CITY OF COVINA

ENERGY ACTION PLAN

DECEMBER 2012

Funded by:
Southern California Edison Company

Local Government Strategic Plan Strategies Program

2010–2012 Program Period
under the auspices of the California Public Utilities Commission

Prepared for:

City of Covina
125 East College Street
Covina, CA, 91723

and

San Gabriel Valley Council of Governments
1000 S. Fremont Ave., Unit #42
Building A-10, Suite 10210
Alhambra, CA 91803

Prepared by:

PMC
860 Walnut Street, Suite B
San Luis Obispo, CA 93401

In association with Fehr & Peers and DNV KEMA

CITY OF COVINA

ENERGY ACTION PLAN

ACKNOWLEDGEMENTS

This plan was prepared by PMC for the San Gabriel Valley Council of Governments and the City of Covina. The preparation of this plan was funded by Southern California Edison as part of the Local Government Strategic Plan Strategies Program funding for the 2010–2012 program period under the auspices of the California Public Utilities Commission.

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENTS

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
CAPCOA	California Air Pollution Control Officer's Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEESP	California Long-Term Energy Efficiency Strategic Plan
CH_4	methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CNG	Compressed natural gas
CPUC	California Public Utilities Commission
CSI	California Solar Initiative
DR	Demand response
EAP	Energy Action Plan
EE	energy efficiency
EECBG	Energy Efficiency and Conservation Block Grant
EEMIS	Energy Enterprise Management Information System
ELP	Energy Leader Partnership
GHG	greenhouse gas
GWP	global warming potential
HVAC	heating, ventilation, and air conditioning
kW	kilowatt
kWh	kilowatt-hour
LGOP	Local Government Operations Protocol
MT	metric ton
$MTCO_2e$	metric ton of carbon dioxide equivalent

LIST OF ABBREVIATIONS

Abbreviation	Definition
N_2O	nitrous oxide
PACE	Property Assessed Clean Energy
PSC	Project Steering Committee
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SCREC	Southern California Regional Energy Consortium
SF_6	Sulfur hexafluoride
SGVCOG	San Gabriel Valley Council of Governments
SGVEWP	San Gabriel Valley Energy Wise Partnership
TAZ	transportation analysis zones
USEPA	United States Environmental Protection Agency
VMT	vehicle miles traveled

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 Covina'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: Plan Implementation** – Provides policies and actions to assist with the implementation of 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 Technical Methods and Assumptions Report** – Provides a list of the emissions factors utilized 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.
- **Appendix D: Energy Action Plan – Energy Leader Partnership Requirements Checklist**– Identifies the criteria in the EAP that will help the City progress in the Energy Leader Partnership Program.

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, which 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 the Energy Action Plan.

In addition to describing the funding source and collaboration involved in creating this Plan, the introduction chapter 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

Covina Green Fair—May 12, 2012

- Project information and giveaways provided to attendees
- Approximately 100 Personal Energy Action Surveys completed
- Children engaged through educational games

Public Works Day—May 19, 2012

- Project information provided to attendees
- Approximately 40 Personal Energy Action Surveys completed

Day of the Child—June 1, 2012

- Project information and giveaways provided to attendees
- Approximately 60 Personal Energy Action Surveys completed
- Children engaged in the project through coloring activities and educational games

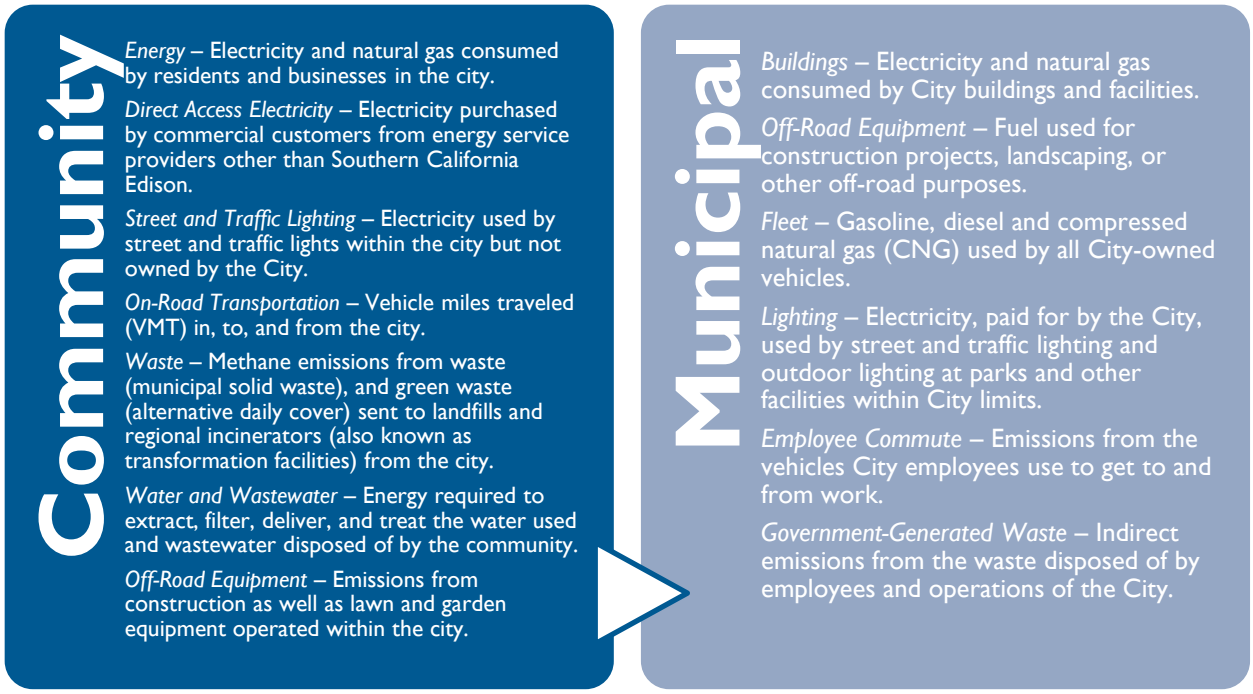
Staff Lunch and Workshop—July 25, 2012

- Project overview provided to City staff participants
- Energy efficiency project priorities within City facilities identified
- Support generated for implementation of the EAP
- Approximately 20-25 participants

CHAPTER 2: GREENHOUSE GAS INVENTORY AND FORECAST

The baseline GHG inventory and forecast assess existing and future GHG emissions to the City of Covina based on activities and energy consumption from community and municipal activities (see **Figure ES-2**). A baseline year of 2006 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 Energy Action Plan process.

