rated (GS-2)	2,292,990	8%
Time-Of-Use (TOU-GS)	2,734,840	9%
Total Buildings and Facilities*	6,035,870	21%
Public Lighting	**2007 Annual kWh**	**Percent of 2007 Total kWh**
Outdoor Area Lighting (AL-2)	362,490	1%
SCE-Owned Streetlights (LS-1)	1,062,650	4%
City-Owned Streetlights (LS-2, LS-3)	4,592,310	15%
Traffic Lights (TC-1)	786,100	3%
Total Public Lighting*	6,803,560	23%
Water Pumping	**2007 Annual kWh**	**Percent of 2007 Total kWh**
Non-Demand Rated Pumping (PA-1)	10,720	<1%
Demand Rated Pumping (PA-2)	2,674,130	9%
Time-Of-Use Non-Demand Rated Pumping (TOU-PA-B)	1,325,590	4%
Time-Of-Use Demand Rated Pumping (TOU-PA-5)	12,863,250	43%
Total Water Pumping*	16,873,680	56%
Total All Municipal Accounts*	**29,713,110**	**100%**

**Due to rounding, the total may not equal the sum of the component parts.*

The goal of analyzing both 2007 and 2010 electricity use is to understand how the City's electricity needs change over time, and to identify opportunities to further reduce electricity use at City facilities. **Figure 18** compares Pomona's municipal electricity use in 2007 and 2010, and provides a breakdown of the types of activities in which that electricity is used. In 2010, the buildings and facilities sector saw a 12% rise in electricity use, although lighting declined slightly and electricity use for water pumping decreased almost 25%.

Figure 18: Changes in Municipal Electricity Use, 2007–2010



The top 10 municipal electricity users in the buildings and facilities category are provided in **Table 19** below. Between 2007 and 2010, the City decreased electricity use in all but one facility. In total, the top 10 facilities decreased their electricity use by 8% during this period. The City Hall and City Council portion of the Civic Center saw a 10% decrease in electricity use and 12% decrease in electricity cost from 2007 to 2010. The city library had much larger reductions in the same period. Electricity use dropped 26% while costs decreased only 12%. The largest decrease in electricity use occurred in Ganesha Park, which used 27% less electricity in 2010 than 2007. The Pomona Gardens Mobile Home Park also had significant reductions in electricity use and cost of 21% and 12%, respectively. The projects that the City of Pomona has implemented or is planning to implement to reduce electricity use are identified and described in more detail in the next chapter.

Table 19: City of Pomona Top 10 Building and Facility Users, 2007–2010

Rank in 2007	Facility Name	2007 Annual kWh	2010 Annual kWh	% Change in kWh from 2007-2010	2007 Annual Cost	2010 Annual Cost	% Change in cost from 2007 -2010
1	Police Department	1,512,440	1,592,770	5%	$181,773	$178,531	-2%
2	Civic Center - City Hall, City Council	1,222,400	1,100,890	-10%	$184,761	$163,145	-12%
3	Civic Center - Library	544,670	402,480	-26%	$78,429	$68,750	-12%
4	Wireless Communication Facility - 2 Rio Rancho Road	336,420	310,260	-8%	$41,125	$36,904	-10%
5	Corporate Yard - Admin, Paint, Signs, Fleet	333,680	307,520	-8%	$51,624	$51,747	0%
6	Ganesha Park	210,400	154,080	-27%	$25,138	$23,980	-5%
7	Lift Station No. 3 - 1017 W Lexington Ave.	182,720	171,960	-6%	$21,841	$22,381	2%
8	Palomares Park	172,680	161,480	-6%	$28,539	$31,022	9%
9	Corporate Yard - Water Division	156,840	139,120	-11%	$23,203	$24,162	4%
10	Pomona Gardens Mobile Home Park - 934 W Holt Ave.	147,000	115,400	-21%	$19,553	$17,185	-12%

CHAPTER 4

ENERGY EFFICIENCY STRATEGY

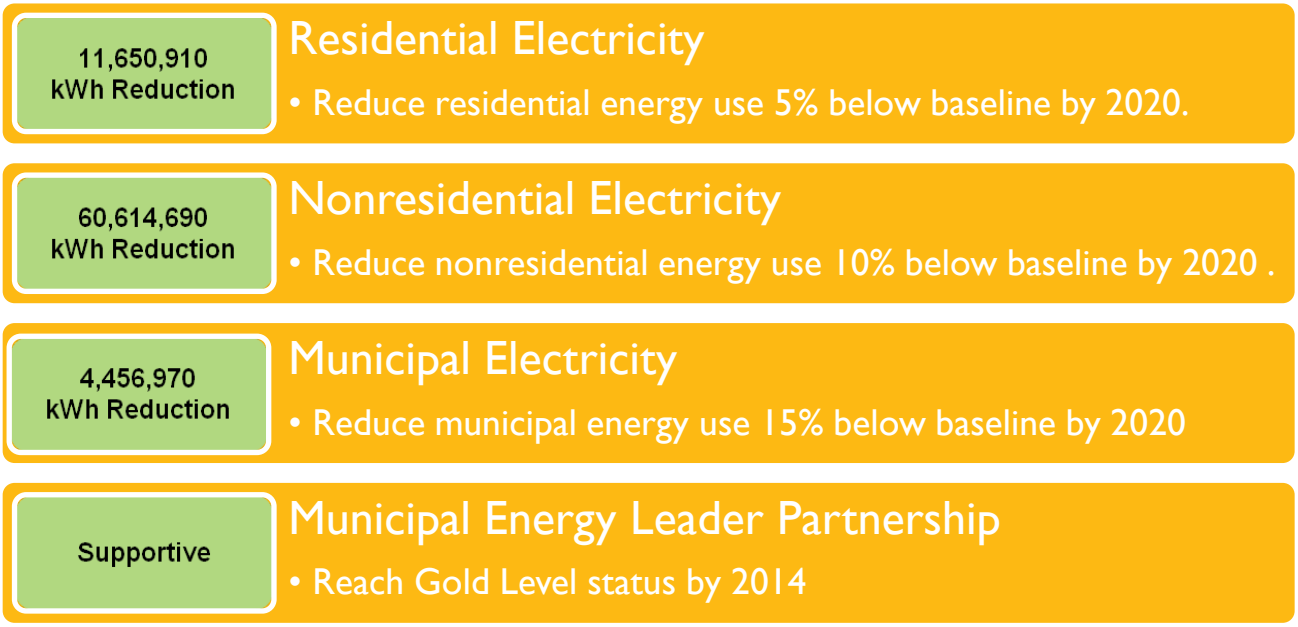
Reduction Targets

The City of Pomona identified key energy efficiency targets that support the goals of the Energy Leader Partnership (ELP) and local planning priorities. Consistent with the targets of the California Public Utility Commission's (CPUC) Long Term Energy Efficiency Strategic Plan (CEESP) (refer to **Chapter 1**, **Figure 1**), the focus of this plan is on electricity efficiency. Electricity efficiency also provides the added benefit of reducing greenhouse gas (GHG) emissions.

Accordingly, the Energy Action Plan (EAP) also presents the State-recommended GHG reduction target of 15% below 2007 emissions levels by 2020 as a supportive target. This approach equips the City to understand the relative impact of electricity efficiency within the overall regulatory guidance related to GHG emissions.

In addition to the State-recommended reduction target of 15% below 2007 GHG emissions, this chapter presents electricity reduction targets, developed through this planning process and shown in **Figure 19**. Each reduction target is supported by a series of goals, policies, and actions.

Figure 19: Pomona's Energy Efficiency Targets



Strategy Structure

In order to achieve the target electricity reductions by 2020, the City of Pomona will need to implement the goals, policies, and actions set forth in this chapter. The City's strategy is structured around seven key topic areas, as depicted in **Figure 20** below.

Figure 20: Energy Efficiency Strategy Topics

Each topic area includes corresponding goals, policies, and supporting actions that are necessary for successful implementation. Together, the goals, policies, and actions provide the City's strategy to achieve the electricity efficiency targets of this EAP. Each piece has a unique function, but they collectively work together to reduce electricity use.

- Goal: The desired end state or expected outcome related to electricity reductions. Each goal corresponds to one of the topic areas identified.
- Policy: A statement that guides decision-making and indicates a commitment to achieve the specified outcomes of the goal. Policies provide the foundation for quantification of electricity reduction potentials.
- Implementation Action: An action, procedure, program, or strategy to achieve the electricity reductions of a policy. Action items provide interim steps or supporting strategies and indicate the range of opportunities to increase the electricity reduction potential of a policy.

POLICY CRITERIA AND EVALUATION

Each policy is assessed for its reduction of electricity use in government operations or community activities. In addition to electricity reductions, this EAP also identifies estimated costs, savings, responsibility for implementation, and additional benefits, or co-benefits, resulting from the implementation of each policy. (Refer to **Chapter 5**, **Table 1** for a policy summary and associated implementation details. See **Appendix C** for detailed methods and sources of quantified policies.) This assessment recognizes the broad value of electricity efficiency for the community and the City of Pomona. Not only will electricity efficiency actions reduce utility bills, but also they will provide an opportunity to improve the quality of homes and businesses, increase property values, improve the indoor comfort of buildings, and reduce ongoing maintenance costs. Actions in City government facilities also fulfill the City's requirements for participation in the ELP model, helping to qualify the City for additional financial incentives from Southern California Edison (SCE).

Electricity efficiency results from a change in operation, activity, or efficiency. In general, there are three primary methods for reducing electricity-related GHG emissions: (1) conservation, (2) greater efficiency, and (3) change in energy source.

Each policy in this chapter presents the following information:

- GHG reduction estimates, presented in ranges, for the year 2020.
- Kilowatt-hours (kWh) reduction estimates, presented in ranges, for the year 2020.
- Co-benefits that will likely occur through the implementation of each policy or action.

The baseline GHG inventory and forecast serve as the foundation for quantifying the City's policies. Activity data from the inventory, kWh of electricity, is combined with the performance targets and indicators identified in this EAP to calculate the range of potential reduction benefit for each policy. This approach ensures that the City's electricity reductions are tied to the baseline and anticipated uses that will occur in Pomona. Details on the assumptions, methods, and citations used in the electricity reduction quantifications can be found in **Appendix C**.

COMMUNITY-WIDE ELECTRICITY EFFICIENCY STRATEGIES

The following goals, policies, and actions are aimed at reducing electricity use within the community.

GOAL 1: ACHIEVE GREATER ELECTRICITY EFFICIENCY IN THE CITY'S EXISTING HOUSING STOCK AND REDUCE HOUSEHOLD ENERGY COSTS.

POLICY 1.1: PROMOTE HOUSEHOLD ENERGY CONSERVATION BY RESIDENTS IN EXISTING STRUCTURES THROUGH SMALL-SCALE, BEHAVIORAL CHANGES.

Actions:

- Continue energy efficiency education and outreach at community events.
- Encourage homeowner participation in energy-measuring programs that inform energy use decisions and help reduce peak demand.
- Partner with tenant associations such as the Housing Rights Center to encourage energy-efficient behaviors among Pomona's rental population.
- Support energy efficiency education and outreach efforts in Pomona Unified School District.

POLICY 1.1

2020 kWh Reduction:

466,040 – 1,398,110

2020 $MTCO_2e$ Reduction:

120 – 350

Co-Benefits:

Reduces Peak Energy Demand, Reduces Monthly Utility Costs, Supports Community Education

POLICY 1.2: ENCOURAGE UPGRADES TO MORE ENERGY-EFFICIENT, COST-SAVING APPLIANCES AND EQUIPMENT.

Actions:

- Educate city residents and business owners about rebate offerings for appliances and equipment as programs become available, including those offered by the California Energy Commission and the South Coast Air Quality Management District.

POLICY 1.2

2020 kWh Reduction:

195,560 – 1,299,230

2020 $MTCO_2e$ Reduction:

50 – 330

Co-Benefits:

Reduces Peak Energy Demand, Provides Permanent Energy Reduction, Improves Indoor Environmental Quality, Conserves Water

- Create a municipal revolving loan fund to help fund an appliance trade-in program.
- Hold energy-efficient light bulb exchanges at community events.
- Promote the use of smart-grid-integrated appliances on the City website and at community events.

POLICY 1.3: INCENTIVIZE HOME ENERGY BENCHMARKING AS A TOOL TO HELP HOMEOWNERS ASSESS AND IDENTIFY OPPORTUNITIES TO IMPROVE ENERGY PERFORMANCE.

Actions:

- Update Pomona's building permit and development review forms to request voluntary Home Energy Rating System ratings for new residential units.
- Work with homeowner and Realtor groups to promote the benefits of home energy labeling and promote regional financial incentives to offset costs.
- Promote home energy benchmarking on the City website and at community events.

POLICY 1.3

2020 kWh Reduction:

Supportive

2020 $MTCO_2e$ Reduction:

Supportive

Co-Benefits:

Reduces Peak Energy Demand, Provides Permanent Energy Reduction, Reduces Maintenance Costs, Improves Indoor Environmental Quality, Reduces Monthly Utility Costs, Supports Local Economy and Job Creation

POLICY 1.4: PROTECT AND PRESERVE THE CITY'S CURRENT SINGLE-FAMILY HOUSING STOCK BY ENCOURAGING VOLUNTARY RESIDENTIAL RETROFITS THROUGH CUSTOMIZED LOCAL OUTREACH.

Actions:

- Create an energy efficiency awards program to recognize homeowners who have successfully implemented energy efficiency actions and to promote their actions to the community.
- Encourage residents to participate in Southern California Edison-funded home retrofit programs.
- Create a municipal revolving loan program capable of providing small loans to homeowners for energy auditing and retrofits.
- Consider funding residential energy audits for example buildings in various neighborhoods.
- Promote residential energy efficiency retrofits on the City website and at community events.

POLICY 1.4

2020 kWh Reduction:

3,742,300 – 29,139,000

2020 $MTCO_2e$ Reduction:

940 – 7,320

Co-Benefits:

Reduces Peak Energy Demand, Provides Permanent Energy Reduction, Reduces Maintenance Costs, Supports Community Education, Improves Indoor Environmental Quality, Reduces Monthly Utility Costs, Supports Local Economy and Job Creation, Fulfills ELP Program Requirements

POLICY 1.5: DEVELOP A PROCESS THAT ENCOURAGES ENERGY EFFICIENCY IMPROVEMENTS IN SIGNIFICANT HISTORIC PROPERTIES WHILE MAINTAINING THE CHARACTER AND INTEGRITY OF HISTORIC HOMES.

POLICY 1.5

2020 kWh Reduction:

Supportive

2020 $MTCO_2e$ Reduction:

Supportive

Co-Benefits:

Reduces Peak Energy Demand, Reduces Maintenance Costs, Supports Community Education

Actions:

- Consider including historic buildings in any City-funded or supported model energy audit and retrofit programs.
- Provide guidelines for implementing energy efficiency upgrades in historic buildings.
- Provide training to planning and building staff on appropriate energy efficiency measures for historic properties.
- Work with property owners of historic buildings to identify cost-effective energy efficiency retrofits based on the type of building.
- Develop and disseminate information regarding energy efficiency upgrades and retrofits appropriate for historic buildings through brochures, websites, and collaborative efforts with the Historical Society of Pomona Valley.
- Encourage Mills Act participants to integrate energy efficiency measures into building renovations or restorations.
- Create a pilot program to perform energy audits on each historic building type present in Pomona and identify energy efficiency upgrades most appropriate for each building type.
- Provide waivers of reduced fees for building permit applications to complete energy efficiency upgrades consistent with the State Historic Preservation Office or local standards for historic buildings.
- Develop and integrate energy efficiency information and requirements into the City's Historic Preservation Ordinance, the City's design guidelines, and any existing or future specific plans.

GOAL 2: ACHIEVE GREATER ELECTRICITY EFFICIENCY IN POMONA'S EXISTING NONRESIDENTIAL BUILDING STOCK.

POLICY 2.1: EDUCATE POMONA'S BUSINESSES ABOUT OPPORTUNITIES TO CONSERVE ENERGY COSTS THROUGH IMPROVEMENTS IN DAILY OPERATIONS.

POLICY 2.1

2020 kWh Reduction:

Supportive

2020 $MTCO_2e$ Reduction:

Supportive

Co-Benefits:

Reduces Peak Energy Demand, Supports Community Education, Reduces Monthly Utility Costs

Actions:

- Partner with the Pomona Chamber of Commerce to educate businesses about energy conservation efforts and energy efficiency programs available to business and property owners.

- Consider creating a team of volunteers to hold workshops for business and property owners and employees about behaviors to reduce energy use.
- Award business and property owners who have achieved significant savings as a result of energy efficiency programs and highlight these examples as case studies for the community.
- Encourage business and property owner participation in energy-measuring programs that inform energy use decisions and help reduce peak demand.
- Provide information about energy conservation and energy efficiency for businesses on the City website.

POLICY 2.2: SUPPORT THE USE OF ENERGY-EFFICIENT APPLIANCES AND EQUIPMENT IN LEASED AND OWNER-OCCUPIED BUSINESSES.

Actions:

- Encourage business and property owners to install Energy Star/smart-grid-integrated appliances.
- Educate business and property owners about available rebates for energy-efficient appliances and equipment.

POLICY 2.2

2020 kWh Reduction:

1,704,140 – 13,633,130

2020 $MTCO_2e$ Reduction:

450 – 3,570

Co-Benefits:

Reduces Peak Energy Demand, Reduces Maintenance Costs, Supports Community Education, Improves Indoor Environmental Quality, Reduces Monthly Utility Costs, Supports Local Economy and Job Creation

POLICY 2.3: FACILITATE RETROFITS AND ENERGY EFFICIENCY IMPROVEMENTS WITHIN THE NONRESIDENTIAL BUILDING STOCK TO INCREASE LOCAL BUSINESS PARTICIPATION IN ENERGY EFFICIENCY PROGRAMS.

Actions:

- Create a revolving loan fund to support nonresidential energy efficiency retrofits.
- Fund contractor training and certification for energy efficiency retrofits, including Building Performance Institute training, or other energy efficiency workforce development programs.
- Provide education to commercial property owners about complying with State requirements on energy use disclosure at the time of sale or lease.
- Develop a prioritized list of energy-use-intensive industries to target for additional education and financial support for retrofits and other energy efficiency improvements.

POLICY 2.3

2020 kWh Reduction:

5,190,940 – 20,763,770

2020 $MTCO_2e$ Reduction:

1,360 – 5,440

Co-Benefits:

Reduces Peak Energy Demand, Provides Permanent Energy Reduction, Reduces Maintenance Costs, Improves Indoor Environmental Quality, Reduces Monthly Utility Costs, Supports Local Economy and Job Creation

POLICY 2.4: ENCOURAGE TENANT IMPROVEMENTS FOR RENTER-OCCUPIED BUSINESSES AT LARGE MULTI-TENANT PROPERTIES.

Actions:

- Work with property owners to integrate pledges for energy efficiency improvements into leases and contracts.
- Identify sites with a large number of leasers to target for additional education and incentives about energy efficiency.

POLICY 2.4

2020 kWh Reduction:

Supportive

2020 $MTCO_2e$ Reduction:

Supportive

Co-Benefits:

Reduces Peak Energy Demand, Provides Permanent Energy Reduction, Improves Indoor Environmental Quality, Reduces Monthly Utility Costs

POLICY 2.5: REDUCE ELECTRICITY USED FOR OUTDOOR LIGHTING.

Actions:

- Modify Pomona's lighting standards to discourage excessive lighting and inefficient bulbs.
- Recognize property owners who have installed energy-efficient lighting and highlight these examples as case studies for the community.
- Identify sites with a large amount of outdoor lighting to target for additional education and incentives regarding outdoor lighting retrofits.

POLICY 2.5

2020 kWh Reduction:

478,730 – 1,914,930

2020 $MTCO_2e$ Reduction:

130 – 500

Co-Benefits:

Reduces Peak Energy Demand, Provides Permanent Energy Reduction, Reduces Maintenance Costs. Reduces Monthly Utility Costs

POLICY 2.6: PROMOTE COST-SAVING RETROFITS IN LARGE NONRESIDENTIAL FACILITIES.

Actions:

- Encourage large nonresidential facilities to participate in commissioning programs to optimize building performances.
- Provide large facilities with information about potential cost savings and available incentives for energy efficiency retrofits.
- Partner with energy program managers of large nonresidential facilities to identify opportunities for energy savings.

POLICY 2.6

2020 kWh Reduction:

22,229,600 – 66,688,800

2020 $MTCO_2e$ Reduction:

5,830 – 17,480

Co-Benefits:

Reduces Peak Energy Demand, Provides Permanent Energy Reduction, Improves Indoor Environmental Quality, Conserves Water, Reduces Monthly Utility Costs

GOAL 3: NEW BUILDINGS WILL HAVE NO NET IMPACT ON COMMUNITY ENERGY DEMAND.

POLICY 3.1: WORK WITH PROJECT APPLICANTS THROUGH THE PLAN REVIEW PROCESS TO ENCOURAGE THE MAXIMIZATION OF ENERGY-EFFICIENT DESIGN OF NEW BUILDINGS.

Actions:

- Support net zero energy construction by promoting innovations in material use, design, and electrical infrastructure for new buildings.
- Adopt voluntary energy efficiency standards for new buildings.
- Award buildings that come close to or achieve net zero energy use, and promote them as case studies to the community.
- Partner with local architecture firms and green building organizations to provide trainings and workshops on energy-efficient design for new buildings.