Figure ES-2: Community 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 2006, community activities generated approximately 334,290 metric tons of carbon dioxide equivalent ($MTCO_2e$), while approximately 2,860 $MTCO_2e$ were attributed to municipal operations. While municipal GHG emissions are typically considered a subset of community sources and represent 1% of total community GHG emissions, 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, 2006 ($MTCO_2e$)

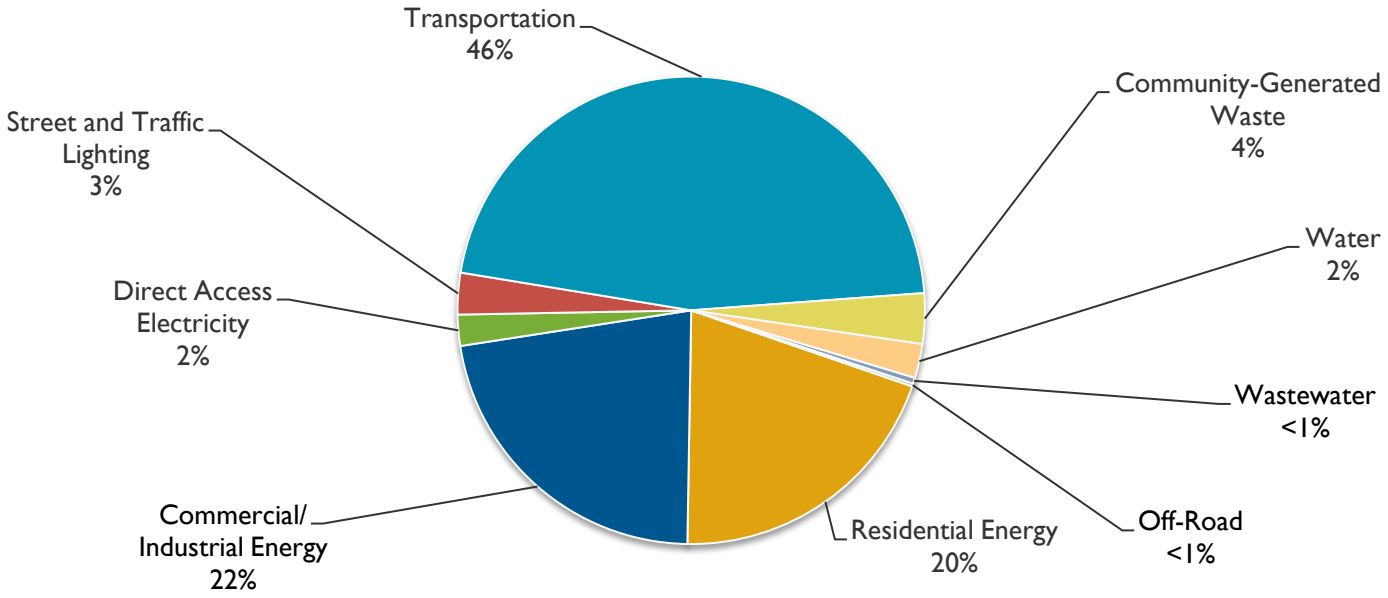
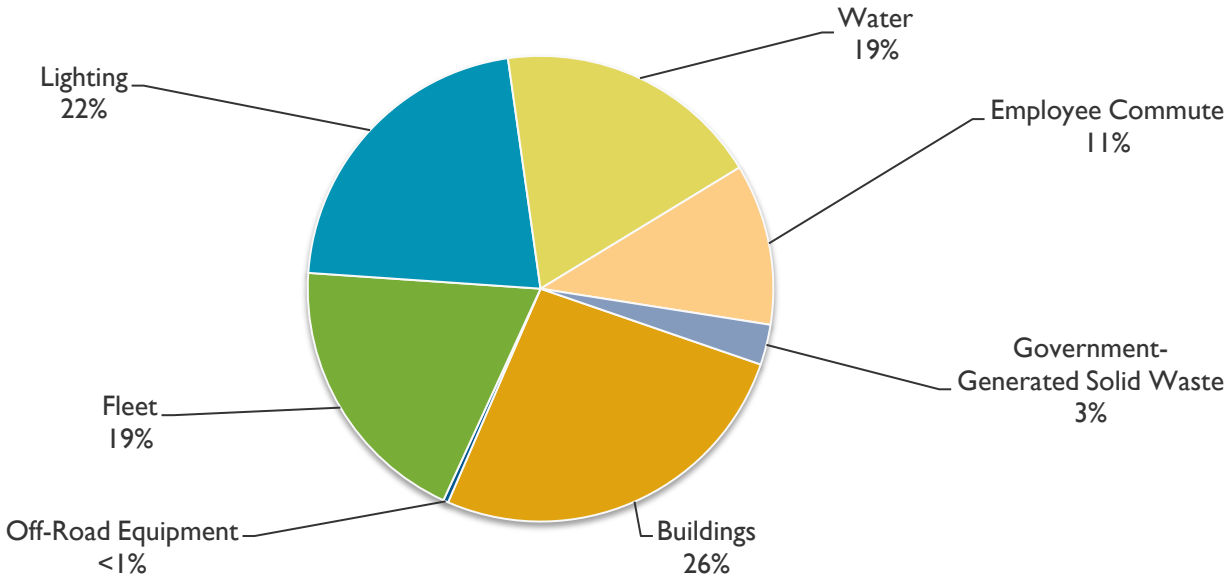
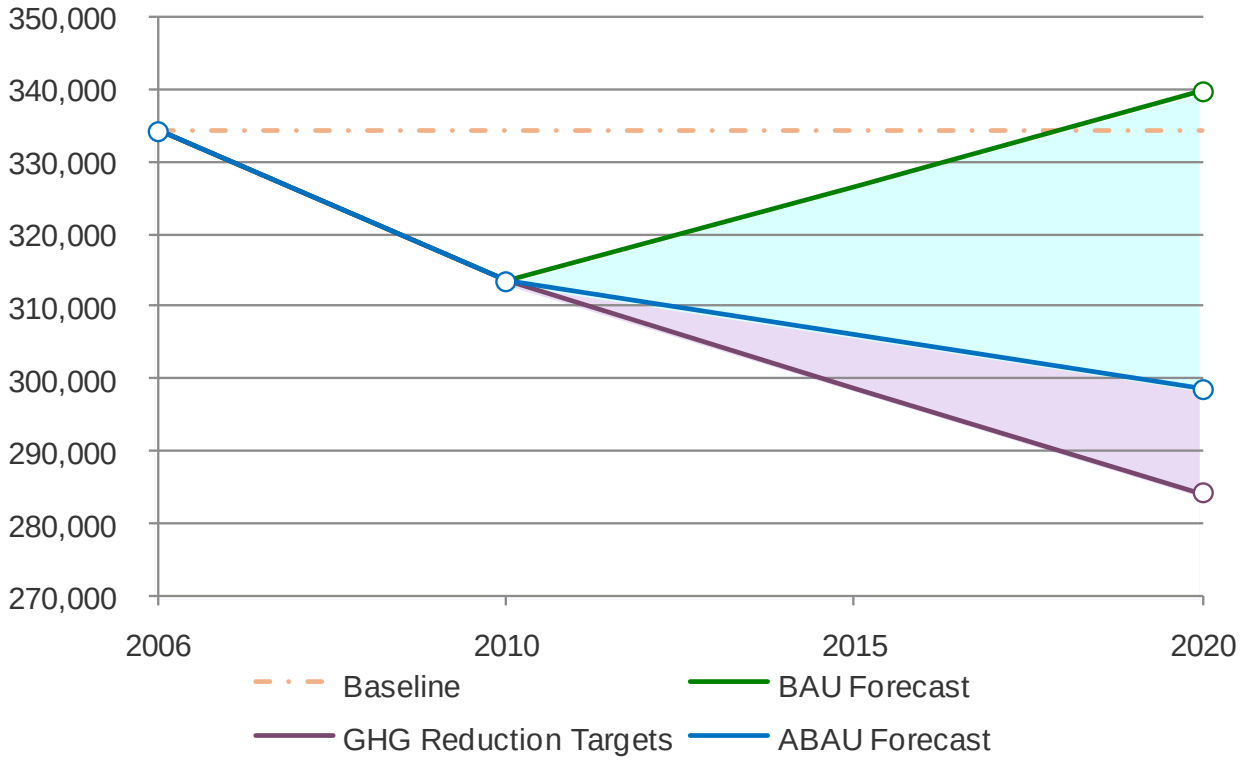


Figure ES-4: Municipal GHG Emissions by Sector, 2006 ($MTCO_2e$)



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 target to comply with Assembly Bill 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, 2006-2020 ($MTCO_2e$)

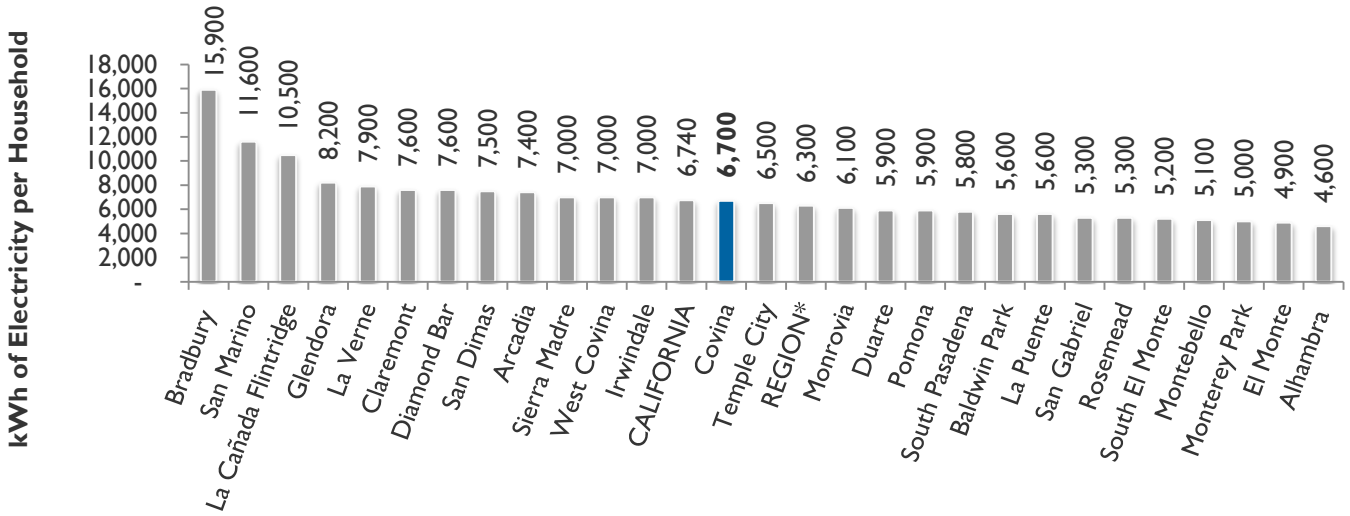


CHAPTER 3: ELECTRICITY PROFILE

The electricity profile describes the residential and nonresidential as well as municipal electricity use in the City of Covina. Electricity used in Covina'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.

Covina's electricity uses are tied to the built environment, which is predominantly characterized by built-out residential community. As shown in **Figure ES-6**, each Covina household used an average of 6,700 kWh in 2010. This amount is slightly less than the California average of 6,740 kWh and just over the SGVCOG project average of 6,300 kWh.

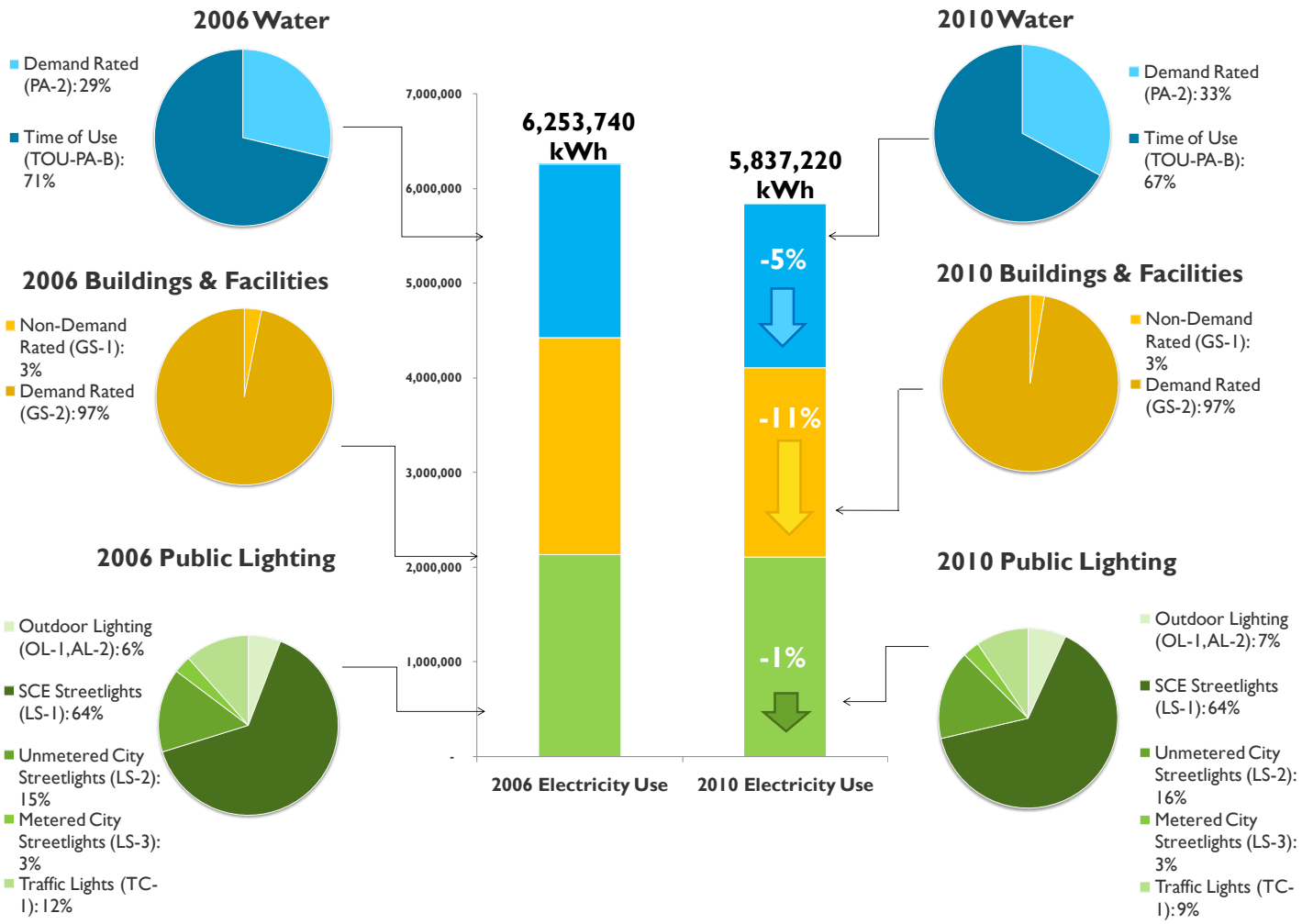
Figure ES-6: Annual Average kWh of Electricity Use per Household, 2010