POLICY 3.1

2020 kWh Reduction:

2,713,670 – 3,645,070

2020 $MTCO_2e$ Reduction:

700 – 940

Co-Benefits:

Reduces Peak Energy Demand, Provides Permanent Energy Reduction, Improves Indoor Environmental Quality, Reduces Monthly Utility Costs, Supports Local Economy and Job Creation

POLICY 3.2: PARTICIPATE IN A REGIONAL EFFORT TO IMPLEMENT ENERGY EFFICIENCY STANDARDS FOR NEW DEVELOPMENT.

Actions:

- Work with the Los Angeles Chapter of the US Green Building Council and other regional organizations to provide training and workshops on energy-efficient buildings.
- Partner with other communities in the San Gabriel Valley to consider adopting a mandatory, regionally consistent green building code that exceeds State standards.
- Support the creation of a regional energy manager position to work with project applicants on energy efficiency programs for large proposed developments.

POLICY 3.2

2020 kWh Reduction:

Supportive

2020 $MTCO_2e$ Reduction:

Supportive

Co-Benefits:

Provides Permanent Energy Reduction, Reduces Monthly Utility Costs, Supports Local Economy and Job Creation

POLICY 3.3: ENCOURAGE THE USE OF ENERGY-EFFICIENT APPLIANCES AND EQUIPMENT IN NEW BUILDINGS.

Actions:

- Promote the use of smart-grid-integrated appliances in new developments.
- Explore requiring energy-efficient appliances and equipment as a condition for approval of discretionary projects.
- Educate project applicants about available rebates for energy-efficient appliances and equipment.

POLICY 3.3

2020 kWh Reduction:

9,065,830 – 18,988,050

2020 $MTCO_2e$ Reduction:

2,350 – 4,920

Co-Benefits:

Reduces Peak Energy Demand, Provides Permanent Energy Reduction, Supports Community Education, Reduces Monthly Utility Costs, Supports Local Economy and Job Creation

GOAL 4: ENCOURAGE ALL NEW DEVELOPMENT AND SIGNIFICANT REMODELS TO BE COMPATIBLE WITH TITLE 24 AND CALGREEN STANDARDS.

POLICY 4.1: WORK WITH MAJOR EDUCATIONAL FACILITIES LOCATED IN THE CITY TO BE A MODEL FOR ENERGY EFFICIENCY AND GREEN BUILDING STANDARDS.

Actions:

- Encourage educational centers in Pomona to serve as a resource on energy efficiency and green building standards for property owners and developers.
- Recruit students from local educational facilities to participate in energy education, auditing, and outreach programs.

POLICY 4.1

2020 kWh Reduction:

Supportive

2020 $MTCO_2e$ Reduction:

Supportive

Co-Benefits:

Reduces Peak Energy Demand, Provides Permanent Energy Reduction, Improves Indoor Environmental Quality, Reduces Monthly Utility Costs, Supports Local Economy and Job Creation

GOAL 5: REDUCE COMMUNITY WATER CONSUMPTION IN NEW AND EXISTING DEVELOPMENT TO CONSERVE ELECTRICITY AND PROMOTE ENERGY EFFICIENCY.

POLICY 5.1: ENCOURAGE WATER-EFFICIENT PRACTICES THROUGH EDUCATIONAL EFFORTS TO PROMOTE THE CONSERVATION OF ELECTRICITY FOR WATER PUMPING AND TREATMENT.

Actions:

- Provide information about electricity conservation through reductions in water use at community events.
- Work with project applicants to identify opportunities for water conservation in new developments and major retrofits.

POLICY 5.1

2020 kWh Reduction:

Supportive

2020 $MTCO_2e$ Reduction:

Supportive

Co-Benefits:

Permanent Energy Reduction, Conserves Water, Supports Community Education, Reduces Monthly Utility Costs

POLICY 5.2: PROMOTE THE USE OF ENERGY- AND WATER-EFFICIENT FIXTURES FOR INDOOR USE.

Actions:

- Consider distributing low-flow showerheads and faucet aerators at community events.
- Provide information about water-efficient fixtures and rebate programs at community events.
- Consider requiring the installation of water-efficient fixtures as a condition of approval for discretionary projects.

POLICY 5.2

2020 kWh Reduction:

753,370 – 832,670

2020 $MTCO_2e$ Reduction:

200 – 220

Co-Benefits:

Conserves Water, Supports Community Education, Reduces Monthly Utility Costs

POLICY 5.3: SUPPORT WATER-WISE LANDSCAPING WITH DROUGHT-RESISTANT SPECIES TO REDUCE THE ELECTRICITY DEMAND FOR WATER TRANSPORT AND TREATMENT.

Actions:

- Install demonstration drought-resistant gardens in high-visibility locations on City properties.
- Promote drought-resistant landscaping on the City website and at community events.
- Consider requiring drought-resistant landscaping for new large developments.

POLICY 5.3

2020 kWh Reduction:

879,990 – 972,620

2020 $MTCO_2e$ Reduction:

230 – 250

Co-Benefits:

Permanent Energy Reduction, Conserves Water, Supports Community Education, Reduces Monthly Utility Costs

GOAL 6: MAXIMIZE USE OF SHADING AND COOLING TO SUSTAIN A COMFORTABLE AND ENERGY-EFFICIENT URBAN ENVIRONMENT.

POLICY 6.1: MAXIMIZE THE COOLING OF BUILDINGS THROUGH TREE PLANTING AND SHADING TO REDUCE BUILDING ELECTRICITY DEMANDS.

Actions:

- Create a volunteer program to plant and care for trees in the City.
- Consider requiring new projects to install or replace and maintain trees along sidewalks and other public rights of way.
- Work with project applicants to include landscaping capable of sufficiently shading building exteriors.
- Maintain the City's designation as a Tree City U.S.A. from the Arbor Tree Foundation.

POLICY 6.1

2020 kWh Reduction:

466,520 – 3,100,500

2020 $MTCO_2e$ Reduction:

120 – 800

Co-Benefits:

Reduces Peak Energy Demand, Reduces Urban Air Temperatures, Improves Indoor Environmental Quality, Reduces Monthly Utility Costs

POLICY 6.2: REDUCE BUILDING ELECTRICITY DEMANDS THROUGH VOLUNTARY STANDARDS AND OUTREACH TO PROMOTE COOL ROOFS AND SURFACES.

Actions:

- Educate residents and business owners about benefits and available incentives for cool roofs and surfaces.
- Include cool roofs and surfaces as part of any revolving loan for energy efficiency retrofits.
- Consider requiring cool roofs and surfaces for new large development.
- When replacing public walkways, streets, and parking lots, consider using permeable materials.

POLICY 6.2

2020 kWh Reduction:

856,070 – 1,104,750

2020 $MTCO_2e$ Reduction:

220 – 290

Co-Benefits:

Reduces Peak Energy Demand, Permanent Energy Reduction, Conserves Water, Reduces Urban Air Temperatures, Reduces Monthly Utility Costs

POLICY 6.3: INCORPORATE USE OF GROUNDCOVERS RATHER THAN PAVEMENT TO REDUCE HEAT REFLECTION.

POLICY 6.3

2020 kWh Reduction:

Supportive

2020 $MTCO_2e$ Reduction:

Supportive

Co-Benefits:

Reduces Peak Energy Demand, Reduces Urban Air Temperatures, Improves Indoor Environmental Quality, Reduces Monthly Utility Costs

Actions:

- Consider requiring a minimum percentage of land in new parking lots to be landscaped.
- Encourage the use of green driveways for new and existing development.

MUNICIPAL ELECTRICITY EFFICIENCY PROJECTS AND POLICIES

ENERGY EFFICIENCY PROJECTS

Completed Projects

A key objective of this EAP is to identify prioritized, actionable, turnkey strategies and projects. The EAP also identifies future opportunities for municipal energy efficiency projects. In order to evaluate potential energy efficiency projects, the City conducted audits at several key facilities, reviewed audit results and opportunities at other facilities, and identified near-term projects to be implemented.

The City has committed to prioritizing the implementation of projects with a payback period that yield cost savings and enhance municipal operations. Several of these projects have been implemented since the baseline year of 2007 and have already yielded reductions in municipal energy use. These recently completed projects are identified in **Table 20.**

Table 20: Energy Efficiency Projects Completed Since 2007

Facility	Project	Project Cost	Annual Electricity Savings (kWh)	Annual Cost Savings	Estimated SCE Inventive	Estimated Completion Date	Funding Opportunities
City-wide	Streetlight Upgrades	TBC[1]	1,576,750	$247,550	$126,140	Completed	On-bill financing, SCREC, CEC loans
Water Pump #9 – 1661 Oxford Ave	Pump Replacement	TBC[1]	118,780	$18,648	$14,491	Completed	On-bill financing, SCREC, CEC loans
	Total		1,695,530	$266,198	$140,631		

1. To be confirmed.

Near-Term Projects

The City is also identifying additional near-term projects to implement in close coordination with the San Gabriel Valley Council of Governments (SGVCOG) and SCE (see **Table 21**). It is anticipated that these priority short-term actions will help the City further advance toward ELP targets and long-term energy efficiency objectives. In partnership with the SGVCOG, the City is conducting additional audits that include City Hall, the Police Department, Fire Station 181, and the Civic Center Library. The City will assess these audits to identify feasible and actionable strategies with short-term payback periods of six years or less that yield annual cost savings and reductions in electricity use. Based on the payback period, annual cost savings, and reductions in both electricity use and GHG emissions, the City believes that these priority short-term actions will help the City advance toward ELP targets and long-term energy efficiency.

Table 21: Near-Term Energy Efficiency Projects in Process

Facility	Project	Project Cost	Annual Electricity Savings (kWh)	Annual Cost Savings	Estimated SCE Inventive	Estimated Completion Date	Funding Opportunities
Pump #14– Address TBC[1]	Pump Replacement	TBC[1]	46,610	$7,320	TBC[1]	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #15– Address TBC[1]	Pump Replacement	TBC[1]	65,560	$10,290	TBC[1]	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #26– Address TBC[1]	Pump Replacement	TBC[1]	117,330	$18,420	$9,150	TBC[1]	On-bill financing, SCREC, CEC loans
City Hall and Council Chambers - 505 S. Garey Ave.	Lighting Upgrades	TBC[1]	30,000	$4,710	TBC[1]	January 2013	On-bill financing, SCREC, CEC loans
Ball Field– Address TBC[1]	Lighting Upgrades	TBC[1]	25,000	$3,930	TBC[1]	January 2013	On-bill financing, SCREC, CEC loans
Chiller – Address TBC[1]	HVAC Upgrade	TBC[1]	100,000	$15,700	TBC[1]	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #7 - 503 E. Arrow Hwy.	Pump Replacement	TBC[1]	35,440	$5,560	$4,320	TBC[1]	On-bill financing, SCREC, CEC loans

Facility	Project	Project Cost	Annual Electricity Savings (kWh)	Annual Cost Savings	Estimated SCE Inventive	Estimated Completion Date	Funding Opportunities
Pump #24 – Address TBC[1]	Pump Replacement	TBC[1]	212,180	$33,130	$18,460	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #25 – Address TBC[1]	Pump Replacement	TBC[1]	224,740	$35,280	$17,080	TBC[1]	On-bill financing, SCREC, CEC loans
VOC Treatment Facility - 1600 Longwood Ave.	Booster Pump Upgrades (3)	TBC[1]	TBC[1]	TBC[1]	TBC[1]	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #17 – Address TBC[1]	Pump Replacement	TBC[1]	210	TBC[1]	$560	TBC[1]	On-bill financing, SCREC, CEC loans
Pump #8 – 1560 E Ganesha Blvd.	Pump Replacement	TBC[1]	48,210	$7,570	$6,070	TBC[1]	On-bill financing, SCREC, CEC loans
Washington Park - 865 E. Grand Ave.	Pool Pump Upgrade	$14,000	25,790	$3,100	$232	TBC[1]	On-bill financing, SCREC, CEC loans
Ganesha Park - 1575 N. White Ave.	Pool Pump Upgrade	$14,000	161,860	$19,420	$7,000	TBC[1]	On-bill financing, SCREC, CEC loans
Ganesha Park - 1575 N. White Ave.	Pool Slide Pump Upgrade	$4,000	5,430	$650	$490	TBC[1]	On-bill financing, SCREC, CEC loans
City Hall - 505 S. Garey Ave.	Change HVAC operating Schedule[2]	$230	30,150	$4,730	$0	TBC[1]	On-bill financing, SCREC, CEC loans
City Hall - 505 S. Garey Ave.	Implement HVAC Reset Controls[2]	$3,130	28,440	$4,470	$3,130	TBC[1]	On-bill financing, SCREC, CEC loans
City Hall - 505 S. Garey Ave.	Schedule HVAC Exhaust Fan Controls[2]	$3,230	11,620	$1,610	$1,390	TBC[1]	On-bill financing, SCREC, CEC loans

Facility	Project	Project Cost	Annual Electricity Savings (kWh)	Annual Cost Savings	Estimated SCE Inventive	Estimated Completion Date	Funding Opportunities
City Hall - 505 S. Garey Ave.	Retrofit HVAC Pumps with Variable Speed Drives[2]	$9,610	25,640	$3,680	$4,040	TBC[1]	On-bill financing, SCREC, CEC loans
Library – 625 S. Garey Ave	Change HVAC Operating Schedule[2]	$230	37,430	$5,880	$0	TBC[1]	On-bill financing, SCREC, CEC loans
Library – 625 S. Garey Ave	Schedule HVAC Exhaust Fan Controls[2]	$260	25,110	$4,370	$260	TBC[1]	On-bill financing, SCREC, CEC loans
Library – 625 S. Garey Ave	Replace Exterior Lighting With LED Equivalents[2]	$19,810	46,400	$8,100	$2,320	TBC[1]	On-bill financing, SCREC, CEC loans
Police Station and Fire Department - 490 W Mission Blvd	Implement HVAC Reset Controls	$2,300	66,680	$6,720	$2,300	TBC[1]	On-bill financing, SCREC, CEC loans
Police Station and Fire Department - 490 W Mission Blvd	Retrofit HVAC Pumps with Variable Speed Drives	$12,080	83,000	$8,370	$10,540	TBC[1]	On-bill financing, SCREC, CEC loans
Fire Station 181 - 590 S. Park Avenue	Retrocommissio n Air Handlers #3 and #4	$3,890	78,340	$12,300	$3,890	TBC[1]	On-bill financing, SCREC, CEC loans
	Total[3]	$86,770	1,484,560	$217,990	$91,230		

[1] *To be confirmed. At the time of report preparation, estimated project completion dates unavailable. The SGVCOG, SCE, and SCREC are working to confirm project information.*

[2] *Source: EMCOR audit, prepared for the City of Pomona through the Energy Wise Partnership.*

[3] *Total represents sum of available data and is not reflective of complete costs and savings for all projects due to lack of information.*

LONG-TERM MUNICIPAL POLICIES

In addition to the near-term projects, the City has identified additional policies and programs to be implemented in the next eight years to exceed their current Silver Level status to achieve a Gold Level status in SCE's ELP program by achieving a 15% reduction in electricity use below 2007 electricity levels at City facilities.

The City's General Plan is an important document that helps guide the growth and development of the city. By incorporating energy efficiency and other sustainable practices into the General Plan, the City can ensure that such measures are systematically and consistently incorporated into plans, programs, policies, and development within the city. The City of Pomona is committed to integrating the Energy Action Plan into the next update of the General Plan.

GOAL 7: ACHIEVE OPTIMAL ENERGY PERFORMANCE WITH A FOCUS ON MAXIMIZING THE COST NEUTRALITY AND OPERATIONAL EFFICIENCIES OF CITY FACILITIES AND INFRASTRUCTURE.

POLICY: 7.1: LEAD THE COMMUNITY BY EXAMPLE THROUGH PILOTING COST-SAVING ENERGY MANAGEMENT PRACTICES.

Actions:

- Continue to promote existing energy efficiency practices in municipal operations.
- Implement new energy efficiency programs, and highlight them as case studies for residents, businesses, and other communities.
- Improve and expand education programs for City employees regarding energy conservation and efficiency.

POLICY 7.2: IMPLEMENT AN ENERGY-EFFICIENT PROCUREMENT POLICY TO ENSURE THE PURCHASE OF EFFICIENT EQUIPMENT THAT WILL RESULT IN ENERGY COSTS SAVINGS THAT OUTWEIGH ADDITIONAL UPFRONT COSTS.

Actions:

- Purchase energy-efficient appliances and equipment in bulk by working with SGVCOG and regional partners.
- Require a set percentage of all electric-powered equipment to be Energy Star-qualified.

POLICY 7.3: IDENTIFY ADDITIONAL OPPORTUNITIES TO IMPROVE THE ENERGY EFFICIENCY OF CITY FACILITIES.

Actions:

- Complete audits at all City facilities and identify cost-effective projects with limited payback period.
- Participate in Los Angeles County's regional loan program to fund additional energy efficiency projects.
- Set aside savings from energy efficiency projects to fund additional efforts to reduce energy use.

- Upgrade small appliances such as coffee machines in break rooms and replace HVAC systems in all facilities including City Hall.

POLICY 7.4: WORK WITH THE SAN GABRIEL VALLEY COUNCIL OF GOVERNMENTS AND REGIONAL PARTNERS TO CREATE AN ENERGY MANAGEMENT POSITION THAT TRACKS ENERGY USE AT CITY FACILITIES, IDENTIFY OPPORTUNITIES FOR EFFICIENCIES AND COST SAVINGS, AND IMPLEMENT ENERGY EFFICIENCY PROJECTS.

Actions:

- Conduct energy benchmarking through the Enterprise Energy Management Information Systems or other programs on a regular basis and share the results online and in publications.
- Continue to support the participation of City staff in regional planning efforts and trainings related to energy efficiency.

ENERGY EFFICIENCY SUMMARY

This EAP identifies a clear path for Pomona to achieve the community electricity reduction targets of 5% below 2007 residential electricity levels and 10% below 2007 nonresidential levels. The city has also reduced municipal energy use through SCE-approved projects, achieving the Platinum target for energy efficiency. **Figures 21** and **22** illustrate the kWh and GHG reductions achieved by goal for 2020.

Figure 21: Community kWh Reductions by Goal, 2020

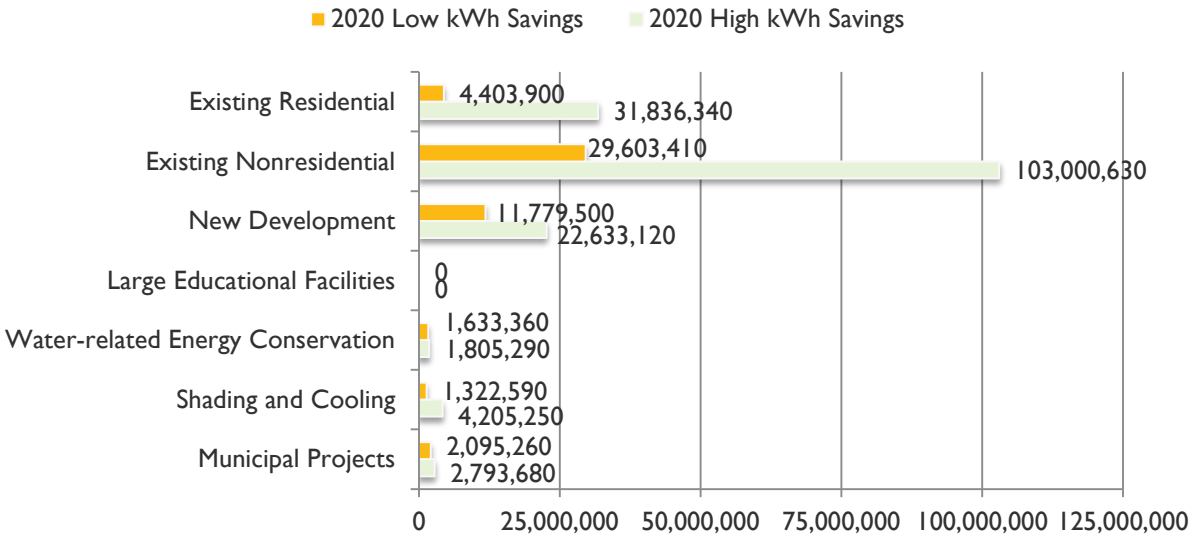
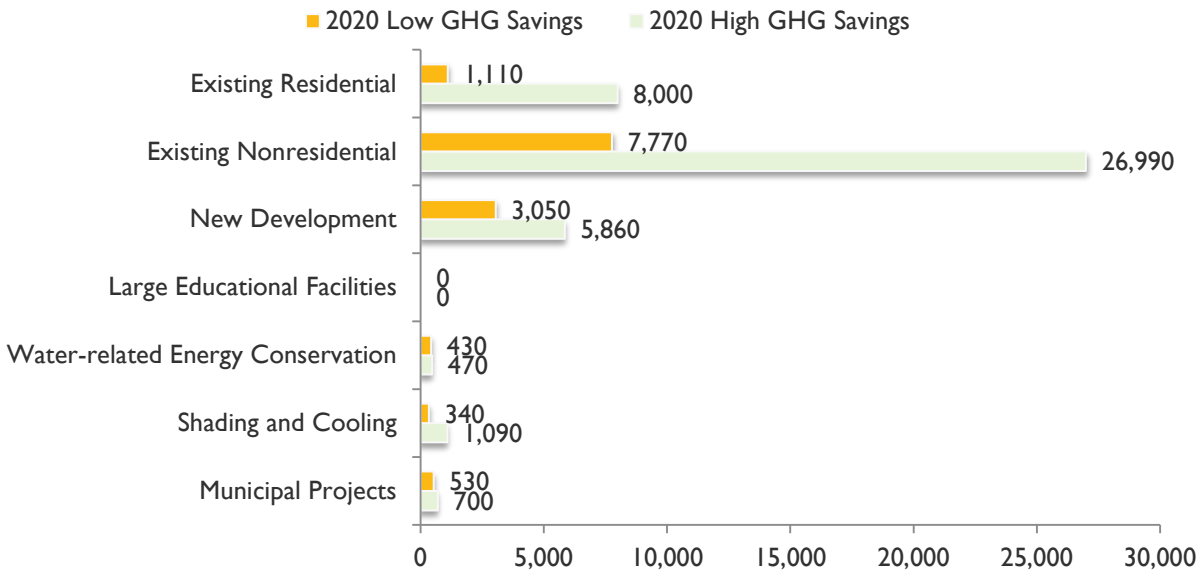


Figure 22: Community GHG Reductions by Goal, 2020



CHAPTER 5

IMPLEMENTATION

This chapter outlines a path for the City of Pomona to implement the strategies described in this Energy Action Plan (EAP) and monitor overall progress toward achieving the EAP reduction targets.