**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**), and identifying the largest electricity uses by account to highlight the energy efficiency actions already completed or underway at City facilities and identify the largest opportunities for reducing electricity use.

Figure ES-7: Municipal Electricity Use by Account Type, 2006-2010



CHAPTER 4: ELECTRICITY ENERGY EFFICIENCY STRATEGY

The City of Covina 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: Covina's Energy Efficiency Targets

50,140 $MTCO_2e$ Target Reduction	Support achievement of a 15% reduction below baseline community GHG emissions levels by 2020.
5,737,100 kWh Target Reduction	Reduce existing residential electricity use 5% below baseline 2006 levels by 2020.
9,971,200 kWh Target Reduction	Reduce nonresidential energy use 5% below baseline 2006 levels by 2020.
Supportive	Move toward net zero electricity use in new residential and nonresidential buildings by 2020.
205,970 kWh Target Reduction	Reduce electricity use at municipal facilities 3% below baseline 2006 levels by 2014 (equivalent to a 10% reduction below 2004 levels).

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

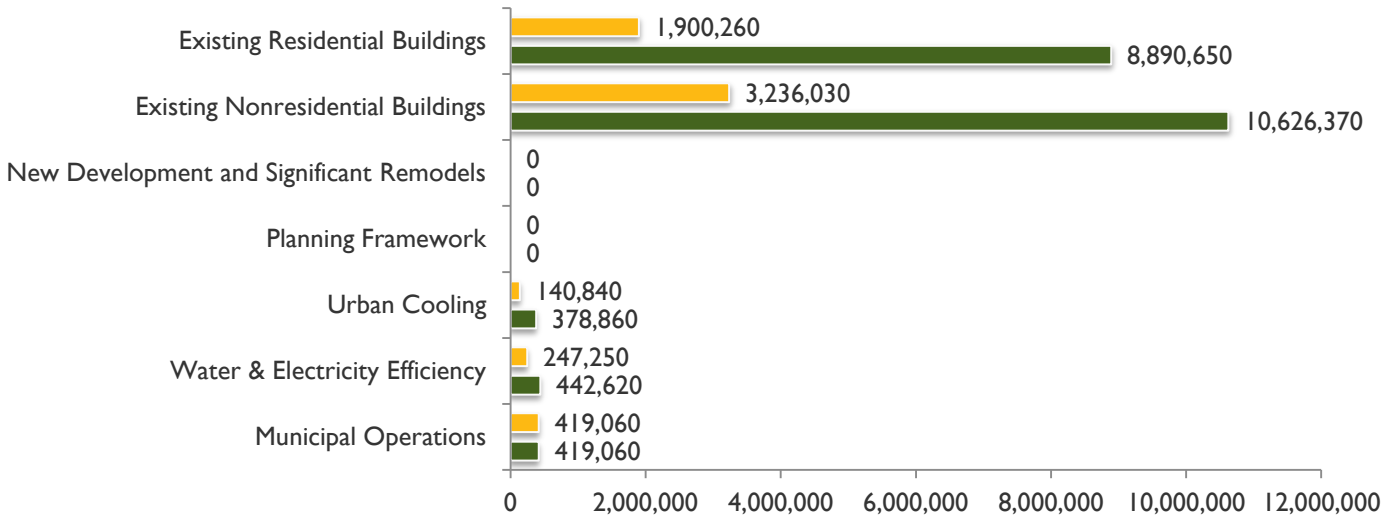
The actions included in this Plan build upon the City's previous efforts and are a diverse mix of programs for both new and existing development. The final topic area of the energy efficiency strategy focuses on municipal electricity use by identifying the completed, near-term, and long-term projects 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 Covina to achieve the community-wide electricity reduction targets for both residential and nonresidential uses. **Figure ES-10** identifies the potential range of electricity savings (kWh) that may occur by 2020 through the implementation of this strategy.

Table ES-1: Near-Term Municipal Projects

Location	Project	Annual kWh Savings	Cost Savings	SCE Incentives	Estimated Completion Date	Funding Opportunities
Public Works Yard	Efficient lighting upgrades	58,070	$16,270	$3,850	TBC[1]	CEC , EWP, LA County, SCE, SCREC
Police Department[2]	Efficiency lighting upgrades	88,000	$10,450	$5,440	TBC[1]	CEC , EWP, LA County, SCE, SCREC
Kahler- Russell Park	Efficiency lighting upgrades	35,520	$5,650	$1,790	TBC[1]	CEC , EWP, LA County, SCE, SCREC
Covina Park Facilities	Efficient outdoor lighting at skateboard park, Teen Center and Pool. Interior lighting at Teen Center	28,700	$7,380	$1,660	TBC[1]	CEC , EWP, LA County, SCE, SCREC
City Hall and Public Works Building	Efficient indoor and outdoor lighting	35,070	$5,470	$3,000	TBC[1]	CEC , EWP, LA County, SCE, SCREC
Metrolink parking lot	Lot lighting upgrade	125,000	$19,630	TBD	TBC[1]	CEC , EWP, LA County, SCE, SCREC
Zone 4 booster pump	Pump upgrade	48,700	$770	TBD	TBC[1]	EWP, SCE
Total		419,060	$65,620	$15,740		

[1] *To be confirmed by City staff*
[2] *Not identified in staff workshop, but provides significant savings with relatively short-term payback.*

Figure ES-10: Estimated 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 Covina 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 in energy efficiency.

CHAPTER 1

INTRODUCTION

This Energy Action Plan (EAP) identifies an overarching vision that captures the City'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 government 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 Covina's long-term vision and commitment to achieve energy efficiency in the community and in government operations. The rationale for Covina'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-wide 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 Covina and Southern California Edison (SCE). The EAP supports the City's status in the Energy Leader Partnership (ELP) with SCE. In addition, the EAP serves as the equivalent of an electricity efficiency chapter of a climate action plan. It is designed to integrate into a comprehensive climate action plan when Covina'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 SCE, this EAP identifies municipal and community-wide 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.

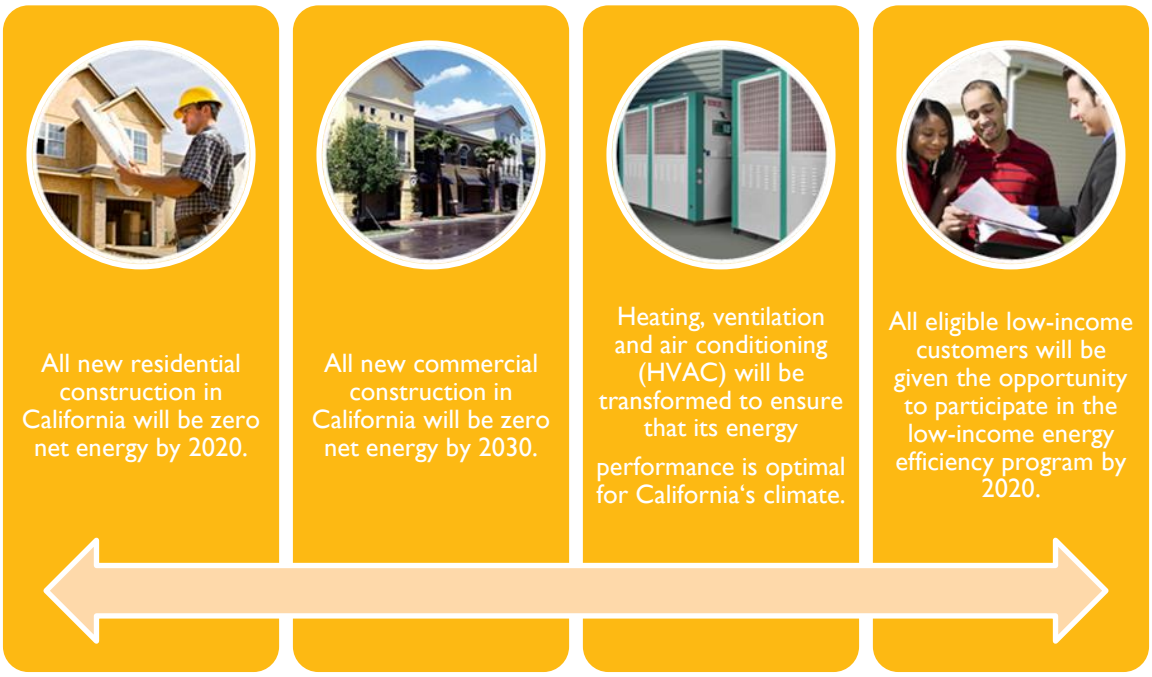
Southern California Edison (SCE): An investor-owned utility that is the primary electricity provider to the San Gabriel Valley.

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

California's Long Term Energy Efficiency Strategic Plan (CEESP) is the State's road map for achieving energy efficiency between 2009 and 2020, and beyond. The California Public Utilities Commission (CPUC) adopted the CEESP in 2008 following a collaborative planning effort of the CPUC, the state's investor-owned utilities, the governor's office, the

California Energy Commission (CEC), the California Air Resources Board (CARB), and more than 500 individuals and organizations. The CEESP provides a strategic menu list 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 energy efficiency goals.

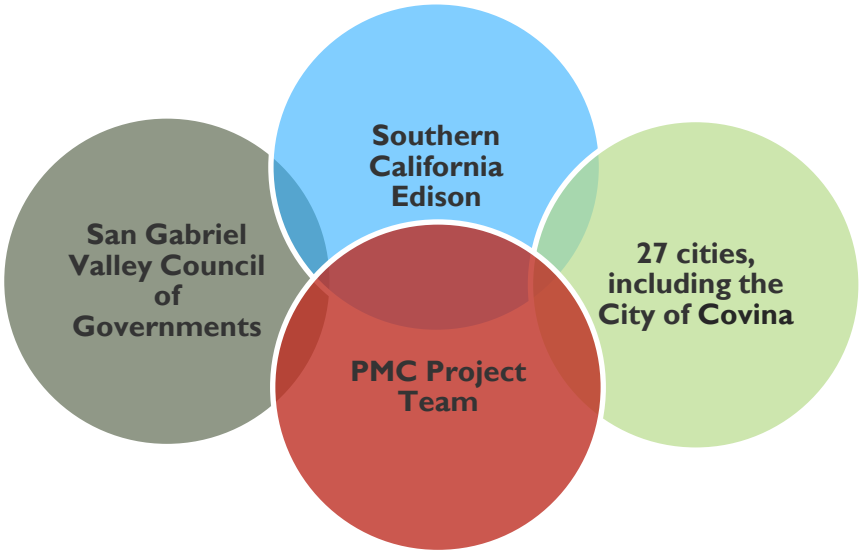
The CPUC identified several policy tools to assist in the market transformation to more energy-efficient products or practices including:

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

Covina 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 local 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 the consultant team led by PMC. The project allows for preparation of customized EAPs for each participating city, including a comprehensive 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 Covina, and PMC (see **Figure 2**).