The EAP implementation will require City leadership to execute strategies and report on the progress of implementation. This Plan identifies the responsible department for each policy and offers time frames and plan-level cost estimates for implementing each strategy. Lastly, successful implementation requires regular monitoring and reporting. City staff should monitor the progress on implementing the EAP on an annual basis and report to the City Council on the EAP progress each year.

CHAPTER 5

IMPLEMENTATION PLAN

Crucial to the implementation of this plan will be Pomona's implementation program. The implementation program identifies the anticipated electricity savings, greenhouse gas (GHG) reduction, agency or department responsible for implementation, starting timeframe, and co-benefits.

The City of Pomona will work with the San Gabriel Valley Council of Governments (SGVCOG), the San Gabriel Valley Energy Wise Partnership (SGVEWP), and other partners as appropriate, such as Los Angeles County, the Los Angeles Regional Collaborative, and the Southern California Regional Energy Alliance, to identify effective procedures to track the status of energy efficiency projects without increasing the level of effort from existing City staff. A designated City staff lead will monitor plan implementation, and will support ongoing regional collaboration. The City staff lead will participate in the identification of regional resources available to support and streamline the implementation process.

All program activity managers will be required to submit regular project updates to Pomona's designated EAP implementation coordinator and/or energy manager, including written reports of activities and project outcomes. The energy manager will track both short- and long-term progress toward EAP targets.

The SGVCOG is currently developing a regionally uniform method to collect, track, and report on EAP metrics and project outcomes. The City will work with the SGVCOG and the energy manager to benefit from these regional tools and standardize reporting processes.

City finance staff will maintain records of all project costs, funds, and expenditures. City staff will work closely with the energy manager to submit necessary reports to all funding agencies, including required financial reports and documentation of project outcomes. City staff or a third-party inspector will be responsible for all pre- and post-inspections of new or retrofitted work to confirm that the projects are installed, operational, and consistent with project objectives. The energy manager will be responsible for tracking all related project files and providing appropriate information to the SGVCOG and the SGVEWP.

INTEGRATION WITH EXISTING WORK EFFORTS

To ensure achievement of electricity reduction targets, the City will integrate the goals and policies of this plan into other local and regional plans, programs, and activities.

As the City moves forward with zoning code updates, design guidelines, specific plans, housing element updates, and other planning documents, staff will ensure that these documents support and integrate recommendations of the EAP. City staff will also work to update development review tools and other administrative tools to align day-to-day planning and building activities.

Implementation will involve coordination between a diversity of public and private stakeholders. Development of a regional energy manager position will greatly support the City's ability to successfully track both short- and long-term progress toward EAP targets.

IMPLEMENTATION POLICIES

EAP implementation will require City leadership to execute these actions and report on the progress. Successful implementation also requires regular reporting. Staff will monitor the EAP's implementation and progress with the SGVCOG on an annual basis and report to the City Council on the progress made each year. Development of an

implementation and monitoring tool will assist in tracking progress. The following policies are presented to ensure the City is successful in the implementation of the EAP.

IMPLEMENTATION POLICY 1: ANNUALLY MONITOR AND REPORT THE CITY'S PROGRESS TOWARD ACHIEVING THE REDUCTION TARGET.

- Facilitate implementation of measures and actions related to municipal operations.
- Prepare an annual progress report for review and consideration by the City Council.
- Utilize the EAP monitoring and reporting tool to assist with annual reports.
- Identify key staff responsible for annual reporting and monitoring.

IMPLEMENTATION POLICY 2: REGULARLY REVIEW AND UPDATE THE CITY'S GHG INVENTORY, ENERGY PROFILE, AND EAP.

- Conduct an annual review of electricity usage and associated GHG emissions.
- Re-inventory community and municipal GHG emissions every three to five years.
- Update the plan to incorporate new technology, programs, and policies as available to achieve electricity efficiency.
- Consider updating and amending the plan, as necessary, should the City find that policies and actions are not meeting the intended electricity reductions.
- When City resources are available, integrate the EAP into a comprehensive climate action plan or GHG reduction plan to incorporate GHG and energy/fuel reduction targets to address energy supply, natural gas demand, transportation, waste, wastewater, and other sectors as applicable.

IMPLEMENTATION POLICY 3: CONTINUE TO DEVELOP COLLABORATIVE PARTNERSHIPS THAT SUPPORT IMPLEMENTATION OF THE EAP.

- Continue collaboration with the SGVCOG and participation as an active member of the SGVEWP and the Energy Environment and Natural Resource Committee.
- Participate in other SGVCOG-sponsored programs, projects, and events to help meet the goals described in this EAP.

IMPLEMENTATION POLICY 4: SUPPORT REGIONAL FUNDING EFFORTS TO IMPLEMENT THE EAP.

- Work with the SGVCOG to identify regional funding sources to support policies in this EAP.
- Ensure implementation through the inclusion of policies and actions in department budgets, the capital improvement program, and other plans as appropriate.
- Pursue local, regional, state, and federal grants as appropriate to support implementation.

MONITORING AND UPDATING THE EAP

The City of Pomona will use the implementation program to track, monitor, and update the EAP. As the City reports on progress in implementing the EAP, staff will evaluate the effectiveness of each measure to ensure that the anticipated electricity and GHG reductions are occurring. In the event that GHG reductions do not occur as expected, the City will be able to modify and add further policies to the EAP to ensure that Pomona meets its reduction targets.

IMPLEMENTATION AND MONITORING TOOLS

Monitoring and Reporting Template

To determine whether Pomona is on track to meet the adopted target, it is important that the City monitor implementation progress on a regular basis and identify whether the policies as implemented are achieving their intended reductions or if additional measures will need to be implemented to meet the targets.

The implementation and financial metrics identified in this EAP have been calculated using an Excel-based workbook. This workbook calculates energy savings, GHG reductions, and financial costs and savings based on the key metrics identified in the plan. These performance metrics include information such as the average energy reduction per household, the number of trees planted, or the square feet of facilities retrofitted.

To support City staff's reporting efforts on the progress of EAP implementation, the workbook includes a reporting template and space for staff to enter the actual performance of each measure based on the key metrics identified. Once the information is entered for each year, updated energy savings, GHG reduction, and monetary costs or savings will be incorporated into the report template that can easily be exported and used to present EAP progress to City advisory bodies, assist in annual fiscal budget planning, and highlight City and community success in reducing energy use through City newsletters and online media.

Enterprise Energy Management Information System

As part of the SGVCOG's Strategic Plan Strategy to promote long-term energy efficiency and climate action activities for local governments in the San Gabriel Valley by implementing long-term energy efficiency and climate action planning, the SGVCOG has funded and created a program to set up a utility manager computer program to track municipal energy usage and identify the need for sub-metering to plan, budget, and manage bills for each City facility.

The SGVCOG is collaborating with Los Angeles County to implement the County's Enterprise Energy Management Information System (EEMIS) utility manager to track municipal energy usage, enabling participating San Gabriel Valley municipalities to access facility energy consumption, archive billing data, and report and analyze energy consumption data via the Internet. The EEMIS project was developed in 2000 and has been adapted to assist cities in the SGVCOG with monitoring, forecasting, and budgeting for energy use at City facilities.

EEMIS includes the following components and features:

- Web-based application using browser-based technology.
- Collects data from all connected facilities and stores data in a standard format.
- Generates usage and demand profiles for the purpose of energy procurement and efficiency project identification.

- Provides utility bill data for the different department subtenants within a building based on prevailing rates or customized for modified rate schedule.
- Utilizes energy cost analysis and notifications based on user-defined parameters to control costs by gaining experience from similar usage facilities (based on area of facility, number of occupants, size of equipment, season, historical usage over user-defined periods, etc.).

IMPLEMENTATION PROGRAM

The information in this implementation program provides an overall, planning level framework for achieving the reductions in this Plan. **Table 21** presents indicators for the implementation of each policy. These indicators represent the level of participation and energy reductions that would achieve the average range of the high and low electricity reductions in this Plan. The electricity metrics show the total number of participating households, nonresidential square footage, and energy reduction per participant necessary to achieve each policy's average reduction potential. Metrics for supportive policies are shown as "Supportive." **Appendix C** also presents the approach to quantification, including the analytical process for identifying appropriate regional reductions, costs, and financial benefits.

Table 22: EAP Policy Implementation

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Target(s)		Average Reduction per Participant		Beginning Timeframe	Implementing Department
Policy 1.1: Promote household energy conservation by residents in existing structures through small-scale, behavioral changes.	-932,070	5,850	Households	150	kWh	Near-Term	Community Development
Policy 1.2: Encourage upgrades to more energy-efficient, cost-saving appliances and equipment.	-747,390	2,840	Single-family households	180	kWh	Mid-Term	Community Development
		400	Multi-family households	270	kWh		
Policy 1.3: Incentivize home energy benchmarking as a tool to help homeowners assess and identify opportunities to improve energy performance.	Supportive - Not Estimated					Near-Term	Community Development

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Target(s)		Average Reduction per Participant		Beginning Timeframe	Implementing Department
Policy 1.4: Protect and preserve the City's current single-family housing stock by encouraging voluntary residential retrofits through customized local outreach.	-16,440,650	6,830	Single-family households	1,980	kWh	Near-Term	Community Development
Policy 1.5: Develop a process that encourages energy efficiency improvements in significant historic properties while maintaining the character and integrity of historic homes.	Supportive - Not Estimated					Mid-Term	Community Development
Policy 2.1: Educate Pomona's businesses about opportunities to conserve energy costs through improvements in daily operations.	Supportive - Not Estimated					Near-Term	Community Development
Policy 2.2: Support the use of energy-efficient appliances and equipment in leased and owner-occupied businesses.	-7,668,640	440	Nonresidential buildings <25,000 sq.ft.	14,700	kWh	Mid-Term	Community Development
Policy 2.3: Facilitate retrofits and energy efficiency improvements within the nonresidential building stock to increase local business participation in energy efficiency programs.	-12,977,360	440	Nonresidential buildings <25,000 sq-ft	26,850	kWh	Mid-Term	Community Development
Policy 2.4: Encourage tenant improvements for renter-occupied businesses at large multi-tenant properties.	Supportive - Not Estimated					Long-Term	Community Development

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Target(s)		Average Reduction per Participant		Beginning Timeframe	Implementing Department
Policy 2.5: Reduce electricity used for outdoor lighting.	-1,196,830	440	Nonresidential buildings <25,000 sq.ft.	2,480	kWh	Mid-Term	Community Development
Policy 2.6: Promote cost-saving retrofits in large nonresidential facilities.	-44,459,200	30	Nonresidential buildings >25,000 sq.ft.	1,478,880	kWh	Mid-Term	Community Development
Policy 3.1: Work with project applicants through the plan review process to encourage the maximization of energy-efficient design of new buildings.	-3,179,370	4,680 140	New households New nonresidential buildings	190 9,920	kWh kWh	Mid-Term	Community Development
Policy 3.2: Participate in a regional effort to implement energy efficiency standards for new development.	Supportive - Not Estimated					Long-Term	Community Development
Policy 3.3 Encourage the use of energy-efficient appliances and equipment in new buildings.	-14,026,940	4,930 140	New households New nonresidential buildings	190 84,080	kWh kWh	Long-Term	Community Development
Policy 4.1: Work with major educational facilities located in the city to be a model for energy efficiency and green building standards.	Supportive - Not Estimated					Long-Term	Community Development

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Target(s)		Average Reduction per Participant		Beginning Timeframe	Implementing Department
Policy 5.1: Encourage water-efficient practices through educational efforts to promote the conservation of electricity for water pumping and treatment.	Supportive - Not Estimated					Near-Term	Community Development
Policy 5.2: Promote the use of energy- and water-efficient fixtures for indoor use.	-793,020	7,700	Water customers (capita)	7,830	Gallons	Near-Term	Community Development and Community Services
Policy 5.3: Support water-wise landscaping with drought -resistant species to reduce the electricity demand for water transport and treatment.	-926,310	7,700	Water customers (capita)	5,990	Gallons	Near-Term	Community Development and Community Services
Policy 6.1: Maximize the cooling of buildings through tree planting and shading to reduce building electricity demands.	-1,783,510	9,710	Households	40	kWh	Mid-Term	Community Development and Community Services
		470	Nonresidential buildings	2,670	kWh		
Policy 6.2: Reduce building electricity demands through voluntary standards and outreach to promote cool roofs and surfaces.	-980,410	6,010	Households	120	kWh	Long-Term	Community Development and Public Works
		790	Nonresidential buildings	370	kWh		
Policy 6.3: Incorporate use of groundcovers rather than pavement to reduce heat reflection.	Supportive - Not Estimated					Long-Term	Community Development and Public Works

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Target(s)	Average Reduction per Participant	Beginning Timeframe	Implementing Department
Policy 7.1: Lead the community by example through piloting cost-saving energy management practices.		Supportive - Not Estimated		Mid-Term	Community Development and Public Works
Policy 7.2: Implement an energy-efficient procurement policy to ensure the purchase of efficient equipment that will result in energy costs savings that outweigh additional upfront costs.		Supportive - Not Estimated		Mid-Term	Community Development and Public Works
Policy 7.3: Identify additional opportunities to improve the energy efficiency of city facilities.		Supportive - Not Estimated		Mid-Term	Community Development and Public Works
Policy 7.4: Work with the San Gabriel Valley Council of Governments and regional partners to create an energy management position that tracks energy use at city facilities, identify opportunities for efficiencies and cost savings, and implement energy efficiency projects.		Supportive - Not Estimated		Mid-Term	Community Development and Public Works

[1] *Identifies the midpoint between the low and high range of potential electricity reductions.*

CONTINUED PARTNERSHIP OPPORTUNITIES

One component to the successful implementation of the City's EAP will be the sharing of resources through continued communication and collaboration with other cities in the region. Continued collaboration will foster a more supportive environment to share best practices, and potentially coordinate future requests for funding and/or implementation. Efforts to implement programs and policies on a regional scale will provide consistency in the energy efficiency market and leverage economies of scale. The City will continue to participate in SGVCOG discussions and events related to energy efficiency such as the Energy Wise Partnership, the Energy Environment and Natural Resource Committee, and other SGVCOG-sponsored events to help meet the goals described in this EAP.

CHAPTER 6

CONCLUSION

This Energy Action Plan (EAP) is an opportunity for the City to create and achieve a long-term vision for energy efficiency. The City of Pomona has developed this EAP as part of a regional framework that allows for close coordination and consistency between communities in the San Gabriel Valley, while responding to local community characteristics, values, and planning frameworks.

The policies and actions in this Plan are meant to serve as a roadmap for reducing electricity use in the community and municipal facilities. While the primary focus of this Plan is on reducing electricity and related greenhouse gas emissions, the policies and actions in this Plan also provide the ancillary benefits of improving the quality of the local built environment, reducing household electricity costs, and stimulating the local economy through investments in energy efficiency.

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GLOSSARY OF TERMS

Adjusted Business-as-Usual (ABAU) Forecast

An emissions forecast that accounts for actions and legislation implemented by the state of California to reduce greenhouse gas emissions statewide that will also have a measureable beneficial impact for local jurisdictions' emissions.

Advanced Lighting Technologies

Components and systems with improved performance attributes that contribute toward efficiency enhancement and best practices. Examples (in 2010) include specialty CFLs, LEDs, cold cathode and high-efficiency incandescents.

Source: California Long Term Energy Efficiency Strategic Plan

American Recovery and Reinvestment Act (ARRA)

Commonly referred to as the Stimulus Plan or Recovery Act, ARRA is an economic stimulus package enacted by the federal government in 2009. The intent of the stimulus is to create jobs and promote investment and consumer spending during the economic recession. On Feb. 13, 2009, Congress passed ARRA a direct response to the economic crisis. The Recovery Act has three immediate goals:

- Create new jobs and save existing ones.
- Spur economic activity and invest in long-term growth.
- Foster unprecedented levels of accountability and transparency in government spending.

Assembly Bill 32 (AB 32), California Global Warming Solutions Act of 2006

Establishes a comprehensive program of regulatory and market mechanisms to achieve real, quantifiable, cost-effective reductions of greenhouse gases for the state of California. Makes the California Air Resources Board (CARB) responsible for monitoring and reducing statewide greenhouse gas emissions, with a target to reduce emissions to 1990 levels by 2020.

Assembly Bill 811(AB 811)

California Assembly Bill 811 (authored by Assembly member Lloyd Levine and signed by Governor Arnold Schwarzenegger on July 21, 2008) authorizes California cities and counties to designate areas within which willing property owners could enter into contractual assessments to finance the installation of energy efficiency improvements and/or distributed renewable energy generation.

Source: California Long Term Energy Efficiency Strategic Plan

Assembly Bill 1109 (Huffman Bill)

California Assembly Bill 1109 (authored by Assembly member Jared Huffman and signed by Governor Arnold Schwarzenegger on October 12, 2007) prohibits the manufacturing for sale or the sale of certain general purpose lights that contain hazardous substances, and requires the California Energy Commission to adopt energy efficiency standards for general purpose lights.

Source: California Long Term Energy Efficiency Strategic Plan

Baseline Inventory

The base year for assessment of energy uses against which future progress can be measured for a single calendar year (2005–2008), consistent with legislative guidance and the Assembly Bill 32 Scoping Plan.

Best Practice

Coordinated technologies, systems and design approaches, which (through research and experience) demonstrate the ability to consistently achieve above standard results while avoiding negative environmental impacts. Best practices change over time as improved components, technologies, systems and design approaches become available.

Source: California Long Term Energy Efficiency Strategic Plan

Building Envelope

All components of a building that enclose conditioned space, and separate it from unconditioned space or the outdoors.

Buildout; Build-out

Development of land to its full potential or theoretical capacity as permitted under current or proposed planning or zoning designations.

Business as Usual (BAU)

A scenario that assumes that no specific actions will be taken to reduce emissions and growth coming from the expansion of activity and services within the city. All forecasts are based on this scenario.

California Air Pollution Control Officers Association (CAPCOA)

An Association of Air Pollution Control Officers representing the 35 local air quality agencies throughout California.

California Air Resources Board (CARB)

A part of the California Environmental Protection Agency that reports directly to the Governor's Office in the Executive Branch of California State Government. The CARB's mission is to promote and protect public health, welfare, and ecological resources through the effective and efficient reduction of air pollutants while recognizing and considering the effects on the economy of the state.

Source: California Long Term Energy Efficiency Strategic Plan

California Building Code (Title 24, Part 6)

California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code (composed of 12 parts). Title 24, Part 6 sets forth California's energy efficiency standards for residential and nonresidential buildings and was established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

Source: Southern California Edison

California Environmental Quality Act

A state law requiring state and local agencies to regulate activities with consideration for environmental protection. If a proposed activity has the potential for a significant adverse environmental impact, an environmental impact report (EIR) must be prepared and certified as to its adequacy before action can be taken on the proposed project. General plans require the preparation of a program EIR.

California Global Warming Solutions Act of 2006

See Assembly Bill 32.

California Green Building Code (CALGreen, Title 24, Part 11)

Refers to CALGreen component of the California Building Code. See California Building Code.

California Long Term Energy Efficiency Strategic Plan (CEESP)

A plan adopted by the California Public Utilities Commission in 2008 that presents a single roadmap to achieve maximum energy savings across all major groups and sectors in California. This comprehensive plan for 2009 to 2020 is the state's first integrated framework of goals and strategies for saving energy, covering government, utility, and private sector actions, and holds energy efficiency to its role as the highest priority resource in meeting California's energy needs.

California Solar Initiative (CSI)

Allows the California Public Utilities Commission to provide incentives to install solar technology on existing residential, commercial, nonprofit, and governmental buildings if they are customers of the state's investor-owned utilities: Pacific Gas & Electric, San Diego Gas & Electric, or Southern California Edison.

Carbon Dioxide Equivalent (CO_2e)

A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP. For example, the GWP for methane is 21. This means that emissions of one million metric tons of methane are equivalent to emissions of 21 million $MTCO_2e$.

Clean Car Fuel Standard (AB 1493 – Pavley)

Signed into law in 2002 and commonly referred to as Pavley standards. Requires carmakers to reduce greenhouse gas emissions from new passenger cars and light trucks beginning in 2011. CARB anticipates that the Pavley standards will reduce greenhouse gas emissions from new California passenger vehicles by about 22% in 2012 and about 30% in 2016, all while improving fuel efficiency and reducing motorists' costs.