Figure 2: Partners in the EAP Planning Process



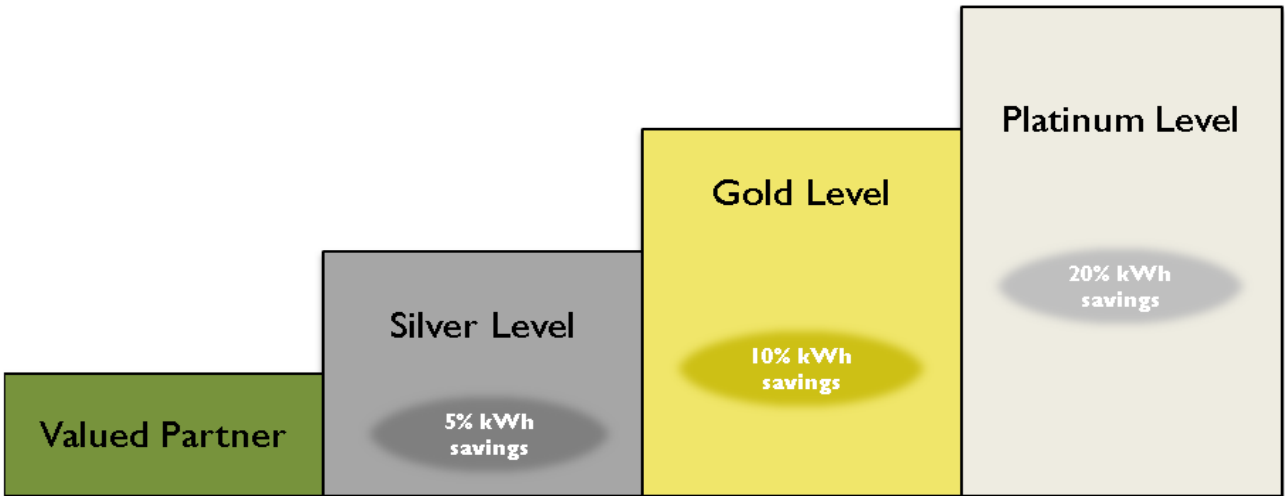
THE ENERGY LEADER PARTNERSHIP MODEL

SCE developed the 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 communities. 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.

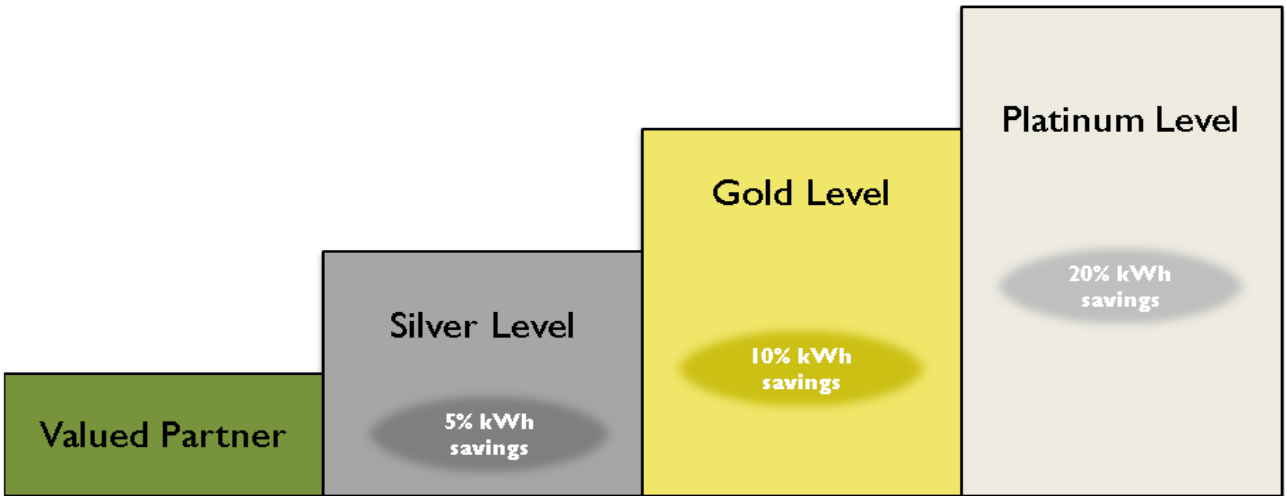
[1] While there were 31 cities in the SGVCOG at the time of this project, the cities of Azusa and Pasadena are not eligible to participate in SCE-funded programs as they are their own electricity providers. Additionally, the cities of Industry and Walnut have elected to not participate in this planning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

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 predetermined energy savings and requirements for city facilities and community electricity use as shown in **Figure 3**. The City is currently a Silver partner in the Energy Leader Partnership model.

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 & 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 initiates 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 initiates 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



	Valued Partner	Silver Level	Gold Level	Platinum Level
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 (DR) programs At least one (1) eligible facility to 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

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 the City's role in reducing electricity use, both as a steward of the community and 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.

Covina 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 Covina 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 Assembly Bill (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 GHG inventory in this EAP allows the City to identify the local equivalent of the State-recommended reduction target. The EAP also allows Covina to understand the GHG mitigation potential of the strategies outlined in this Plan.

Assembly Bill (AB) 32

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

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 the City's role in achieving State-recommended GHG reduction targets.

CITY PROFILE

SETTING

The City of Covina is situated in the eastern portion of the San Gabriel Valley, about 20 miles east of downtown Los Angeles. Covering about 7 square miles with a population of approximately 48,000 people, it is a relatively small community. Covina is bordered by a number of other cities, including the City of Azusa and the unincorporated communities of Citrus and Charter Oak on the north, the City of San Dimas to the east, the City of West Covina to the south, and the unincorporated community of Vincent to the west. Although no major freeways pass through Covina, Interstate Freeways 210, 10, and 605, as well as State Route 57, all pass close by. The city is home to a Metrolink commuter rail station that serves as a regional transit node, generating an average of 800 car trips a day. This station serves as a primary transit destination connecting commuters from San Bernardino County and other areas outside of Los Angeles County to downtown Los Angeles and Los Angeles Union Station.

Downtown Covina

Despite significant growth over the decades, Covina has maintained a traditional downtown and a small-town feel. The community is largely built out and is predominantly characterized by low-density residential development (see **Table 1**). Medium- and higher-density residential units occupy about 10% of Covina's land area, but in general residential neighborhoods consist primarily of mature, smaller-lot and traditional suburban development. Covina also has an established base of commercial and industrial activities, covering about 17% of city land, a fairly large percentage for a suburban-style city, providing a strong, diversified economic base.

Table 1: Covina Existing Land Uses, 2000 (Acres)

Land Use Designation	Size (acres)	Percentage
Low Density Residential	1,806	40%
Medium Density Residential	196	4%
High Density Residential	240	5%
General Commercial	461	10%
Town Center Commercial	87	2%
Industrial	211	5%
School	360	8%
Park and Open Space	102	2%
Public Right of Ways	1,017	23%
Total*	**4,480**	**100%**

** Due to rounding, the total may not equal the sum of component parts.*
Source: City of Covina General Plan, 2000 Update, Land Use Element

HISTORY

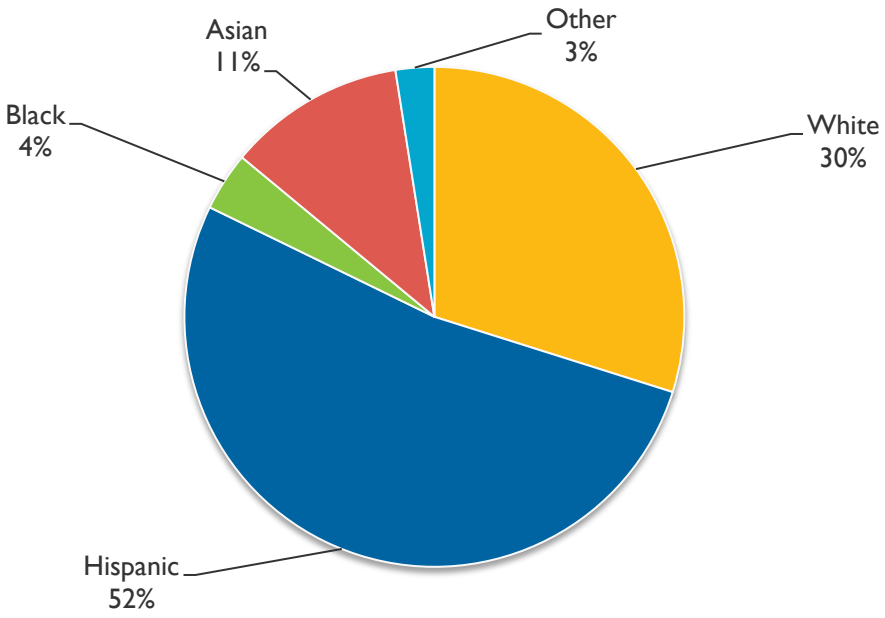
Covina, along with ten of its surrounding communities, began as part of the Rancho La Puente land grant, given in 1842 to American John A. Rowland and British native William Workman. Eventually, Joseph Swift Phillips purchased 2,000 acres in 1886 from this land grant to establish a new town. Phillips' surveyor, Frederick Eaton, named the town Covina (a combination of "cove" and "vine") after he observed the way that the nearby San Gabriel Mountains wrapped around vineyard-planted valleys.

Covina grew quickly and incorporated in 1901. At the time, it was only about one square mile in size, making it supposedly the smallest city in the country and leading to the slogan "One Mile Square and All There," which was chosen in 1922. Like many communities in the San Gabriel Valley, Covina became a major citrus-growing center. At one time, the city shipped more oranges than any other community in the world, and an orange remains Covina's logo to this day. In the rapid period of growth after World War II, almost all of the city's citrus groves were converted to houses.

COVINA TODAY

Like other communities in San Gabriel Valley, Covina has experienced a significant transformation of the community's ethnic profile over the last several decades. As of 2010, Covina is a minority-majority community, with Hispanic individuals representing the largest segment of the population (52%), followed by those of white ethnicity (30%) and Asian ethnicity (12%) (see **Figure 4**). Covina's racial diversity is comparable to Los Angeles County, although the city has a somewhat smaller black population.

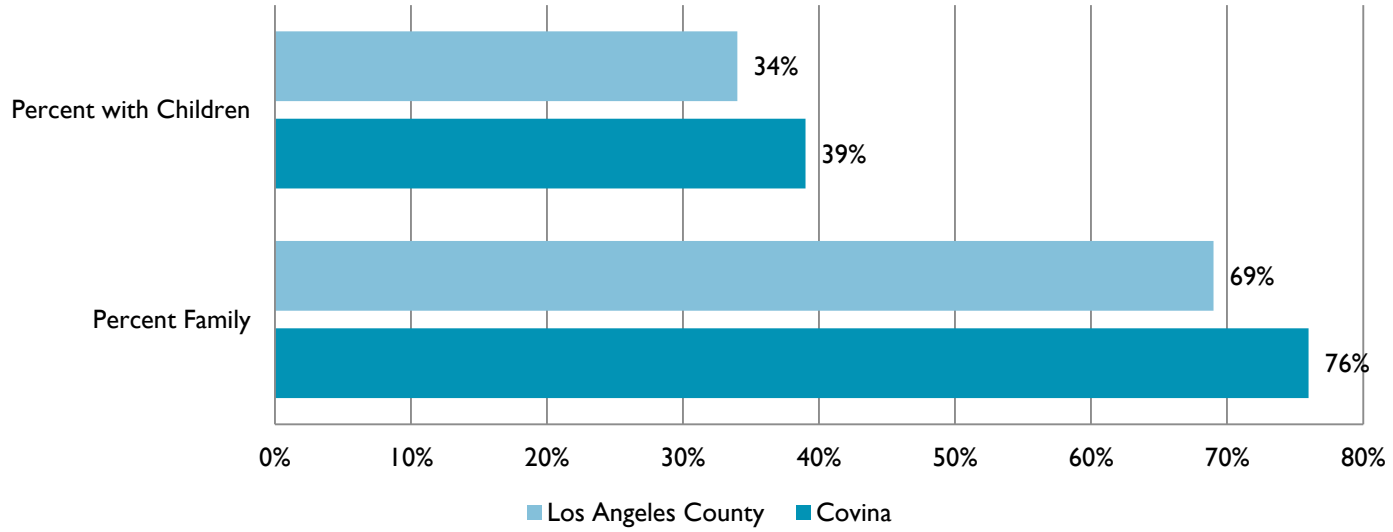
Figure 4: City of Covina Racial and Ethnic Profile, 2010



Source: SCAG, 2011

Covina is also a family-oriented city. More than 75% of households in Covina are family households compared to the countywide average of 69%, and nearly 40% have children under 18, compared to the countywide average of 34% (see **Figure 5**). This contributes to an average household size of 3.07 residents per household, slightly larger than the county average. The City is working proactively to provide affordable housing and meet the housing needs of all households, implementing multiple higher-density and affordable residential development projects. Examples of recent efforts include the 49-unit Olson Citrus Walk mixed-use project and the 90-unit owner-occupied City Ventures Vintage Walk project, a transit-oriented development located adjacent to the city's 655-space Metrolink parking structure and just steps from the Covina Metrolink Station. Both projects are located in downtown Covina, providing homes to qualifying affordable housing recipients.

Figure 5: Comparison of Household Characteristics, Covina and Los Angeles County, 2010



Residents in Covina are employed largely in management and science, and in sales and other professional occupations; these two sectors employ almost two-thirds of Covina's population, as shown in **Table 2**. The city's largest employer is the Covina Valley Unified School District, employing almost 15% of Covina residents. The city is also home to a large number of office and medical parks. Half of the city's ten largest employers are in the medical field. Retailers such as Walmart and IKEA also have a significant presence. Covina has an average household income of $73,998 and a median household income of $64,141, higher than Los Angeles County and many of the surrounding communities.

Table 2: Employment in Covina, 2010

Occupation	Number	Percentage
Management, business, science, and art	7,168	32.5%
Sales and office	6,808	30.9%
Service	3,532	16%
Production and transportation	2,362	10.7%
Natural resources, construction, and maintenance	2,153	9.8%
Total*	**22,023**	**100%**

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

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

PLANS FOR FUTURE DEVELOPMENT

Like most communities in the San Gabriel Valley, Covina is largely built out. The City plans to experience limited growth and redevelopment on remaining vacant and underutilized land. Covina has begun to implement the Town Center Specific Plan, which encourages adaptive reuse and the development of mixed-use buildings on underutilized parcels. The City is planning to increase both residential and commercial uses in this area while decreasing the number of industrial uses. Eventually, as much as a quarter of Covina's residential units could be located in the city's downtown. Under current build out projections, the city could add almost 1,400 new housing units, not including additional planned residential space as part of mixed-use developments in Covina's center.