Climate Change (global climate change)

The term "climate change" is sometimes used to refer to all forms of climatic inconsistency, but because the earth's climate is never static, the term is more properly used to imply a significant change from one climatic condition to another. In some cases, climate change has been used synonymously with the term "global warming"; scientists, however, tend to use the term in the wider sense to also include natural changes in climate.

Community Greenhouse Gas Inventory

Looks at greenhouse gas emissions caused by all activities within a city's geographic boundary. Typical sectors include residential, commercial, and industrial energy use, transportation, off-road equipment, waste generation, and energy associated with water delivery and treatment.

Cool California

A State-operated website that provides tools and information to residents, businesses, schools, and local governments to take action related to climate change. The website links and resources related to energy efficiency, cool roofs, grant programs, and more. The website is http://www.coolcalifornia.org/.

Daylighting

Building assemblies (such as use of windows, skylights, light tubes, and reflective surfaces) designed to introduce daylight into a building for the purpose of illumination, view, and to reduce a building's reliance on electric lighting.

Source: California Long Term Energy Efficiency Strategic Plan

Demand Response

Mechanism for managing end user electricity consumption in response to energy supply conditions. A demand responsive system is one that can be controlled (either directly or remotely) to reduce electricity consumption during times of increased energy demand and/or constrained energy availability.

Source: California Long Term Energy Efficiency Strategic Plan

Direct Access Electricity

Direct access service is an optional choice that customers can select to purchase electricity and other services from an electric service provider (ESP), instead of from Southern California Edison. An ESP is an entity that contracts directly with its customers to provide electric service, and is responsible for arranging an adequate supply of electricity. ESPs are required to meet certain requirements with the California Public Utilities Commission in addition to meeting financial and technical requirements with Southern California Edison.

Electricity Sectors

The EAP groups electricity use into four key topics, based on the type of activity that consumes electricity and causes greenhouse gas emissions. The electricity sectors consist of existing residential, existing nonresidential, new development (residential and nonresidential), and City government operations.

Emissions Forecast

Baseline emissions are forecast to future years based on projected increases in population, jobs, households, and other local uses. Forecasts will show two scenarios: (1) outcomes if no behavioral or regulatory changes are made (a business-as-usual scenario), and (2) outcomes to account for reduction efforts mandated by the state of California, such as new vehicle standards and fuel standards.

Emissions Standard

The maximum amount of pollutant legally permitted to be discharged from a single source, either mobile or stationary.

Energy Committee

An advisory committee whose members would be appointed by the City Council and composed of local residents with expertise in sustainability-related fields. The committee would be responsible for providing input to the City Council regarding policies and opportunities for energy programs, in addition to helping coordinate with responsible departments and managers for action implementation.

Energy Conservation

Methods of reducing energy waste, such as turning off lights or heating when not needed.

Energy Efficiency

Doing the same or more work with less energy, such as replacing incandescent light bulbs with compact fluorescent light bulbs, using appliances that use less electricity to run than older models, or utilizing a vehicle that can travel farther using the same amount of gasoline.

Energy Environment and Natural Resource Committee

The San Gabriel Valley Council of Government's Energy, Environment, and Natural Resources Committee coordinates environment-related efforts among the valley's many jurisdictions, pursues funding opportunities for the valley, and promotes beneficial policies to its member agencies.

Energy Leader Partnership Model

Southern California Edison (SCE) has developed the Energy Leader Partnership (ELP) Model to provide support to local governments in identifying and implementing opportunities to improve energy efficiency in municipal facilities and promoting community awareness of demand side energy management opportunities. By participating in SCE's ELP, local governments are taking actions to support the California Long Term Energy Efficiency Strategic Plan while saving energy and fiscal resources for their communities. In the San Gabriel Valley, the San Gabriel Valley Council of Governments (SGVCOG) is leading the implementation of the ELP with SCE and 27 of the 31 member cities in the SGVCOG. The ELP comprises four focus areas: municipal retrofits, demand response, strategic plan support, and energy efficiency programs coordination. The ELP program has four incentive tiers for participating cities: (1) Valued Partner, (2) Silver, (3) Gold, and (4) Platinum. Each city begins the program as a valued partner; to advance to the next incentive tier, each participating city must achieve the pre-determined energy savings and requirements community-wide and for city facilities.

Energy Star

A joint program of the US Environmental Protection Agency and the US Department of Energy to provide consumers with information and incentives to purchase the most energy-efficient products available.

Energy Upgrade California

Energy Upgrade California is a new statewide program that offers incentives to homeowners who complete select energy-saving home improvements on a single-family residence. These incentive packages encourage customers to take a "whole house" approach by combining several related improvements at once to increase a home's overall energy efficiency and achieve greater savings. By working with participating contractors, homeowners can choose from two incentive options, the Basic Upgrade Package or the Advanced Upgrade Package, based on their improvement needs and budget.

Source: Pacific Gas and Electric Company

Enterprise Energy Management Information Systems

The San Gabriel Valley Council of Governments (SVGCOG) has funded and created a program to set up a "utility manager" computer program to track municipal usage and identify need for sub-metering to plan, budget, and manage bills for each city facility. The SGVCOG is collaborating with the County of Los Angeles to implement the County's Enterprise Energy Management Information System (EEMIS) utility manager to track municipal energy usage, enabling participating San Gabriel Valley municipalities to access facility energy consumption, archive billing data, and report and analyze energy consumption data via the Internet. The County's EEMIS project was developed in 2000 and has been adapted to assist cities in the SGVCOG with monitoring, forecasting, and budgeting for energy use at city facilities.

First Cost

Immediate purchase and installation cost. First costs do not include lifecycle or long-term operating costs, which may result in long-term cost savings from increased efficiency, reduced maintenance, and other factors.

Source: California Long Term Energy Efficiency Strategic Plan

Goal

The desired end state or expected outcome related to electricity reduction targets in the Energy Action Plan (EAP). Each goal corresponds to one of the EAP's seven topic areas: existing residential buildings, existing nonresidential buildings, new development, planning framework, urban cooling, water and electricity efficiency, and municipal operations.

Green Building

Sustainable or "green" building is a holistic approach to design, construction, and demolition that minimizes the building's impact on the environment, the occupants, and the community.

Greenhouse Gases

Gases which cause heat to be trapped in the atmosphere, warming the earth. Greenhouse gases are necessary to keep the earth warm, but increasing concentrations of these gases are implicated in global climate change. The majority of greenhouse gases come from natural sources, although human activity is also a major contributor. The principal greenhouse gases that enter the atmosphere because of human activities are:

- Carbon Dioxide (CO_2): Carbon dioxide is a colorless, odorless gas that occurs naturally in the Earth's atmosphere. Carbon dioxide also enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products, and as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- Methane (CH_4): Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- Nitrous Oxide (N_2O): Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- Fluorinated Gases: Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as high global warming potential gases ("high GWP gases").

Greenhouse Gas Inventory

A greenhouse gas inventory provides estimates of the amount of greenhouse gases emitted to and removed from the atmosphere by human activities. A city or county that conducts an inventory looks at both community emissions sources as well as emissions from government operations. A base year is chosen and used to gather all data from that year. Inventories include data collection from such things as vehicle miles traveled, energy usage from electricity and gas, and waste. Inventories include estimates for carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons, which are referred to as the six Kyoto gases.

Green Teams

A formal or informal group of people in a company who are passionate about environmental issues. The groups brainstorm solutions and promote ways in which their company's practices can become more environmentally sustainable, often creating sustainability plans and approaching management for funding to meet plans.

Source: California Long Term Energy Efficiency Strategic Plan

Green Waste

Refers to lawn, garden, or park plant trimmings and materials and can be used in home composts or picked up curbside by municipal waste haulers.

Heating, Ventilation, and Air Conditioning (HVAC)

Systems that help maintain good indoor air quality through adequate ventilation with filtration and provide thermal comfort.

Implementation Action

An action, procedure, program, or strategy to achieve the electricity reductions of a policy. Action items may provide interim steps or supporting strategies. Actions may also indicate the range of opportunities to increase the electricity reduction potential of a policy.

Integrated Systems

Lighting systems that include components, assemblies, and controls designed to work together effectively.

Kilowatt-hour (kWh)

A unit of energy equivalent to one kilowatt (kW) of energy used for an hour. For example, if an appliance requires a kW of energy to function, leaving the appliance on for one hour would consume one kWh of energy.

Source: California Long Term Energy Efficiency Strategic Plan

Leadership in Energy and Environmental Design

A green building standard and set of rating systems established by the US Green Building Council.

Lifecycle Cost

Cost of a component, technology, or system over its entire lifespan, including not just first costs but also operating, maintenance, and disposal costs.

Methodology

A consistent body of methods or procedures to approach a given task; in terms of a greenhouse gas emissions inventory and forecast, refers to an internally consistent approach to quantify greenhouse gas emissions that supports the principles of inventories identified in the Local Government Operations Protocol: relevance, completeness, consistency, transparency, and accuracy.

Mixed Use

Properties on which various uses such as office, commercial, institutional, and residential are combined in a single building or on a single site in an integrated development project with significant functional interrelationships and a coherent physical design. A "single site" may include contiguous properties.

Municipal Operations Greenhouse Gas Inventory

Looks at greenhouse gas emissions caused by City operations. Typical sectors include energy associated with City facilities, vehicle fleets, equipment, waste generation, employee commutes, and more.

Participating Municipality

Those jurisdictions or member cities that: (i) are located in Southern California Edison's (SCE) service territory; and (ii) have been selected by SCE and the SGVCOG to participate in the program as set forth in the Statement of Work. Includes 27 participating cities (Alhambra, Arcadia, Baldwin Park, Bradbury, Claremont, Covina, Diamond Bar, Duarte, El Monte, Glendora, Irwindale, La Cañada-Flintridge, La Puente, La Verne, Monrovia, Montebello, Monterey Park, Pomona, Rosemead, San Dimas, San Gabriel, San Marino, Sierra Madre, South El Monte, South Pasadena, Temple City, and West Covina).

Source: Southern California Edison

Performance Indicators

Specific, measureable, actionable, realistic and time-specific requirements that will directly and measurably contribute to the City's Energy Action Plan goals.

Source: Southern California Edison

Personal Energy Action Survey

As part of the regional partnership with the San Gabriel Valley Council of Governments, the City distributed the personal energy action survey on energy efficiency at public events and through the City website. A blank version of the survey is provided in **Appendix A**. Participation in the survey was voluntary. Survey results help to provide a useful snapshot of energy-related opinion and behavior; however, the results should not be interpreted as statistically valid.

Policy

A statement that guides decision-making and indicates a commitment to achieve the specified outcomes of the goal. Policies provide the foundation for quantification of electricity reduction potentials in the Energy Action Plan.

Project Steering Committee

Along with other San Gabriel Valley cities taking part in the regional Energy Action Plan (EAP) project, the City participated in a Project Steering Committee (PSC) throughout EAP development. The purpose of the PSC is to confirm a regional approach to EAP development, guide the project, and share best practices among jurisdictions. The PSC convened approximately once a month from June 2011 to September 2012 . During PSC meetings, representatives from San Gabriel Valley Council of Governments staff and technical consultant project team facilitated discussions and presentations to review options to achieve electricity efficiency.

Property Assessed Clean Energy (PACE)

A form of financing that creates municipal finance districts to provide loans to homeowners and businesses for energy-efficient retrofits and renewable energy system installations. Loans are repaid through an annual surcharge on property tax assessments. Governor Schwarzenegger signed the nation's first law allowing PACE financing in 2008.

Source: California Long Term Energy Efficiency Strategic Plan

Public Goods Charge

The funds which make up the San Gabriel Valley Council of Governments (SGVCOG) budget and which are collected from electric utility ratepayers pursuant to Section 381 of the California Public Utilities Code for public purposes programs, including energy efficiency programs approved by the California Public Utilities Commission.

Source: Southern California Edison

Reach Codes

Codes that direct contractors to construct buildings significantly more energy efficient than required by conventional building codes.

Source: California Long Term Energy Efficiency Strategic Plan

Rebate

Offered by the state, utility, or local government to promote the installation of renewables and energy efficiency projects.

Renewable Energy

Energy from sources that regenerate and are less damaging to the environment, such as solar, wind, biomass, and small-scale hydroelectric power.

Renewables Portfolio Standard

Requires utility providers to increase the portion of energy that comes from renewable sources to 20% by 2010 and to 33% by 2020. Due to potential implementation issues, the adjusted business-as-usual forecast assumes that energy providers will achieve a minimum 28% renewable portfolio by 2020.

San Gabriel Valley Council of Governments (SGVCOG)

A Joint Powers Authority representing 31 incorporated cities and unincorporated areas in the San Gabriel Valley. The SGVCOG works with member agencies to collectively address transportation, housing, economic growth, and environment issues that are most effectively addressed at a regional scale.

San Gabriel Valley Energy Wise Partnership

An alliance between the San Gabriel Valley Council of Governments and Southern California Edison to bring energy savings to the San Gabriel Valley through innovative public education and energy efficiency projects. The program seeks to reduce energy usage in the region by approximately 5 million kilowatt-hours by 2012.

Savings by Design (SBD)

California's nonresidential new construction energy efficiency program, administered statewide and funded by energy utility customers through the Public Purpose Programs surcharge applied to gas and electric services. Projects participating in SBD receive services including design assistance, owner incentives, design team incentives, and energy design resources. Services begin in the project design phase and continue through construction completion.

Source: Southern California Edison

Senate Bill 375

Requires the California Air Resources Board to develop regional greenhouse gas emissions reduction targets to be achieved from the automobile and light truck sectors for 2020. The regional targets adopted by the Southern California Association of Governments (SCAG) are an 8% reduction in per capita transportation emissions by 2020 and a conditional 13% reduction by 2035 which will be achieved through the development of a Sustainable Communities Strategy as part of the 2012 Regional Transportation Plan update.

Sectors

Emissions are grouped by the type of activity that generated the emissions, such as transportation, residential energy use, or commercial energy use.

Simple Payback Period

Amount of time required to recover an initial investment.

Source: California Long Term Energy Efficiency Strategic Plan

Smart Lighting

Lighting that is dynamically responsive to end-user needs based on daylighting, occupancy, scheduling and demand response requirements.

Source: California Long Term Energy Efficiency Strategic Plan

South Coast Air Quality Management District (SCAQMD)

The air pollution control agency for all of Orange County and the urban portions of Los Angeles, Riverside and San Bernardino counties, the smoggiest region of the US. SCAQMD's goal is to protect the health of residents, while remaining sensitive to businesses.

Southern California Edison (SCE)

An investor-owned utility that is the primary electricity provider to Southern California and the San Gabriel Valley.

Southern California Edison Energy Leader Partnership

A program run by SCE that provides support to local governments and institutions to assist them in achieving a joint vision of sustainability. SCE works closely with partners to address key issues that are barriers to achieving this vision and develop a long term energy efficiency strategy. For local governments, SCE provides support to identify and address energy efficiency opportunities in municipal facilities, take actions supporting the California Long Term Energy Efficiency Strategic Plan, and increase community awareness and participation in demand side management opportunities. A key goal in SCE's local government partnerships is helping cities and counties lead by example in addressing energy efficiency first in their own municipal facilities.

Southern California Edison Incentive (financial incentive)

Provisions issued by SCE in order to promote the installation of energy efficiency and renewable projects in the utility territory. There are a variety of types of incentives, including rebates, loans, and alternative rates. The incentives are paid through the statewide Public Good Charge.

Southern California Regional Energy Consortium

Los Angeles County program that will bundle like projects for economies of scale after city energy efficiency projects have been identified.

Standard Practice

As opposed to best practices, standard practices include techniques, policies, methodologies, procedures, technologies and systems that are typically employed by practitioners and generally do not achieve optimal results (in terms of energy efficiency, demand-responsiveness, high quality, environmental sustainability, smart-grid connectedness, and integration with renewable energy generation sources).

Source: California Long Term Energy Efficiency Strategic Plan

Sustainability

Community use of natural resources in a way that does not jeopardize the ability of future generations to live and prosper.

Sustainable Development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Source: *Report of the World Commission on Environment and Development: Our Common Future*, also known as the Brundtland Commission or Brundtland Report

Tariff

Electricity rates set by the utility and approved by the California Public Utilities Commission to recover costs. Customers may be placed in different rate classes based on a combination of parameters such as level of demand, end-use applications, or economic situation.

Title 24

See California Building Code.

Vehicle Miles Traveled (VMT)

A key measure of overall street and highway use. Reducing VMT is often a major objective in efforts to reduce vehicular congestion and achieve regional air quality goals.

Water Conservation

Reducing water use, such as turning off taps, shortening shower times, and cutting back on outdoor irrigation.

Water Efficiency

Replacing older technologies and practices in order to accomplish the same results with less water; for example, by replacing toilets with new low-water-using models and by installing "smart controllers" in irrigated areas.

Zero Net Energy

For buildings, use of no more energy over the course of a year than can be generated onsite through renewable resources such as solar, wind, or geothermal power.

Source: California Long Term Energy Efficiency Strategic Plan

APPENDIX A

PERSONAL ENERGY ACTION SURVEY

As part of the stakeholder outreach process, an online survey was created to solicit resident and business input on energy efficiency actions that they have already taken in their home or business and actions that they may be willing to take within the next five years. This appendix includes a blank version of the survey, while the results are summarized in Chapter 1 of this document.

PERSONAL ENERGY ACTION SURVEY: SAN GABRIEL VALLEY COUNCIL OF GOVERNMENTS ENERGY ACTION PLAN

Your City is initiating an Energy Efficiency Plan to achieve determine Pomona's existing and future energy use and to meet the City's energy reduction goals.

This survey is an important way to assist City staff and provide input into the project planning process. It should take about 10 minutes to fill out.

This project has been funded by Southern California Edison (SCE) as part of the California Long-Term Energy Efficiency Strategic Plan to develop a Regional Framework and individual energy efficiency chapters of climate action plans (EECAP) for cities in the San Gabriel Valley Council of Governments (SGVCOG). If you would like more information regarding the project, please contact Marisa Creter, at mcreter@sgvcog.org or (626) 457-1800.

1) What City do you live and/or work in the most?
   - Alhambra
   - Arcadia
   - Baldwin Park
   - Bradbury
   - Claremont
   - Covina
   - Diamond Bar
   - Duarte
   - El Monte
   - Glendora
   - Irwindale
   - La Cañada Flintridge
   - La Puente
   - La Verne
   - Monrovia
   - Montebello
   - Monterey Park
   - Pomona
   - Rosemead
   - San Dimas
   - San Gabriel
   - San Marino
   - Sierra Madre
   - South El Monte
   - South Pasadena
   - Temple City
   - Walnut
   - West Covina
2) What do you identify with most when thinking of the City chosen above?
   - Resident
   - Business Owner
   - Work
   - Other
3) Which of the following ranges includes your age?
   - 24 or under
   - 25 to 34
   - 35 to 44
   - 45 to 54
   - 55 to 64
   - 65 to 74
   - 75 and above
4) If you do not reside in the City you chose above, in what city do you reside? Please choose a city from the list or enter a city below.
   - Other (please specify)

5) Do you rent or own your home?

- Rent house
- Rent apartment
- Own

6) How many people live in your household (including yourself)?

- 1
- 2
- 3
- 4 or more

7) What have you already done in your home or business to reduce energy use? (Select all that apply)

- Replaced older light bulbs with more energy efficient bulbs
- Replaced appliances with more energy efficient models
- Replaced or upgraded heating and cooling system
- Upgraded insulation
- Upgraded to more energy efficient windows
- Installed a solar hot water heater
- Installed solar or wind systems on my roof or property
- I have not done anything to my home or business to reduce energy use
- Other

8) Which of the following would you be ready to do in the next year to reduce energy use in your home or business? (Select all that apply)

- Replace older light bulbs with more energy efficient bulbs
- Replace appliances with more energy efficient models
- Replace or upgrade heating and cooling system
- Upgrade insulation
- Upgrade to more energy efficient windows
- Install a solar hot water heater
- Install solar or wind systems on my roof or property
- Nothing
- Other

9) Which of the following would you be ready to do in the next five (5) years to reduce energy use in your home or business? (Select all that apply)

- Replace older light bulbs with more energy efficient bulbs
- Replace appliances with more energy efficient models
- Upgrade insulation
- Install a solar hot water heater
- Install Photovoltaic Solar Panels on roof
- Nothing
- Other

10) What would encourage you to install any of the technologies mentioned in the previous questions? (Select all that apply)

- More information on the energy / financial savings
- Grants or incentive programs to offset costs
- Low-interest loans

- List of reliable contractors or installers
- Lower utility bills
- None of the above
- Other

11) In general, which of the following strategies do you support to achieve energy efficiency? (Select all that apply)

- Voluntary, incentive-based measures for individuals, businesses, and the City to achieve energy efficiency.
- Mandatory requirements for individuals, businesses, and the City to achieve energy efficiency.

APPENDIX B

GREENHOUSE GAS EMISSIONS INVENTORY REPORT

APPENDIX B

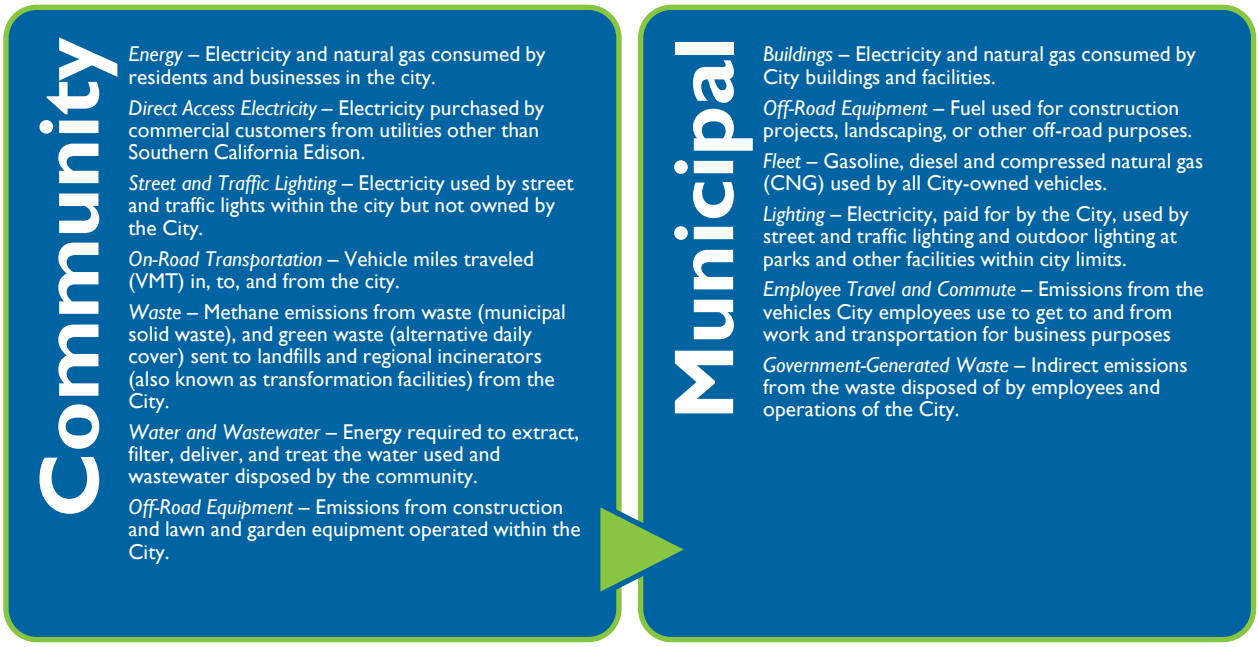
INVENTORY AND FORECASTING PURPOSE

This greenhouse gas (GHG) emissions inventory and forecast (Inventory) acts as a foundation for the City of Pomona's Energy Action Plan (EAP) by providing the City and the community with detailed information about the sources of GHG emissions and the largest opportunities for reduction. The Inventory identifies sources of GHG emissions, both major and minor, to aid in the creation of reduction strategies in the EAP in response to the local emissions profile. Specifically, the Inventory does the following:

- Presents GHGs from both community and municipal activities in the baseline (2007) calendar year.
- Forecasts how community and municipal emissions will change by 2020 and 2035 if there are no behavioral or regulatory changes. This forecast is known as the business-as-usual (BAU) scenario.
- Factors new reduction efforts mandated by the state of California, such as new green building standards, into the GHG forecasts to show the impact of state policy.
- Provides stakeholders, City staff, and decision-makers with sufficient information to direct the development of an EAP, and to establish GHG remission reduction and energy efficiency targets if desired.

RELEVANT EMISSIONS

The Inventory includes the major sources of GHGs caused by activities in the City of Pomona, in a manner consistent with the Best Practices Memo, the Regional Framework, and the recommendations of the California Air Resources Board (CARB). The Inventory contains a description and analysis of emissions in numerous categories, as detailed below.



KEY CONCEPTS

These terms are used throughout the Inventory and are vital to understanding the contents of the GHG inventory and forecast:

- Baseline year—Emissions are quantified for the baseline year of 2007, a year that is consistent with the baseline year definition of the California Global Warming Solutions Act, also known as Assembly Bill (AB) 32. The baseline year allows the City and other stakeholders to track and observe the impact of existing reduction strategies and to better inform future actions to further reduce emissions.
- Business-as-usual (BAU)—The scenario on which all forecasts are based. The BAU scenario assumes that no specific actions are taken at any level to reduce emissions as a result of activities and services within the City of Pomona.
- Carbon dioxide equivalent (CO_2e)—A measurement of GHGs that represents the three primary gases responsible for climate change—carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O)—in comparable terms, as all three gases trap differing amounts of heat in the atmosphere. GHGs in the Inventory and many other reports are measured in metric tons of CO_2e ($MTCO_2e$).
- Sectors—Emissions are grouped by the type of activity that is responsible for the emissions, such as transportation, water pumping, or industrial electricity use.

COMMUNITY INVENTORY

COMMUNITY SUMMARY

In the baseline year of 2007, the City of Pomona emitted about 987,170 $MTCO_2e$. The transportation sector was the largest contributor of GHG emissions, responsible for about 53% of the total (522,890 $MTCO_2e$). Commercial/industrial energy use contributed 24% of the community's emissions (232,170 $MTCO_2e$), and residential energy use was responsible for a further 15% (148,460 $MTCO_2e$). Five other sectors (direct access electricity, street lighting, water and wastewater electricity use, community-generated waste, and off-road sources such as construction and landscaping equipment) contributed the remaining 8%, or 83,690 $MTCO_2e$. The full details of emissions by sector are provided in **Figure B-1** and **Table B-1**.

APPENDIX B

Figure B-1: Community GHG Emissions by Sector

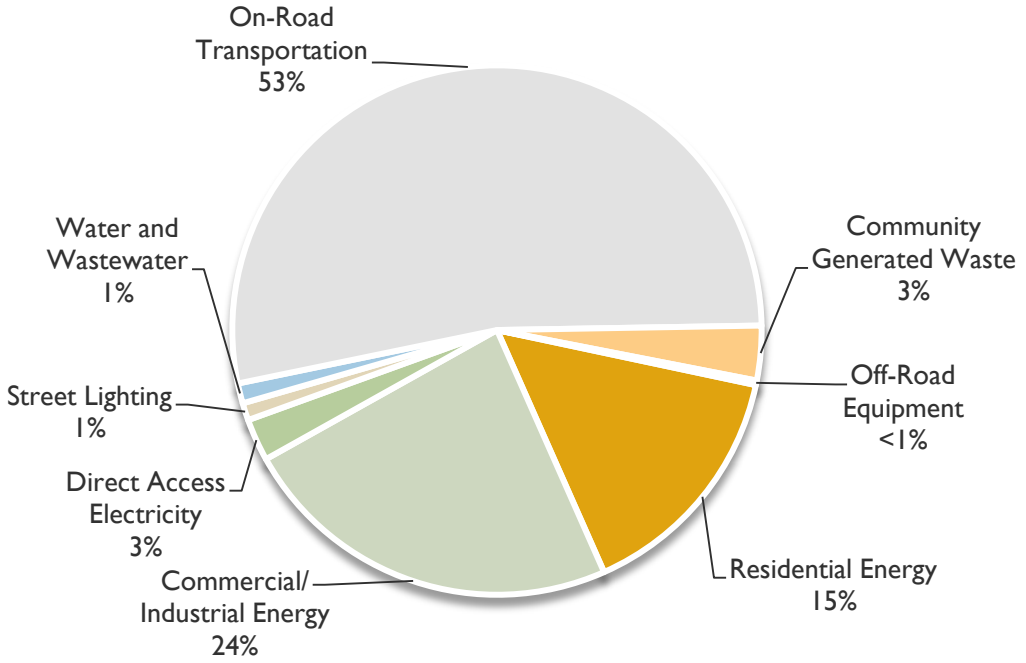


Table B-1: Community GHG Emissions by Sector

Sector	$MTCO_2e$	Percent of Total
Residential Energy	148,460	15%
Commercial/Industrial Energy	232,170	24%
Direct Access Electricity	25,540	3%
Street & Traffic Lighting	10,470	1%
Water and Wastewater	12,100	1%
On-Road Transportation	522,890	53%
Community-Generated Waste	32,880	3%
Off-Road Equipment	2,600	<1%
Total	**987,170**	**100%**

** Due to rounding, the total may not equal the sum of component parts*

DETAILED ANALYSIS BY SECTOR

Within most of the sectors are multiple subsectors, summarized in **Table B-2**. For example, the community-generated waste sector contains the municipal solid waste, alternative daily cover, and transformed subsectors. This information provides further details of emissions within each sector depicted in **Table B-1** and **Figure B-2**.

Table B-2: Detailed Activity Data And GHG Emissions, 2007

Sector	Activity Data		$MTCO_2e$
Residential Electricity	233,018,150	kWh	67,070
Residential Natural Gas	15,299,680	Therms	81,390
Commercial/Industrial Electricity	508,833,090	kWh	146,470
Commercial/Industrial Natural Gas	16,110,860	Therms	85,700
Direct Access Electricity	60,968,800	kWh	25,540
Street and Traffic Lighting	36,347,720	kWh	10,470
Water Pumping	3,169,270	kWh	910
On-Road Transportation	987,762,520	VMT	522,890
Waste – Municipal Solid Waste	168,390	Tons of Waste	31,310
Waste – Alternative Daily Cover	9,420	Tons of ADC	1,450
Waste – Transformed	390	Tons Transformed	120
Off-Road Equipment	38,980	Households	2,700
Water	27,278,030	kWh	7,890
Wastewater - Indirect	11,609,760	kWh	3,340
		Total*	**987,170**

** Due to rounding, the total may not equal the sum of the component parts.*

INFORMATIONAL ITEMS

Direct emissions from the closed Pomona City Dump #1, located on Rio Rancho Road, are included as informational items and are not represented in Pomona's community inventory because there are no efforts that can be taken to reduce emissions from this closed landfill. During the baseline year of 2007, landfill emitted an estimated 1,300 $MTCO_2e$. As the biogenic material decomposes, the emissions from the landfill are expected to decrease (down to 700 $MTCO_2e$ by 2035) and eventually cease.

MUNICIPAL INVENTORY

MUNICIPAL SUMMARY

The municipal operations and activities by the City of Pomona were responsible for 14,300 $MTCO_2e$ in 2007. Water pumping was the largest contributor, emitting 4,850 $MTCO_2e$ or about 34% of the total, and emissions from the City's vehicle fleet were second with 3,870 $MTCO_2e$ of emissions, or 27% of the total. A detailed description of Pomona's municipal GHG emissions is given in **Figure B-2** and **Table B-3**.

Figure 23: Figure B-2: Municipal GHG Emissions by Sector

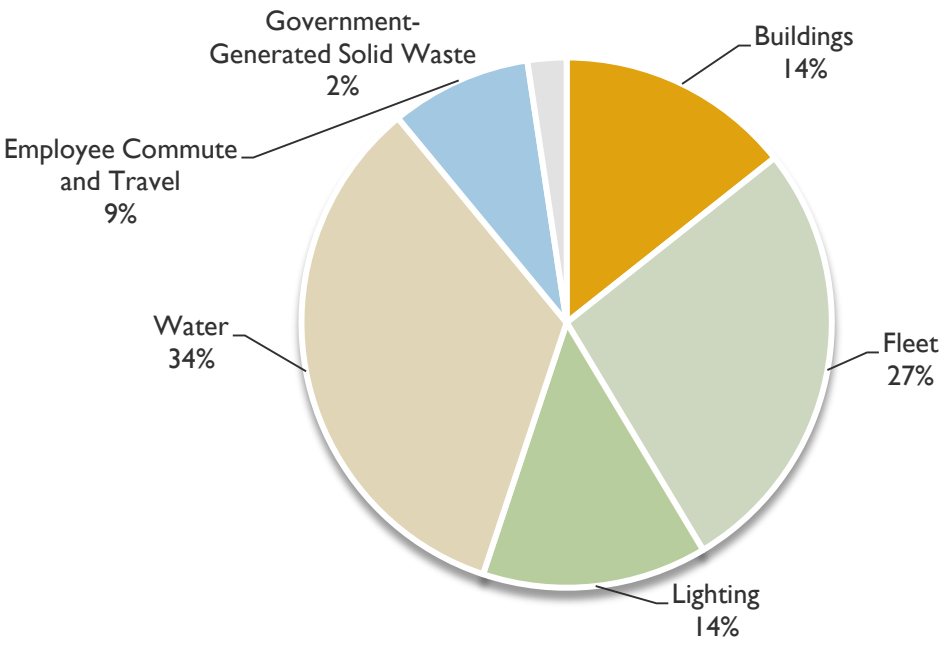


Table B-3: Municipal GHG Emissions By Sector

Sector	$MTCO_2e$	Percent
Buildings	2,050	14%
Fleet	3,870	27%
Lighting	1,960	14%
Water	4,850	34%
Employee Commute and Travel	1,230	9%
Government-Generated Solid Waste	340	2%
Total*	**14,300**	**100%**

** Due to rounding, the total may not equal the sum of the component parts.*

DETAILED ANALYSIS BY SECTOR

As with the community inventory, most sectors in the municipal inventory are made up of multiple subsectors. For example, emissions from the City's vehicle fleet are made up of emissions from both gasoline and diesel-powered vehicles. The individual emissions from each subsector are described in **Table B-4**.

Table B-4: Detailed Municipal Activity Data And GHG Emissions

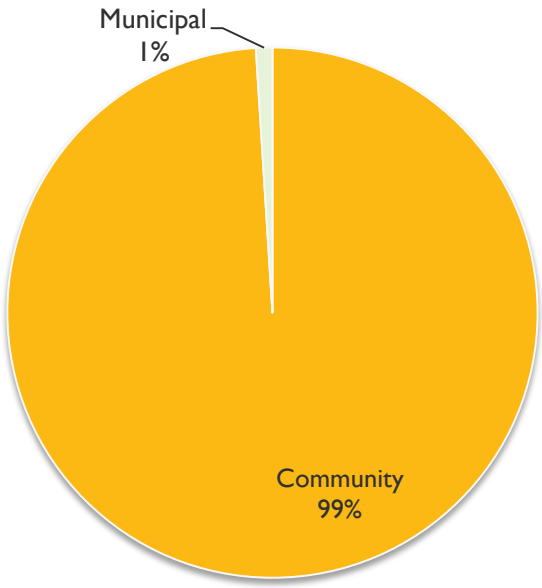
Sector	Subsector	Activity Data	Unit	$MTCO_2e$
Buildings	Electricity	6,035,870	kWh	1,740
	Natural Gas	57,599	Therms	310
Fleet	Gasoline	274,080	Gallons	2,530
	Diesel	125,140	Gallons	1,340
Lighting	City-Owned Streetlights	4,592,310	kWh	1,320
	Traffic Lights	786,100	kWh	230
	SCE-Owned Streetlights	1,062,650	kWh	310
	Other Public Lighting	362,490	kWh	100
Water	Water Electricity	16,873,690	kWh	4,850
Employee Commute and Travel	Employee Travel	20,760	Miles Traveled	<10
	Employee Commute	2,932,850	VMT	1,230
Government-Generated Solid Waste	Tons Disposed	1,910	Tons	340
	Total*			**14,300**

** Due to rounding, the total may not equal the sum of component parts.*

RELATION TO COMMUNITY INVENTORY

Municipal emissions account for about 1% of Pomona's community emissions, as shown in **Figure B-3**. Municipal GHG emissions are treated as a subject of community emissions, as the majority of municipal activities occur within the boundaries of Pomona. All municipal operations are included in a sector of the community emissions; for example, emissions caused by the commute of City employees are included in the transportation sector for the community inventory. Much like how businesses will conduct facility-scale GHG inventories, the municipal inventory provides greater detail to inform City policy and programs. The difference between community and municipal emissions is depicted in **Figure B-3**.

Figure B-3: Municipal And Community GHG Emissions



2010 EMISSIONS ASSESSMENT

For every subsector in the baseline community inventory, activity data was also available for 2010. This information has been converted into GHG emissions for Pomona and all other participating cities, allowing 2010 to serve as a common inventory year for ease of comparison. The 2010 interim inventory also enables Pomona and other communities to track changes in activity and emissions data since the baseline year. A comparison between 2007 and 2010 for activity and emissions data is depicted in **Table B-5**.

Out of 14 sectors and subsectors, all but two saw a reduction in GHG emissions. Overall, community emissions declined by almost 50,000 $MTCO_2e$, or about 5%. Commercial/industrial electricity and natural gas saw a 12% and 11% decreases in activity data and emissions respectively, with the overall economic recession as a probable cause. Decreases in commercial/industrial electricity use also correlate to the 31% decrease in direct access electricity use for two reasons: 1) all direct access customers are likely commercial or industrial in nature and 2) the percent of nonresidential electricity use purchased through direct access dropped from 10.7% in 2007 to 8.6% in 2010. The electricity used in the community for water pumping decreased 14% from 2007 to 2010 as a result of the City's efforts to increase the efficiency of City-owned water pumps. Population estimates for 2007 turned out to be higher than official US Census figures for 2010, resulting in a substantial decrease in the water, waste, and wastewater sectors. The large increase in green waste and decrease in community-generated and transformed waste do not appear linked to any specific policy or activity, although it is common among participating cities to see significant fluctuations in these activities.

Off-road construction emissions decreased 59%, while there was a larger decrease in construction permits issued in the same period, an 81% decrease. This divergence came from the shortfalls of the model used to estimate off-road emissions, OFFROAD2007, and the methods used to relate countywide emissions to Pomona. OFFROAD2007 outputs

construction emissions for all of Los Angeles County, and those emissions are assigned to Pomona using the city's proportion of countywide construction permits issued. In the housing construction decline between 2007 and 2010, fewer permits were issued throughout the county; however, OFFROAD2007 did not show the associated decrease in construction equipment emissions.

Table B-5: 2010 Community Activity Data and Emissions

Sector	2007 Activity Data	2010 Activity Data	Percent Change 2007–2010	Units	2007 $MTCO_2e$	2010 $MTCO_2e$	Percent Change 2007–2010
Residential Electricity	233,018,150	226,682,260	-3%	kWh	67,070	65,250	-3%
Residential Natural Gas	15,299,680	15,078,710	-1%	Therms	81,390	80,210	-1%
Commercial/Industrial Electricity	508,833,090	449,921,160	-12%	kWh	146,470	129,510	-12%
Commercial/Industrial Natural Gas	16,110,860	14,319,590	-11%	Therms	85,700	76,170	-11%
Direct Access Electricity	60,968,800	42,333,940	-31%	kWh	25,540	17,730	-31%
Street and Traffic Lighting	36,347,720	36,765,530	1%	kWh	10,470	10,580	1%
Water Pumping	3,169,270	2,714,080	-14%	kWh	910	780	-14%
On-Road Transportation	987,762,520	1,002,479,360	1%	VMT	522,890	518,940	-1%
Waste – Community-Generated Waste	168,390	139,230	-17%	Tons of Waste	31,310	25,890	-17%
Waste – Alternative Daily Cover	9,420	15,070	60%	Tons of ADC	1,450	2,320	60%
Waste – Transformed	390	260	-33%	Tons transformed	120	80	-33%
Off-Road Equipment – Construction	160	30	-81%	Permits Issued	2,620	1,080	-59%
Off-Road Equipment – Lawn and Garden	38,980	39,460	1%	Households	40	40	0%
Water	27,278,030	21,129,820	-23%	kWh	7,850	6,110	-23%
Wastewater – Indirect	11,609,760	9,353,900	-19%	kWh	3,340	2,690	-18%
				Total*	**987,170**	**937,350**	**-5%**

** Due to rounding, the total may not equal the sum of component parts.*

As with the community data, municipal activity data was available for 2010 for a number of sectors. This information, shown in **Table B-6**, has been used to create a snapshot of 2010 municipal GHG emissions. Emissions from Pomona government operations in 2010 were estimated at 12,330 $MTCO_2e$, more than a 14% decrease from 2007. Both

subsectors of fleet fuel use, gasoline and diesel, saw decreases in emissions ranging from 24% to 18% lower than 2007. These decreases are likely a result of increases in fuel efficiencies of the City fleet and overall decreases in fuel use. Municipal water pumping electricity saw decreases similar to the community accounting to a 25% decrease in emissions. Employee commute decreased 11% as a result of a decrease in number of employees from 2007 to 2010.

Table B-6:2010 Municipal Activity Data and Emissions

Sector	Subsector	2007 Activity Data	2010 Activity Data	Percent Change 2007–2010	Unit	2007 $MTCO_2e$	2010 $MTCO_2e$	Percent Change 2007–2010
Buildings	Electricity	6,035,870	6,752,600	12%	kWh	1,740	1,950	12%
	Natural Gas	57,600	62,010	8%	Therms	310	330	6%
Fleet	Gasoline	274,080	208,940	-24%	Gallons	2,530	1,930	-24%
	Diesel	125,140	102,820	-18%	Gallons	1,340	1,100	-18%
Lighting	City-Owned Streetlights	4,592,310	4,561,960	-1%	kWh	1,320	1,310	-1%
	Traffic Lights	786,100	805,960	3%	kWh	230	230	0%
	SCE-Owned Streetlights	1,062,650	1,089,990	3%	kWh	310	310	0%
	Other Public Lighting	362,490	260,200	-28%	kWh	100	70	-30%
Water	Water Electricity	16,873,690	12,747,250	-24%	kWh	4,850	3,660	-25%
Employee Commute and Travel	Employee Commute	2,932,850	2,636,130	-10%	VMT	1,230	1,100	-11%
	Employee Travel	20,760	18,660	-10%	Miles Traveled	<10	<10	0%
Government -Generated Solid Waste*	Tons Disposed	1,910	1,910	0%	Tons	340	340	0%
					Total**	**14,300**	**12,330**	**-14%**

** Activity data was not available for 2010 so 2007 information is used as a proxy.*

***Due to rounding, the total may not equal the sum of the component parts.*

Business-as-Usual Forecast

A business-as-usual (BAU) forecast is an estimate of how GHG emissions will change over time without influence of federal, state, regional, and local reduction efforts. The BAU forecast assumes 2007 level energy use, waste disposal, and

energy efficiency rates, and focuses on the target years of 2020 and 2035. The 2020 target year is estimated for consistency with AB 32 targets, and 2035 is chosen for consistency with Senate Bill 375.

COMMUNITY BUSINESS-AS-USUAL INDICATORS

A number of growth indicators are used to forecast Pomona's future community emissions, as shown in **Table B-7**. For example, the projected number of households within city limits for 2020 and 2035 are used to estimate residential energy use; the projected number of jobs is linked to forecasted commercial and industrial electricity use; and the expected total service population for Pomona is used to forecast emissions from waste. All indicators, except those used for transportation, are from the Southern California Association of Governments (SCAG) Proposed Final 2012 Regional Transportation Plan (RTP). Fehr & Peers Transportation Consultants used SCAG's 2003 RTP travel model to project the growth in transportation activity in vehicle miles traveled (VMT).

Fehr & Peers compared population, household, and jobs forecast from the 2003 RTP model with comparable data sources to confirm the accuracy of the VMT forecasts. Since the 2003 RTP travel model forecasts were less than Fehr & Peers' 5% adjustment margin of error, Fehr & Peers did not modify Pomona's VMT forecasts based on the US Census and the 2008 SCAG RTP model.

Table B-7: BAU Growth Indicators and Affected Sectors

Growth Indicator	Emissions Sector	2007	2010	2020	2035	Sources
Jobs	Commercial and Industrial Energy	51,700	55,080	57,000	59,600	2010 Census, SCAG 2012 RTP
Service Population (Residents + Jobs)	Solid Waste, Water, Wastewater, Landfill	212,510	204,140	225,500	257,000	2010 Census, SCAG 2012 RTP, SCAG 2003 RTP
Households	Residential Energy, Off-Road	38,980	38,480	43,400	48,900	Fehr & Peers Transportation Consultants, SCAG 2003 RTP
Daily VMT	Transportation	2,846,580	2,888,990	3,035,100	3,268,640	2010 Census, SCAG 2012 RTP

COMMUNITY BAU FORECAST

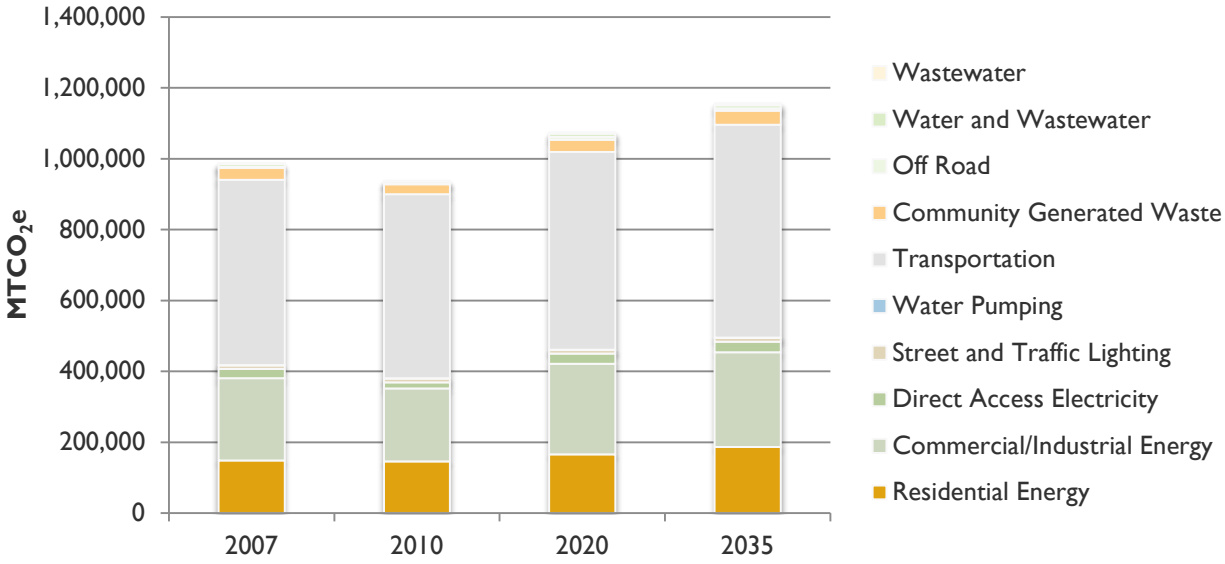
Without any actions or policies in place to reduce GHG emissions, the BAU growth scenario predicts that community emissions will rise 9% (86,050 $MTCO_2e$) by 2020 and 17% (167,540 $MTCO_2e$) by 2035 compared to baseline levels. Overall community emissions are forecasted at 1,073,220 $MTCO_2e$ in 2020 and 1,154,710 $MTCO_2e$ in 2035. All sectors, except for street and traffic lighting, are expected to see an increase. These changes are illustrated in **Table B-8** and **Figure B-4**.

Table B-8: Community BAU Emissions by Sector (MTCO2e)

Sector	2007	2010	2020	2035
Residential Energy	148,460	145,460	165,300	186,240
Commercial/Industrial Energy	232,170	205,680	255,980	267,650
Direct Access Electricity	25,540	17,730	28,160	29,440
Street and Traffic Lighting	10,470	10,580	10,470	10,470
Water Pumping	910	780	970	1,100
On-Road Transportation	522,890	518,940	557,520	600,420
Community-Generated Waste	32,880	28,290	34,890	39,750
Off–Road Equipment	2,660	1,120	8,060	6,110
Water	7,850	6,080	8,330	9,490
Wastewater	3,340	2,690	3,540	4,040
Total	**987,170**	**937,350**	**1,073,220**	**1,154,710**

** Due to rounding, the total may not equal the sum of component parts*

Figure B-4: Community BAU Emissions by Sector



MUNICIPAL BAU FORECAST

The City of Pomona's municipal forecast largely assumes a no-growth scenario for City operations in the forecast years, based on 2007 and 2010 activity data. Water pumping is the sole activity that is expected to change, as a result of the growth in the service population for City water. Municipal emissions are predicted to rise 3% (380 $MTCO_2e$) by 2020 and 8% (950 $MTCO_2e$) by 2035 compared to 2010 levels. However, as a result of already-implemented energy

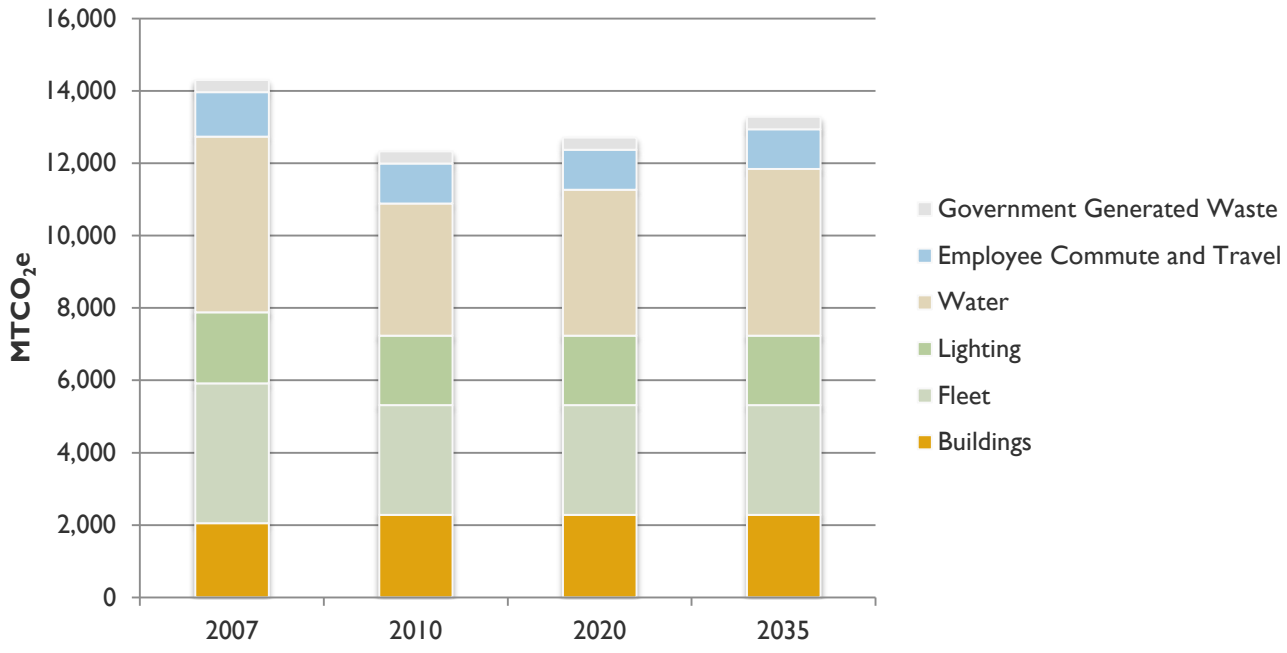
conservation and energy efficiency measures, forecasted levels for both years remain below baseline levels. **Table B-9** and **Figure 5** illustrate the expected changes to municipal emissions.

Table B-9: Municipal BAU Emissions By Sector (MTCO2e)

Sector	2007	2010	2020	2035
Buildings	2,050	2,280	2,280	2,280
Fleet	3,870	3,030	3,030	3,030
Lighting	1,960	1,920	1,920	1,920
Water	4,850	3,660	4,040	4,610
Employee Commute and Travel	1,230	1,100	1,100	1,100
Government-Generated Solid Waste **	340	340	340	340
Total*	**14,300**	**12,330**	**12,710**	**13,280**

** Due to rounding, the total may not equal the sum of the component parts.*
*** Government-generated waste activity data was not available for 2010. 2007 data has been used as a proxy.*

Figure B-5: Municipal BAU Emissions by Sector



APPENDIX B

STATE ADJUSTED FORECAST

STATE REDUCTION PROGRAMS

The state of California has been a proactive force in reducing GHG emissions, implementing a number of regulations affecting vehicle standards, building standards, and the renewable energy content of electricity that will reduce Pomona's GHG emissions. The state's actions summarized below are incorporated into the BAU forecast to create a more realistic estimate of the city's future emissions.

Assembly Bill 1493 (Pavley). Signed into law in 2002, AB 1493 requires carmakers to reduce GHG emissions from new passenger cars and light trucks beginning in 2011. Regulations were adopted by CARB in 2004 and took effect in 2009 with the release of a waiver from the US Environmental Protection Agency granting California the right to implement the bill. CARB anticipates that the Pavley standards will reduce GHG emissions from California passenger vehicles by about 22% in 2012 and by about 30% in 2016, all while improving fuel efficiency and reducing motorists' costs.[2] The car industry is well on its way to meeting these efficiency targets.

Renewables Portfolio Standard. Established in 2002 in Senate Bill 1078, the Renewables Portfolio Standard (RPS) targets utility providers to increase the portion of energy that comes from renewable sources to 20% by 2010 and to 33% by 2020. A June 2009 report from the California Public Utilities Commission indicated that it is unlikely that the state and its investor-owned utilities will be able to reach the RPS goal of 33% by 2020; according to state assessments, the forecast assumes that energy providers will achieve a 28% renewable portfolio by 2020.[3]

California Building Code Title 24. Title 24 of the California Code of Regulations mandates how each new home and business is built in California. It includes requirements for the structural, plumbing, electrical, and mechanical systems of buildings and for fire and life safety, energy conservation, green design, and accessibility in and about buildings. The 2010 triennial edition of Title 24 pertains to all occupancies that applied for a building permit on or after January 1, 2011, and remains in effect until the effective date of the 2013 triennial edition. This Inventory focuses on two sections of Title 24: Part 6 (the California Energy Code) and Part 11 (the California Green Building Standards Code). These two sections require direct electricity, natural gas, and water savings for every new home or business built in California. Title 24 is a statewide standard applied at the local level by local agencies through project review.

This Inventory incorporates the net energy benefit of new Title 24 requirements that did not exist in the baseline year. These estimates are based on California Energy Commission studies that compare each new update of Title 24 to its former version. The AB 32 Scoping Plan calls for ongoing triennial updates to Title 24 that yield regular increases in mandatory energy and water savings for new construction. As such, the GHG forecast also includes a conservative estimate of the energy and water reductions due to future updates of Title 24 based on historic growth rates. The energy reductions quantified in the forecast from Part 6 Energy Code updates are based on the assumption that the triennial updates to the code will yield regular decreases in the maximum allowable amount of energy used from new construction.

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[2] California Air Resources Board 2010
[3] California Public Utilities Commission 2009

Low Carbon Fuel Standard (LCFS). The Low Carbon Fuel Standard (LCFS) calls for CARB to achieve a reduction of at least 10% in the carbon intensity of California's transportation fuels by 2020. A preliminary injunction was issued in December 2011, which required implementation of the LCFS to be put on hold. CARB is currently appealing the decision. Until the legal standing of the program has been resolved, LCFS will not be considered in the ABAU forecast.

California Solar Initiative. The California Solar Initiative (CSI) is a state program that provides cash rebates for the installation of an electric solar panel system. In order to qualify, the customer must buy electricity from one of California's three investor-owned utilities (Southern California Edison, Pacific Gas and Electric, or San Diego Gas & Electric).

COMMUNITY ABAU FORECAST

All state programs highlighted above are included in the community ABAU forecast. These efforts are expected to reduce BAU emissions by about 5% compared to 2007 for both 2020 and 2035. Since the majority of Pomona's GHG emissions come from transportation, the majority of emissions reductions (about 65% in 2020 and 64% in 2035) are forecasted to result from the Pavley I vehicle emissions standards. Changes to the RPS are also expected to lead to significant reductions, comprising about 27% of state reductions in both years. These changes are illustrated in **Table B-10**.

Table B-10: Community State-Adjusted BAU Forecast (MTCO2e)

State Reductions Summary	2020	2035
Pavley I Reductions	-86,060	-138,880
RPS Reductions	-35,380	-59,350
CSI Reductions	-2,060	-1,890
CA Building Code Reductions	-8,090	-16,020
Total Reductions from BAU	**-131,590**	**-216,140**

** Due to rounding, the total may not equal the sum of the component parts.*

The influence of state policy in baseline and 2007 emissions was not quantified because the effects of those programs were already reflected in the activity data. For example, the efforts of the RPS to increase the amount of electricity from renewable sources are already captured in the emissions coefficients used to translate electricity use into $MTCO_2e$.

MUNICIPAL ABAU FORECAST

Only some programs, such as the Pavley I standards and changes to the RPS, affect the municipal BAU forecast, as shown in **Table B-11**. The CSI is not applicable to municipalities, and therefore has not been quantified here. Additionally, there were no reductions from changes to the Title 24 standards because the City does not have any firm plans to construct new buildings or expand existing ones. ABAU emissions are 23% (3,220 $MTCO_2e$) below baseline for 2020, and 2035 emissions in this scenario are 25% (3,630 $MTCO_2e$) below 2007 levels.

Table 23: Table B-11: State-Adjusted Municipal BAU Forecast (MTCO2e)

State Reductions Summary	2020	2035
Pavley Reductions	-650	-980
RPS Reductions	-1,020	-1,690
CA Building Code Reductions	-	-
Total	**-1,670**	**-2,670**

** Due to rounding, the total may not equal the sum of the component parts.*

All electricity reductions that Pomona has already achieved in its operations since the baseline year as a result of energy efficiency retrofit or other programs will be quantified in the Energy Action Plan.

REDUCTION TARGETS

The next step for the City of Pomona is to set energy reduction targets for both 2020 and 2035. These new energy reduction targets will be the goal of the EAP and a quantitative way of measuring the plan's success. The EAP's energy reduction goals will set the groundwork for any GHG reduction targets found in a future climate action plan.

STATE-RECOMMENDED 2020 AND 2035 REDUCTION TARGETS

While the reductions as a result of state actions do represent a significant decrease in emissions below baseline levels, AB 32 recommends that local governments adopt a GHG reduction target of 15% below baseline by 2020. The state has not formally adopted GHG reduction targets after 2020, although Executive Order S-3-05, signed in 2005 by then-Governor Schwarzenegger, set a goal to reduce GHG emissions to 1990 levels by 2020 and 80% below 1990 levels by 2050. These targets are not legislatively mandated, but it is anticipated that California will adopt goals similar to those contained in EO S-3-05 after the state's achievement of the 2020 target can be better evaluated.

As shown in **Table B-12**, the City would need to enable an emissions reduction of about 102,540 $MTCO_2e$, in additions to reductions achieved through state actions, to meet the goal of 15% below baseline levels by 2020 recommended by the AB 32 Scoping Plan. To be on-track to achieve the EO-S-3-05 target for 2050, Pomona would need to reduce its emissions by 494,340 $MTCO_2e$ in 2035.

Table B-12: Community GHG Emissions and State-Recommended Reduction Targets

	2020	2035
AB 32 Percent Reduction from Baseline	15%	55%
Emissions Goal ($MTCO_2e$)	839,090	444,230
Adjusted BAU Forecast with State Reductions ($MTCO_2e$)	941,630	938,570
Local Reductions Needed from Adjusted BAU ($MTCO_2e$)	102,540	494,340

The State-recommended reduction targets for community GHG emissions can also be applied to municipal operations, as shown in **Table 13**. Under current projections, the State emissions reductions outlined in the ABAU forecast will be sufficient to allow the City to meet the goal of 15% reduction below baseline levels by 2020. However, to ensure that

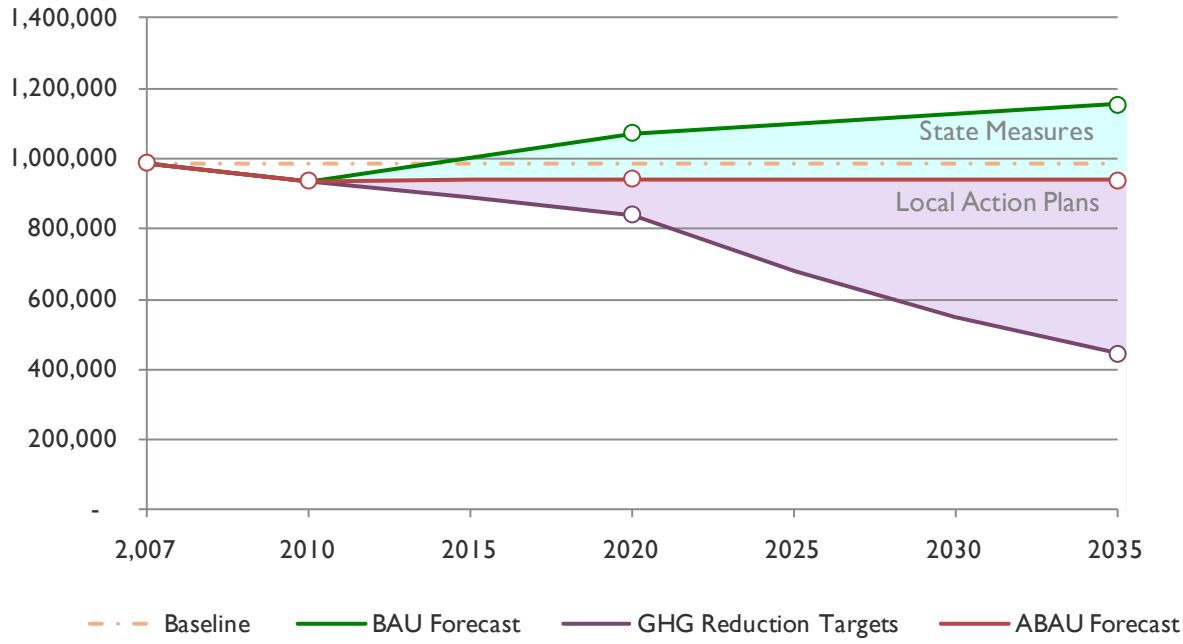
this target is met, the City will need to take additional efforts in the event that state-level programs do not achieve the projected emissions savings. Pomona will have to make additional reductions of 4,235 $MTCO_2e$ to meet the 2035 goal for municipal operations.

Table 24: Table B-13: Municipal GHG Emissions and State-Recommended Reduction Targets

	2020	2035
State-Recommended Reduction Targets from Baseline	15%	55%
State-Recommended Emissions Goal ($MTCO_2e$)	12,160	6,440
Adjusted BAU Forecast with State Reductions ($MTCO_2e$)	11,080	10,670
Local Reductions Needed from Adjusted BAU ($MTCO_2e$)	-1,080	4,230

Pomona's BAU and ABAU forecasts are shown in relation to baseline levels, as well as the 2020 and 2035 reduction goals, in **Figure B-6**. The difference between the light blue line and the green line represents the "gap" between forecasted emissions with state reduction actions (the ABAU forecast) and the necessary emissions levels for Pomona to meet the AB 32 and EO-S-3-05 goals. The objective of Pomona's EAP is to close the gap between the City's unique reduction targets and ABAU forecast with actions to reduce the amount of electricity used in the city.

Figure 24: Figure B-6: GHG Forecast and State-Recommended Reduction Target Summary



APPENDIX B

CONCLUSION AND NEXT STEPS

The community and municipal inventories are important tools for assessing and eventually mitigating the City of Pomona's contributions to climate change, as well as providing a justifiable basis for the development of the EAP. The next step will be for the City to review and confirm Inventory findings, and determine how the community will achieve the desired 2020 GHG reduction target through development of the Energy Action Plan.

APPENDIX C

APPENDIX G

This technical appendix provides a summary of the data sources, assumptions, and performance metrics utilized in this Energy Action Plan to quantify the estimated kilowatt-hours (kWh) savings, and greenhouse gas (GHG) reductions. The sources and metrics are organized by policy and rely on four primary types of data and research: (1) the city's GHG emissions inventory and forecast, (2) government agency tools and reports, (3) case studies in similar jurisdictions, and (4) scholarly research.

The baseline GHG inventory and forecast serve as the foundation for quantifying the City's GHG reduction policies. Activity data from the inventory, e.g., vehicle miles traveled and kWh of electricity, is combined with the performance targets and indicators identified in this Plan to calculate the reduction benefit of each policy. This approach ensures that the City's kWh savings and GHG reductions are tied to the baseline and future activities that are actually occurring in the city.

Whenever possible, emissions reduction estimates are based on tools and reports provided by government agencies such as the US Environmental Protection Agency (EPA), California EPA, California Energy Commission (CEC), California Air Resources Board (CARB), California Air Pollution Control Officers Association (CAPCOA), and local air districts. If accurate reduction estimates are not available through these tools, a case study may be used if the case study is comparable to the conditions in the city. Finally, for reduction measures that lack actual on-the-ground testing or analysis, current scholarly and peer-reviewed research is combined with knowledge of existing city practices to create an estimate of potential kWh and GHG reductions.

Table C-1: Emissions Factors and Sources for 2007 Baseline Inventory

Subsector	Original Emissions factor		Source	Final Emissions factor	
SCE Electricity	630.89	lbs CO_2/MWh	LGOP v1.1, Table G.6	0.00029	$MTCO_2e$/kWh
	0.029	lbs CH_4/MWh	LGOP v1.1, Table G.7		
	0.01	lbs N_2O/MWh	LGOP v1.1, Table G.7		
Direct Access Electricity	919.64	lbs CO_2/MWh	LGOP v1.1, Table G.7	0.00042	$MTCO_2e$/kWh
	0.029	lbs CH_4/MWh	LGOP v1.1, Table G.7		
	0.01	lbs N_2O/MWh	LGOP v1.1, Table G.7		
SoCal Gas – Natural Gas	53.06	kg CO_2/MMBtu	LGOP v1.1, Table G.1	0.00532	$MTCO_2e$/Therm
	0.005	kg CH_4/MMBtu	LGOP v1.1, Table G.3		
	0.0001	kg N_2O/MMBtu	LGOP v1.1, Table G.3		
Fleet Gasoline	8.78	kg CO_2/Gallon	LGOP v1.1, Table G.11	0.00878	$MTCO_2$/Gallon
	.0107 - .4090	g CH_4/mile*	LGOP v1.1, Table G.12	.0107 - .4090	g CH_4/mile*
	.0038 - .1726	g N_2O/mile*	LGOP v1.1, Table G.12	.0038 - .1726	g N_2O/mile*
Fleet Diesel	10.21	kg CO_2/Gallon	LGOP v1.1, Table G.11	0.01021	$MTCO_2$/Gallon
	.0005 - .0051	g CH_4/mile*	LGOP v1.1, Table G.12	.0005 - .0051	g CH_4/mile*
	.0012 - .0048	g N_2O/mile*	LGOP v1.1, Table G.12	.0012 - .0048	g N_2O/mile*

Subsector	Original Emissions factor		Source	Final Emissions factor	
On-Road Transportation	502.9	g CO_2/mile	EMFAC 2011	0.00053	$MTCO_2e$/mile
	1.05	CO_2e/CO_2	Fehr & Peers Transportation Consultants		
Off-Road Construction	838	tons CO_2/day in LA County	OFFROAD2007	278,350	$MTCO_2e$/year in LA County
	0.0949	tons CH_4/day in LA County	OFFROAD2007		
	0.0007	tons N_2O/day in LA County	OFFROAD2007		
Off-Road Lawn and Garden	8.27	tons CO_2/day in LA County	OFFROAD2007	3,460	$MTCO_2e$/year in LA County
	0.0147	tons CH_4/day in LA County	OFFROAD2007		
	0.0061	tons N_2O/day in LA County	OFFROAD2007		

** Dependent on vehicle's model year and size.*

Table C-2: Emissions Factors and Sources for 2010 Inventory

Subsector	Original Emissions factor		Source	Final Emissions factor	
SCE Electricity*	630.89	lbs CO_2/MWh	LGOP v1.1, Table G.6	0.00029	$MTCO_2e$/kWh
	0.029	lbs CH_4/MWh	LGOP v1.1, Table G.7		
	0.01	lbs N_2O/MWh	LGOP v1.1, Table G.7		
Direct Access Electricity*	919.64	lbs CO_2/MWh	LGOP v1.1, Table G.7	0.00042	$MTCO_2e$/kWh
	0.029	lbs CH_4/MWh	LGOP v1.1, Table G.7		
	0.01	lbs N_2O/MWh	LGOP v1.1, Table G.7		
SoCal Gas – Natural Gas	53.06	kg CO_2/MMBtu	LGOP v1.1, Table G.1	0.00532	$MTCO_2e$/Therm
	0.005	kg CH_4/MMBtu	LGOP v1.1, Table G.3		
	0.0001	kg N_2O/MMBtu	LGOP v1.1, Table G.3		
Fleet Gasoline	8.78	kg CO_2/Gallon	LGOP v1.1, Table G.11	0.00878	$MTCO_2$/Gallon
	.0107 - .4090	g CH_4/mile**	LGOP v1.1, Table G.12	.0107 - .4090	g CH_4/mile**
	.0038 - .1726	g N_2O/mile**	LGOP v1.1, Table G.12	.0038 - .1726	g N_2O/mile**
Fleet Diesel	10.21	kg CO_2/Gallon	LGOP v1.1, Table G.11	0.01021	$MTCO_2$/Gallon
	.0005 - .0051	g CH_4/mile**	LGOP v1.1, Table G.12	.0005 - .0051	g CH_4/mile**
	.0012 - .0048	g N_2O/mile**	LGOP v1.1, Table G.12	.0012 - .0048	g N_2O/mile**

Subsector	Original Emissions factor		Source	Final Emissions factor	
On-Road Transportation	491.8	g CO_2/mile	EMFAC 2011	0.00052	$MTCO_2e$/mile
	1.05	CO_2e/CO_2	Fehr & Peers Transportation Consultants		
Off-Road Construction	879	tons CO_2/day in LA County	OFFROAD2007	291,660	$MTCO_2e$/year in LA County
	0.0853	tons CH_4/day in LA County	OFFROAD2007		
	0.0007	tons N_2O/day in LA County	OFFROAD2007		
Off-Road Lawn and Garden	8.97	tons CO_2/day in LA County	OFFROAD2007	3,690	$MTCO_2e$/year in LA County
	0.0144	tons CH_4/day in LA County	OFFROAD2007		
	0.0061	tons N_2O/day in LA County	OFFROAD2007		

** 2010 factors not available. 2007 factors used as a proxy.*
*** Dependent on vehicle's model year and size.*

Table C-3: Sources for Community Inventory Activity Data

Subsector	Source
Residential Electricity	Southern California Edison
Residential Natural Gas	Southern California Gas Company
Commercial/Industrial Electricity	Southern California Edison
Commercial/Industrial Natural Gas	Southern California Gas Company
Direct Access Electricity	Southern California Edison
Street & Traffic Lighting	Southern California Edison
On-Road Transportation	Fehr & Peers Transportation Consultants; SCAG 2003 RTP
Waste – Solid Waste	Los Angeles County SWIMS Database
Waste – Green Waste	Los Angeles County SWIMS Database
Waste – Transformed	Los Angeles County SWIMS Database
Off-Road Equipment	California Air Resources Board's OFFROAD2007 model
Water	PMC's San Gabriel Valley Regional Water Model
Wastewater	PMC's San Gabriel Valley Regional Water Model

Table C-4: Sources for Municipal Inventory Activity Data

Subsector	Source
Buildings – Electricity	Southern California Edison
Buildings – Natural Gas	Southern California Gas Company
Fleet Fuel Use	City records
Public Lighting Electricity	Southern California Edison
Water and Wastewater Pumping Electricity	Southern California Edison
Employee Travel	City records
Employee Commute	Online City survey completed by City employees
Government-Generated Solid Waste	City records

Table C-5: Quantification Methods and Sources

Policy	**1.1: Promote Household Energy Conservation by Residents in Existing Structures Through Small-Scale, Behavioral Changes.**
Implementation Actions:	• Continue energy efficiency education and outreach at community events. • Encourage homeowner participation in energy-measuring programs that inform energy use decisions and help reduce peak demand. • Partner with tenant associations such as the Housing Rights Center to encourage energy-efficient behaviors among Pomona's rental population. • Support energy efficiency education and outreach efforts in Pomona Unified School District.
Implementation Timeframe:	Near-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Reduce residential energy use 5% below baseline by 2020
kWh Reductions (2020):	-466,040 to -1,398,110
$MTCO_2e$ Reductions (2020):	-120 to -350
Assumed Reduction per Participant:	120 to 180 kWh per household
Performance Target(s) (2020):	3,900 to 7,800 households
Reduction Methodology:	Using the Bonneville Power Administration source on behavioral-based energy efficiency programs, a 1-2% reduction per participant was multiplied by the average household kWh use. This figure was multiplied by target participation of 10-20% of city households.

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Policy	1.1: Promote Household Energy Conservation by Residents in Existing Structures Through Small-Scale, Behavioral Changes.
Reduction Sources:	BPA (Bonneville Power Administration). 2011. Residential Behavior Based Energy Efficiency Program Profiles 2011. http://www.bpa.gov/Energy/n/pdf/BBEE_Res_Profiles_Dec_2011.pdf.

Policy	1.2: Encourage Upgrades to More Energy-Efficient, Cost-Saving Appliances and Equipment.
Implementation Actions:	• Educate city residents and business owners about rebate offerings for appliances and equipment as programs become available, including those offered by the California Energy Commission and the South Coast Air Quality Management District. • Create a municipal revolving loan fund to help fund an appliance trade-in program. • Hold energy-efficient light bulb exchanges at community events. • Promote the use of smart-grid-integrated appliances on the City website and at community events.
Implementation Timeframe:	Mid-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Reduce residential energy use 5% below baseline by 2020
kWh Reductions (2020):	-195,560 to -1,299,230
$MTCO_2e$ Reductions (2020):	-50 to -330
Assumed Reduction per Participant:	90 to 270 kWh per single-family home and 270 kWh per multi-family home
Performance Target(s) (2020):	1,420 to 4,260 kWh per single-family home and 230 to 570 kWh per multi-family home
Reduction Method:	Assumed high and low reductions, from the CAPCOA source cited below, were applied to an assumed number of participating single-family and multi-family households. A target utilization rate of 50-100% was applied to reflect the likelihood of homes not utilizing all possible forms of energy-efficient appliances.
Reduction Sources:	CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

Policy	1.3: Incentivize Home Energy Benchmarking as a Tool to Help Homeowners Assess and Identify Opportunities to Improve Energy Performance.
Implementation Actions:	• Update Pomona's building permit and development review forms to request voluntary Home Energy Rating System ratings for new residential units. • Work with homeowner and Realtor groups to promote the benefits of home energy labeling and promote regional financial incentives to offset costs. • Promote home energy benchmarking on the City website and at community events.
Implementation Timeframe:	Near-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Reduce residential energy use 5% below baseline by 2020
kWh Reductions (2020):	Supportive - Not Estimated
$MTCO_2e$ Reductions (2020):	Supportive - Not Estimated
Assumed Reduction per Participant:	Supportive - Not Estimated
Performance Target(s) (2020):	Supportive - Not Estimated
Reduction Method:	Supportive - Not Applicable
Reduction Sources:	Supportive - Not Applicable

Policy:	1.4: Protect And Preserve The City's Current Single-Family Housing Stock by Encouraging Voluntary Residential Retrofits Through Customized Local Outreach.
Implementation Actions:	• Create an energy efficiency awards program to recognize homeowners who have successfully implemented energy efficiency actions and to promote their actions to the community. • Encourage residents to participate in Southern California Edison-funded home retrofit programs. • Create a municipal revolving loan program capable of providing small loans to homeowners for energy auditing and retrofits. • Consider funding residential energy audits for example buildings in various neighborhoods. • Promote residential energy efficiency retrofits on the City website and at community events.
Implementation Timeframe:	Near-Term
Implementation Department(s):	Community Development

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Policy:	1.4: Protect And Preserve The City's Current Single-Family Housing Stock by Encouraging Voluntary Residential Retrofits Through Customized Local Outreach.
Applicable Reduction Target:	Reduce residential energy use 5% below baseline by 2020
kWh Reductions (2020):	-3,742,300 to -29,139,000
$MTCO_2e$ Reductions (2020):	-940 to -7,320
Assumed Reduction per Participant:	960 to 2,990 kWh per single-family home
Performance Target(s) (2020):	3,900 to 9,750 single-family homes
Reduction Method:	Using electricity use from the Pomona Inventory and Forecast Report, the number of households reported by the California Department of Finance, and the percent of owner-occupied households from the 2010 Census, an average electricity use per owner-occupied household and renter-occupied household was created for the 2007 baseline. High and low reductions from Los Angeles County Energy Upgrade California projects were multiplied by assumed participation rate ranges.
Reduction Sources:	• REAS, Inc. 2011. Residential Energy Assessment Services (REAS), Inc. Encino CA Home Energy Assessment. • REAS, Inc. 2011. Residential Energy Assessment Services (REAS), Inc. San Fernando CA Home Energy Performance Assessment. • Building Doctors. 2011. Los Angeles CA Home Energy Performance Assessment. • US Census Bureau. 2010 Census Results. Table DP-1: Profile of General Population and Housing Characteristics.

Policy	**1.5: Develop A Process That Encourages Energy Efficiency Improvements in Significant Historic Properties While Maintaining the Character and Integrity of Historic Homes.**
Implementation Actions:	• Consider including historic buildings in any City-funded or supported model energy audit and retrofit programs. • Provide guidelines for implementing energy efficiency upgrades in historic buildings. • Provide training to planning and building staff on appropriate energy efficiency measures for historic properties. • Work with property owners of historic buildings to identify cost-effective energy efficiency retrofits based on the type of building. • Develop and disseminate information regarding energy efficiency upgrades and retrofits appropriate for historic buildings through brochures, websites, and collaborative efforts with the Historical Society of Pomona Valley. • Encourage Mills Act participants to integrate energy efficiency measures into building renovations or restorations. • Create a pilot program to perform energy audits on each historic building type present in Pomona and identify energy efficiency upgrades most appropriate for each building type. • Provide waivers of reduced fees for building permit applications to complete energy efficiency upgrades consistent with the State Historic Preservation Office or local standards for historic buildings. • Develop and integrate energy efficiency information and requirements into the City's Historic Preservation Ordinance, the City's design guidelines, and any existing or future specific plans.
Implementation Timeframe:	Mid-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Reduce residential energy use 5% below baseline by 2020
kWh Reductions (2020):	Supportive - Not Estimated
$MTCO_2e$ Reductions (2020):	Supportive - Not Estimated
Assumed Reduction per Participant:	Supportive - Not Estimated
Performance Target(s) (2020):	Supportive - Not Estimated
Reduction Method:	Supportive - Not Applicable
Reduction Sources:	Supportive - Not Applicable

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Policy:	2.1: Educate Pomona's Businesses About Opportunities to Conserve Energy Costs Through Improvements in Daily Operations.
Implementation Actions:	• Partner with the Pomona Chamber of Commerce to educate businesses about energy conservation efforts and energy efficiency programs available to business and property owners. • Consider creating a team of volunteers to hold workshops for business and property owners and employees about behaviors to reduce energy use. • Award business and property owners who have achieved significant savings as a result of energy efficiency programs, and highlight these examples as case studies to the community. • Encourage business and property owner participation in energy-measuring programs that inform energy use decisions and help reduce peak demand. • Provide information about energy conservation and energy efficiency for businesses on the City website.
Implementation Timeframe:	Near-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Reduce nonresidential energy use 10% below baseline by 2020
kWh Reductions (2020):	Supportive - Not Estimated
$MTCO_2e$ Reductions (2020):	Supportive - Not Estimated
Assumed Reduction per Participant:	Supportive - Not Estimated
Performance Target(s) (2020):	Supportive - Not Estimated
Reduction Method:	Supportive - Not Applicable
Reduction Sources:	Supportive - Not Applicable

Policy:	**2.2: Support the use of energy-efficient appliances and equipment in leased and owner-occupied businesses.**
Implementation Actions:	• Encourage business and property owners to install Energy Star/smart-grid-integrated appliances.• Educate business and property owners about available rebates for energy-efficient appliances and equipment.
Implementation Timeframe:	Mid-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Reduce nonresidential energy use 10% below baseline by 2020
kWh Reductions (2020):	-1,704,140 to -13,633,130
$MTCO_2e$ Reductions (2020):	-450 to -3,570
Assumed Reduction per Participant:	5,880 to 23,510 reductions in total kWh per average business less than 25,000 sq.ft.
Performance Target(s) (2020):	290 to 580 average businesses less than 25,000 sq.ft.
Reduction Method:	Using the California End-use Survey (CEUS), the average percentage of electricity used on building appliances (refrigeration, cooking equipment, etc.) was applied to the overall nonresidential electricity kWh used in Pomona. Citywide kWh nonresidential consumption by retrofit item was calculated by applying the CEUS figures for percentage of electricity consumed by each end use. These kWh figures were then multiplied by the Brown et al. (2008) reduction by appliance estimates to calculate total kWh reductions by item which were then summed to calculate overall reductions. A utilization rate was applied to the overall reductions because it is unlikely that each participant will upgrade every component of their building. A factor based on square footages of commercial buildings in Pomona was applied to separate out facilities less than 25,000 square feet for this policy to avoid double counting with policy 2.6.
Reduction Sources:	Itron, Inc. 2007. California Commercial End-use Survey - Results Page. http://capabilities.itron.com/CeusWeb/Chart.aspx. Brown, Rich, Sam Borgeson, Jon Koomey, and Peter Biermayer. 2008. US Building-Sector Energy Efficiency Potential. Ernest Orlando Lawrence Berkeley National Laboratory, University of California. http://enduse.lbl.gov/info/LBNL-1096E.pdf. Los Angeles County Office of the Assessor. 2012. Los Angeles County Parcel Viewer. Los Angeles. http://maps.assessor.lacounty.gov/mapping/viewer.asp.

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Policy:	**2.3: Facilitate Retrofits and Energy Efficiency Improvements Within the Nonresidential Building Stock to Increase Local Business Participation in Energy Efficiency Programs.**
Implementation Actions:	• Create a revolving loan fund to support nonresidential energy efficiency retrofits. • Fund contractor training and certification for energy efficiency retrofits, including Building Performance Institute training, or other energy efficiency workforce development programs. • Provide education to commercial property owners about complying with State requirements on energy use disclosure at the time of sale or lease. • Develop a prioritized list of energy-use-intensive industries to target for additional education and financial support for retrofits and other energy efficiency improvements.
Implementation Timeframe:	Mid-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Reduce nonresidential energy use 10% below baseline by 2020
kWh Reductions (2020):	-5,190,940 to -20,763,770
$MTCO_2e$ Reductions (2020):	-1,360 to -5,440
Assumed Reduction per Participant:	17,900 to 35,800 reduction in total kWh per average business less than 25,000 sq.ft.
Performance Target(s) (2020):	290 to 580 average businesses less than 25,000 sq.ft.
Reduction Method:	Using the California End-use Survey (CEUS), the average percentage of electricity used on the building envelope (heating, ventilation and air conditioning) was applied to the overall nonresidential electricity kWh used in Pomona. Citywide kWh nonresidential consumption by retrofit item was calculated by applying the CEUS figures for percentage of electricity consumed by each end use. These kWh figures were then multiplied by the Brown et al. (2008) reduction by appliance estimates to calculate total kWh reductions by item which were then summed to calculate overall reductions. A utilization rate was applied to the overall reductions because it is unlikely that each participant will upgrade every component of their building. A factor based on square footages of commercial buildings in Pomona was applied to separate out facilities less than 25,000 square feet for this policy to avoid double counting with policy 2.6.

Policy:	**2.3: Facilitate Retrofits and Energy Efficiency Improvements Within the Nonresidential Building Stock to Increase Local Business Participation in Energy Efficiency Programs.**
Reduction Sources:	Itron, Inc. 2007. California Commercial End-use Survey - Results Page. http://capabilities.itron.com/CeusWeb/Chart.aspx. Brown, Rich, Sam Borgeson, Jon Koomey, and Peter Biermayer. 2008. US Building-Sector Energy Efficiency Potential. Ernest Orlando Lawrence Berkeley National Laboratory, University of California. http://enduse.lbl.gov/info/LBNL-1096E.pdf. Los Angeles County Office of the Assessor. 2012. Los Angeles County Parcel Viewer. Los Angeles. http://maps.assessor.lacounty.gov/mapping/viewer.asp.

Policy:	**2.4: Encourage Tenant Improvements for Renter-Occupied Businesses at Large Multi-Tenant Properties.**
Implementation Actions:	• Work with property owners to integrate pledges for energy efficiency improvements into leases and contracts. • Identify sites with a large number of leasers to target for additional education and incentives about energy efficiency.
Implementation Timeframe:	Long-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Reduce nonresidential energy use 10% below baseline by 2020
kWh Reductions (2020):	Supportive - Not Estimated
$MTCO_2e$ Reductions (2020):	Supportive - Not Estimated
Assumed Reduction per Participant:	Supportive - Not Estimated
Performance Target(s) (2020):	Supportive - Not Estimated
Reduction Method:	Supportive - Not Applicable
Reduction Sources:	Supportive - Not Applicable

Policy:	2.5: Reduce Electricity Used for Outdoor Lighting.
Implementation Actions:	• Modify Pomona's lighting standards to discourage excessive lighting and inefficient bulbs. • Recognize property owners who have installed energy-efficient lighting and highlight these examples as case studies for the community. • Identify sites with a large amount of outdoor lighting to target for additional education and incentives about outdoor lighting retrofits.
Implementation Timeframe:	Mid-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Reduce nonresidential energy use 10% below baseline by 2020
kWh Reductions (2020):	-478,730 to -1,914,930
$MTCO_2e$ Reductions (2020):	-130 to -500
Assumed Reduction per Participant:	1,650 to 3,300 reduction in total kWh per average business less than 25,000 sq.ft.
Performance Target(s) (2020):	290 to 580 average businesses less than 25,000 sq.ft.
Reduction Method:	Using the California End-use Survey (CEUS), the average percentage of electricity used on outdoor lighting was applied to the overall nonresidential electricity kWh used in Pomona. Citywide kWh nonresidential consumption by retrofit item was calculated by applying the CEUS figures for percentage of electricity consumed by each appliance. These kWh figures were then multiplied by the Brown et al. (2008) reduction by end use estimates to calculate total kWh reductions by item which were then summed to calculate overall reductions. A utilization rate was applied to the overall reductions because it is unlikely that each participant will upgrade every component of their building. A factor based on square footages of commercial buildings in Pomona was applied to separate out facilities less than 25,000 square feet for this policy to avoid double counting with policy 2.6.
Reduction Sources:	Itron, Inc. 2007. California Commercial End-use Survey - Results Page. http://capabilities.itron.com/CeusWeb/Chart.aspx. Brown, Rich, Sam Borgeson, Jon Koomey, and Peter Biermayer. 2008. US Building-Sector Energy Efficiency Potential. Ernest Orlando Lawrence Berkeley National Laboratory, University of California. http://enduse.lbl.gov/info/LBNL-1096E.pdf. Los Angeles County Office of the Assessor. 2012. Los Angeles County Parcel Viewer. Los Angeles. http://maps.assessor.lacounty.gov/mapping/viewer.asp.

Policy	2.6: Promote Cost-Saving Retrofits in Large Nonresidential Facilities.
Implementation Actions:	• Encourage large nonresidential facilities to participate in commissioning programs to optimize building performances. • Provide large facilities with information about potential cost savings and available incentives for energy efficiency retrofits. • Partner with energy program managers of large nonresidential facilities to identify opportunities for energy savings.
Implementation Timeframe:	Mid-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Reduce nonresidential energy use 10% below baseline by 2020
kWh Reductions (2020):	-22,229,600 to -66,688,800
$MTCO_2e$ Reductions (2020):	-5,830 to -17,480
Assumed Reduction per Participant:	1,478,880 to 1,478,880 reduction in total kWh per average business greater than 25,000 sq.ft.
Performance Target(s) (2020):	10 to 40 average businesses greater than 25,000 sq.ft.
Reduction Method:	Reductions in electricity use from aggressive audit and retrofitting were calculated using the Brown et al. (2008) reduction by end use estimates to calculate overall reductions. A utilization rate was applied to the overall reductions because it is unlikely that each participant will upgrade every component of their building. A factor based on square footages of commercial buildings in Pomona was applied to separate out facilities greater than 25,000 square feet for this policy to avoid double counting with policies 2.1-2.5. Reductions from retrocommissioning were calculated using the same participation rates and reductions for various building types from the 2008 study by PECI and Summit Building Engineering.

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Policy	2.6: Promote Cost-Saving Retrofits in Large Nonresidential Facilities.
Reduction Sources:	Brown, Rich, Sam Borgeson, Jon Koomey, and Peter Biermayer. 2008. US Building-Sector Energy Efficiency Potential. Ernest Orlando Lawrence Berkeley National Laboratory, University of California. http://enduse.lbl.gov/info/LBNL-1096E.pdf. Los Angeles County Office of the Assessor. 2012. Los Angeles County Parcel Viewer. Los Angeles. http://maps.assessor.lacounty.gov/mapping/viewer.asp. PECI, Summit Building Engineering. 2008. 2007 California Retrocommissioning Market Characterization. http://www.energy.ca.gov/2008publications/CACX-1000-2008-013/CACX-1000-2008-013.PDF.

Policy:	3.1: Work With Project Applicants Through the Plan Review Process to Encourage the Maximization of Energy-Efficient Design of New Buildings.
Implementation Actions:	• Support net-zero energy construction by promoting innovations in material use, design, and electrical infrastructure for new buildings. • Adopt voluntary energy efficiency standards for new buildings. • Award buildings that come close to or achieve net-zero energy use, and promote them as case studies to the community. • Partner with local architecture firms and green building organizations to provide trainings and workshops on energy-efficient design for new buildings.
Implementation Timeframe:	Mid-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Supportive of residential and nonresidential reduction targets
kWh Reductions (2020):	-2,713,670 to -3,645,070
$MTCO_2e$ Reductions (2020):	-700 to -940
Assumed Reduction per Participant:	180 to 200 kWh per new household and 9,920 kWh per new nonresidential building
Performance Target(s) (2020):	4,430 to 4,920 new households and 110 to 170 new square feet of nonresidential space
Reduction Method:	Quantification for this policy uses California Energy Commission's increased estimates for Title 24 energy efficiency updates. The percentage of kWh that exceeds expected standards are applied to forecast electricity use increases for residential between 2014 and 2020 (when new standards are likely to be adopted). These increased standards can be used as a proxy for additional new development energy efficiency increases.

Policy:	3.1: Work With Project Applicants Through the Plan Review Process to Encourage the Maximization of Energy-Efficient Design of New Buildings.
Reduction Sources:	Brook M., B. Chrisman, P. David, T. Ealey, D. Eden, K. Moore, K. Rider, P. Strait, G. D. Taylor, and J. Wu. 2011. Draft Staff Report: Achieving Energy Savings in California Buildings (11-IEP-1F). California Energy Commission, Efficiency and Renewables Division. Publication number: CEC-400-2011-007-SD. California Energy Commission. 2012. 2013 Building Energy Efficiency Standards. http://www.energy.ca.gov/title24/2013standards/rulemaking/documents/2012-5-31-Item-05-Adoption_Hearing_Presentation.pdf Itron, Inc. 2007. California Commercial End-use Survey - Results Page. http://capabilities.itron.com/CeusWeb/Chart.aspx. KEMA, Inc. 2010. 2009 California Residential Appliance Saturation Study, Volume 2: Results. CEC-200-2010-004.

Policy:	3.2: Participate in a Regional Effort TO Implement Energy Efficiency Standards for New Development.
Implementation Actions:	• Work with the Los Angeles Chapter of the U.S. Green Building Council and other regional organizations to provide training and workshops on energy-efficient buildings. • Partner with other communities in the San Gabriel Valley to consider adopting a mandatory, regionally consistent green building code that exceeds State standards. • Support the creation of a regional energy manager position to work with project applicants on energy efficiency programs for large proposed developments.
Implementation Timeframe:	Long-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Supportive of residential and nonresidential reduction targets
kWh Reductions (2020):	Supportive - Not Estimated
$MTCO_2e$ Reductions (2020):	Supportive - Not Estimated
Assumed Reduction per Participant:	Supportive - Not Estimated
Performance Target(s) (2020):	Supportive - Not Estimated
Reduction Method:	Supportive - Not Applicable
Reduction Sources:	Supportive - Not Applicable

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Policy:	3.3 Encourage the Use of Energy-Efficient Appliances and Equipment in New Buildings.
Implementation Actions:	• Promote the use of smart-grid-integrated appliances in new developments. • Explore requiring energy efficient appliances and equipment as a condition for approval of discretionary projects. • Educate project applicants about available rebates for energy-efficient appliances and equipment.
Implementation Timeframe:	Long-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Supportive of residential and nonresidential reduction targets
kWh Reductions (2020):	-9,065,830 to -18,988,050
$MTCO_2e$ Reductions (2020):	-2,350 to -4,920
Assumed Reduction per Participant:	130 to 240 kWh per new household and 72,070 to 96,090 kWh per new average nonresidential building
Performance Target(s) (2020):	3,940 to 5,910 new households and 110 to 170 new average nonresidential buildings
Reduction Method:	The number of 2020 households was divided by the community 2020 residential kWh projection to find 2020 kWh per household. The number of 2010 households was subtracted from the 2020 household estimate to identify the number of new households that will be constructed, and therefore, subject to this policy. Average energy-efficient appliance reduction rates were applied to these figures to estimate reductions. 2010 nonresidential community kWh (excluding street lighting) was subtracted from 2020 nonresidential community kWh to identify the amount electricity to be used by new development. Using the commercial end use study, this new kWh figure was broken into end use kWh. Average energy-efficient appliance reduction rates applied to estimate reductions.

Policy:	3.3 Encourage the Use of Energy-Efficient Appliances and Equipment in New Buildings.
Reduction Sources:	Brown, Rich, Sam Borgeson, Jon Koomey, and Peter Biermayer. 2008. US Building-Sector Energy Efficiency Potential. Ernest Orlando Lawrence Berkeley National Laboratory, University of California. http://enduse.lbl.gov/info/LBNL-1096E.pdf. CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf. Itron, Inc. 2007. California Commercial End-use Survey - Results Page. http://capabilities.itron.com/CeusWeb/Chart.aspx. KEMA, Inc. 2009 California Residential Appliance Saturation Study, Volume 2: Results. CEC-200-2010-004.

Policy:	4.1: Work with major educational facilities located in the city to be a model for energy efficiency and green building standards.
Implementation Actions:	• Encourage educational centers in Pomona to serve as a resource on energy efficiency and green building standards for property owners and developers. • Recruit students from local educational facilities to participate in energy education, auditing, and outreach programs.
Implementation Timeframe:	Long-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Supportive of residential and nonresidential reduction targets
kWh Reductions (2020):	Supportive - Not Estimated
$MTCO_2e$ Reductions (2020):	Supportive - Not Estimated
Assumed Reduction per Participant:	Supportive - Not Estimated
Performance Target(s) (2020):	Supportive - Not Estimated
Reduction Method:	Supportive - Not Applicable
Reduction Sources:	Supportive - Not Applicable

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Policy:	5.1: Encourage Water-Efficient Practices Through Educational Efforts to Promote the Conservation of Electricity for Water Pumping and Treatment.
Implementation Actions:	• Provide information about electricity conservation through reductions in water use at community events. • Work with project applicants to identify opportunities for water conservation in new developments and major retrofits.
Implementation Timeframe:	Near-Term
Implementation Department(s):	Community Development
Applicable Reduction Target:	Supportive of residential and nonresidential reduction targets
kWh Reductions (2020):	Supportive - Not Estimated
$MTCO_2e$ Reductions (2020):	Supportive - Not Estimated
Assumed Reduction per Participant:	Supportive - Not Estimated
Performance Target(s) (2020):	Supportive - Not Estimated
Reduction Method:	Supportive - Not Applicable
Reduction Sources:	Supportive - Not Applicable

Policy:	5.2: Promote the Use of Energy- and Water-Efficient Fixtures for Indoor Use.
Implementation Actions:	• Consider distributing low-flow showerheads and faucet aerators at community events. • Provide information about water-efficient fixtures and rebate programs at community events. • Consider requiring the installation of water-efficient fixtures as a condition of approval for discretionary projects.
Implementation Timeframe:	Near-Term
Implementation Department(s):	Community Development and Community Services
Applicable Reduction Target:	Supportive of residential and nonresidential reduction targets
kWh Reductions (2020):	-753,370 to -832,670

Policy:	5.2: Promote the Use of Energy- and Water-Efficient Fixtures for Indoor Use.
$MTCO_2e$ Reductions (2020):	-200 to -220
Assumed Reduction per Participant:	7,440 to 8,220 gallons of water per capita added by 2020
Performance Target(s) (2020):	7,310 to 8,080 people added in the service area by 2020
Reduction Method:	The actions in this policy support the 20% water reduction goal identified in the 2010 Pomona urban water management plan. Since the UWMP already has actions outlined to achieve the goal, the kWh reductions as a result of achieving the goal were quantified. All reductions are based on the added service population from the baseline year to 2020. Baseline (a 10-year average, identified in the UWMPs) and 2020 gallons per capita per day were multiplied by EAP identified baseline and 2020 service population estimates, and converted to gallons per year. The difference between the two figures was identified to estimate the target gallons per year reduction. The UWMP 2020 projected water use by account type was utilized to estimate the amount of the target water reduction that would be removed from indoor and outdoor use, respectively. The estimated reduction in indoor water use was multiplied by the Pomona kWh per gallon coefficient, identified in the GHG Inventory and Forecast. Indoor water use was assumed to enter the wastewater system. The gallons of indoor water reduction was also multiplied by the wastewater collection kWh per gallon coefficient. The two kWh figures were summed to calculated total reductions.
Reduction Sources:	Three Valleys Municipal Water District. 2011. Urban Water Management Plan 2010. Accessed November 28, 2011. https://drivehq.com/folder/p8997658.aspx. Metropolitan Water District of Southern California. 2010. The Regional Urban Water Management Plan. Accessed October 6, 2011. http://www.mwdh20.com/mwdh20/pages/yourwater/RUWMP/RUWMP_2010.pdf. California Energy Commission. 2006. Refining Estimates of Water-Related Energy Use in California. PIER Final Project Report. Prepared by Navigant Consulting, Inc. CEC-500-2006-118. HDR, Inc. 2007. Walnut Valley Water District Amended 2005 Urban Water Management Plan. Accessed October 10, 2011. http://www.wvwd.com%2FForms%2FAmended_2005_UWMP.pdf.

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Policy:	5.3: Support Water-Wise Landscaping With Drought-Resistant Species to Reduce the Electricity Demand for Water Transport and Treatment.
Implementation Actions:	• Install demonstration drought-resistant gardens in high-visibility locations on City properties. • Promote drought-resistant landscaping on the City website and at community events. • Consider requiring drought-resistant landscaping for new large developments.
Implementation Timeframe:	Near-Term
Implementation Department(s):	Community Development and Community Services
Applicable Reduction Target:	Supportive of residential and nonresidential reduction targets
kWh Reductions (2020):	-879,990 to -972,620
$MTCO_2e$ Reductions (2020):	-230 to -250
Assumed Reduction per Participant:	5,690 to 6,280 gallons of water per capita added by 2020
Performance Target(s) (2020):	7,310 to 8,080 people added in the service area by 2020
Reduction Method:	The actions in this policy support the 20% water reduction goal identified in the 2010 Pomona urban water management plan. Since the UWMP already has actions outlined to achieve the goal, the kWh reductions as a result of achieving the goal were quantified. All reductions are based on the added service population from the baseline year to 2020. Baseline (a 10-year average, identified in the UWMPs) and 2020 gallons per capita per day were multiplied by EAP identified baseline and 2020 service population estimates, and converted to gallons per year. The difference between the two figures was identified to estimate the target gallons per year reduction. The UWMP 2020 projected water use by account type was utilized to estimate the amount of the target water reduction that would be removed from indoor and outdoor use, respectively. The Pomona kWh per gallon coefficient, identified in the GHG Inventory and Forecast, multiplied the estimated reduction in indoor water use. Indoor water use was assumed to enter the wastewater system. The gallons of indoor water reduction was also multiplied by the wastewater collection kWh per gallon coefficient. The two kWh figures were summed to calculated total reductions.

Policy:	5.3: Support Water-Wise Landscaping With Drought-Resistant Species to Reduce the Electricity Demand for Water Transport and Treatment.
Reduction Sources:	Three Valleys Municipal Water District. 2011. Urban Water Management Plan 2010. Accessed November 28, 2011. https://drivehq.com/folder/p8997658.aspx. Metropolitan Water District of Southern California (November 2010). The Regional Urban Water Management Plan. Accessed October 6, 2011. http://www.mwdh20.com/mwdh20/pages/yourwater/RUWMP/RUWMP_2010.pdf. California Energy Commission. 2006. Refining Estimates of Water-Related Energy Use in California. PIER Final Project Report. Prepared by Navigant Consulting, Inc. CEC-500-2006-118. HDR, Inc. 2007. Walnut Valley Water District Amended 2005 Urban Water Management Plan. Accessed October 10, 2011. http://www.wvwd.com%2FForms%2FAmended_2005_UWMP.pdf.

Policy:	6.1: Maximize the cooling of buildings through tree planting and shading to reduce building electricity demands.
Implementation Actions:	• Create a volunteer program to plant and care for trees in the City. • Consider requiring new projects to install or replace and maintain trees along sidewalks and other public rights of way. • Work with project applicants to include landscaping capable of sufficiently shading building exteriors. • Maintain the City's designation as a Tree City U.S.A. from the Arbor Tree Foundation.
Implementation Timeframe:	Mid-Term
Implementation Department(s):	Community Development and Community Services
Applicable Reduction Target:	Supportive of residential and nonresidential reduction targets
kWh Reductions (2020):	-466,520 to -3,100,500
$MTCO_2e$ Reductions (2020):	-120 to -800
Assumed Reduction per Participant:	10 to 60 kWh per household and 890 to 4,440 kWh per average sized nonresidential building
Performance Target(s) (2020):	8,090 to 11,320 households and 390 to 550 average sized nonresidential buildings

APPENDIX G

Policy:	**6.1: Maximize the cooling of buildings through tree planting and shading to reduce building electricity demands.**
Reduction Method:	Shade trees can have a direct impact on decreasing the air conditioning load in buildings. This occurs when a tree's shade prevents the building from heating up throughout the day from the sunlight hitting windows and exterior walls. Using end-use surveys for both residential and commercial buildings, the average air conditioner electricity use was calculated for both homes and businesses. This was applied to the community-wide electricity use to estimate the total amount of electricity used in the city for air conditioning. A range of percentage reductions to cooling related energy use per shade tree, taken from ICLE's CAPPA tool, were applied to a 2020 assumed tree planting goal to get a range of electricity reductions.
Reduction Sources:	Itron, Inc. 2007. California Commercial End-use Survey - Results Page. http://capabilities.itron.com/CeusWeb/Chart.aspx. ICLEI - Local Governments for Sustainability. 2012. Climate and Air Pollution Planning Assistant (CAPPA) Version 1.5. US Census Bureau. 2006-2010 American Community Survey 5-Year Estimates. Table DP-4: Selected Housing Characteristics. KEMA, Inc. 2010. 2009 California Residential Appliance Saturation Study, Volume 2: Results. CEC-200-2010-004.

Policy:	6.2: Reduce Building Electricity Demands Through Voluntary Standards and Outreach to Promote Cool Roofs and Surfaces.
Implementation Actions:	• Educate residents and business owners about benefits and available incentives for cool roofs and surfaces. • Include cool roofs and surfaces as part of any revolving loan for energy efficiency retrofits. • Consider requiring cool roofs and surfaces for new large development. • When replacing public walkways, streets, and parking lots, consider using permeable materials.
Implementation Timeframe:	Long-Term
Implementation Department(s):	Community Development and Public Works
Applicable Reduction Target:	Supportive of residential and nonresidential reduction targets
kWh Reductions (2020):	-856,070 to -1,104,750
$MTCO_2e$ Reductions (2020):	-220 to -290
Assumed Reduction per Participant:	100 to 130 kWh per single-family home and 120 to 620 kWh per average size nonresidential building
Performance Target(s) (2020):	4,620 to 7,390 single-family homes and 630 to 950 average size nonresidential buildings
Reduction Method:	Residential or commercial roofs built, replaced or retrofitted with high-albedo pavements increases reflectivity, reduces urban temperatures, and can decrease building energy use. A percentage of residential roofs and nonresidential roof surfaces were assumed to have an increase in reflectivity, in turn reducing the amount of electricity used in community-wide buildings.
Reduction Sources:	California Building Standards Commission. 2010. California Code of Regulations, Title 24: Part 11: California Green Building Standards Code. http://www.documents.dgs.ca.gov/bsc/CALGreen/2010_CA_Green_Bldg.pdf. Hashem Akbari. 2005. Energy Savings Potentials and Air Quality Benefits of Urban Heat Island Mitigation. http://heatisland.lbl.gov/ US Environmental Protection Agency. 2005. Reducing Urban Heat Island Compendium of Strategies: Cool Pavements. http://www.epa.gov/heatisld/resources/pdf/CoolPavesCompendium.pdf.

APPENDIX G

Policy:	6.3: Incorporate use of groundcovers rather than pavement to reduce heat reflection.
Implementation Actions:	• Consider requiring a minimum percentage of land in new parking lots to be landscaped. • Encourage the use of green driveways for new and existing development.
Implementation Timeframe:	Long-Term
Implementation Department(s):	Community Development and Public Works
Applicable Reduction Target:	Supportive of residential and nonresidential reduction targets
kWh Reductions (2020):	Supportive - Not Estimated
$MTCO_2e$ Reductions (2020):	Supportive - Not Estimated
Assumed Reduction per Participant:	Supportive - Not Estimated
Performance Target(s) (2020):	Supportive - Not Estimated
Reduction Method:	Supportive - Not Applicable
Reduction Sources:	Supportive - Not Applicable