City of Covina Home Retrofit Incentive Program

Average annual savings per participating household: 2,970 kWh/$475

Total average annual community-wide savings: 172,177 kWh/$25,548

COVINA'S RECENT SUSTAINABILITY EFFORTS

The City of Covina has already taken a number of steps to improve energy efficiency. The City is funding a home retrofit incentive program for local homeowners, using funding from the federal Energy Efficiency and Conservation Block Grant (EECBG) to provide more than $100,000 residents for energy efficiency improvements. The EECBG program has incentivized the participation of Covina residents Los Angeles County's Energy Upgrade Program. Participation by residents in the EECBG and Energy Upgrade program has resulted in the reduction of 112,636 annual kilowatt-hours (kWh) energy savings through home energy efficiency improvements. The City has also worked to reduce energy use in its own operations, including a number of projects discussed in greater detail in **Chapter 4**.

In other sustainability efforts, Covina has passed a strict water conservation code that places limits on irrigation, vehicle washing, and dishwashing in restaurants, among other activities. The intent of this water conservation code is to meet California's water reduction requirements of 20% below 2005 levels by 2020. Covina also has an Environmentally Preferable Purchasing policy adopted in 2007 and completed a Bicycle Master Plan in September 2011.

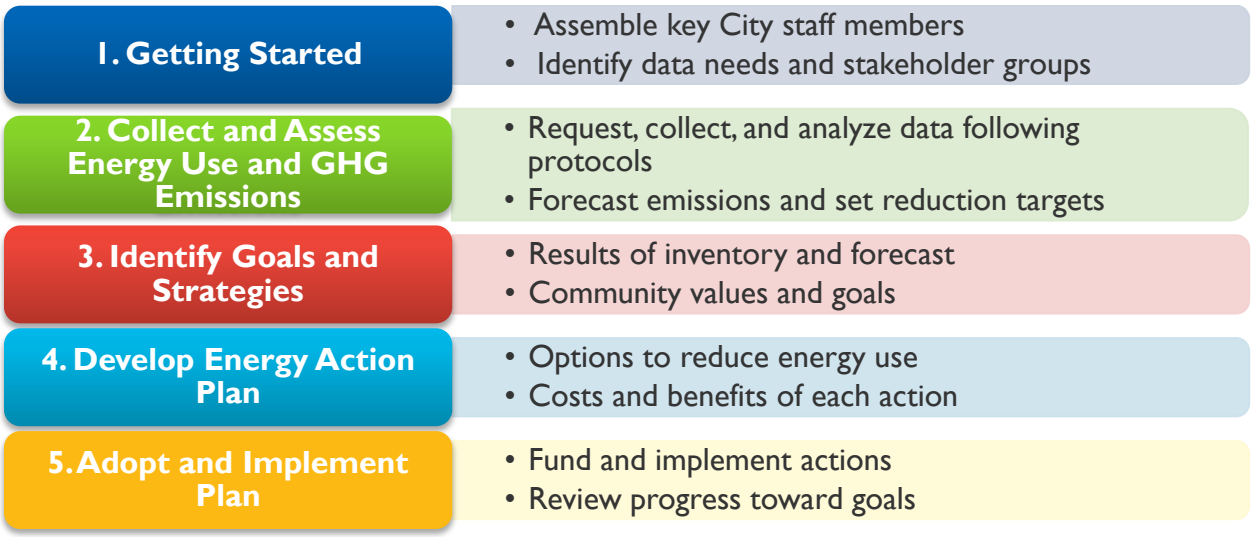
THE EAP PLANNING PROCESS

The City of Covina worked through a five-step planning process, as depicted in **Figure 6**, 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 and community members in the identification and refinement of electricity efficiency issues and strategies. The goal of the outreach process was to gather information to assist City staff in making better decisions about effective local strategies for electricity efficiency. The outreach process was also designed to provide community members with a better understanding of the opportunities for energy efficiency in their community. City staff facilitated additional public engagement at community events and through 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 6: EAP Planning 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 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 to 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.

WORKSHOPS AND COMMUNITY EVENTS

Public participation is important to developing an EAP, because it builds local capacity and momentum for project implementation. Public participation for the City of Covina's EAP was designed to engage key stakeholders at many levels. Stakeholders include community members, advocates, elected officials, and City staff. As a first step, the Project Team worked with the City project lead to develop a customized outreach strategy. Outreach efforts allowed the City to share ideas, collect input, and assess stakeholder preferences. A summary of outreach events is shown in **Figure 7**. The process engaged diverse community stakeholders at public events. City staff and the Project Team hosted energy efficiency booths at public events, presenting project information and collecting input. Interactive games, coloring activities, and prizes attracted children, families, and members of the public.

Figure 7: Summary of Outreach Events

Covina Green Fair—May 12, 2012

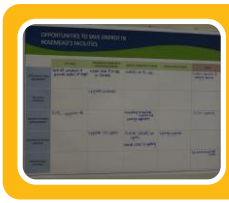
- Project information and giveaways provided to attendees
- Approximately 100 Personal Energy Action Surveys completed
- Children engaged through educational games

Public Works Day—May 19, 2012

- Project information provided to attendees
- Approximately 40 Personal Energy Action Surveys completed

Day of the Child—June 1, 2012

- Project information and giveaways provided to attendees
- Approximately 60 Personal Energy Action Surveys completed
- Children engaged in the project through coloring activities and educational games



Staff Lunch and Workshop—July 25, 2012

- Project overview provided to City staff participants
- Energy efficiency project priorities within City facilities identified
- Support generated for implementation of the EAP
- Approximately 20-25 participants

In addition to supporting development of the EAP, outreach also helped the City educate the community about electricity use and efficiency opportunities. Outreach efforts helped the community to think about strategies to reduce electricity use and improve the quality of homes and businesses.

CITY OF COVINA STAFF LUNCH AND WORKSHOP

Approximately 20–25 City employees participated in a staff lunch and workshop on July 25, 2012. City employees took part in an in-depth discussion of opportunities to reduce energy use within municipal facilities. Participants in the event included employees familiar with day-to-day municipal operations, including employees working daily within City facilities and those responsible for ongoing maintenance and upkeep, The event included a detailed review of key City facilities and characteristics, Participants ranked top priorities for projects with the highest opportunity to reduce energy use: (1) installation of a new roof over the Joslyn Center auditorium, (2) upgrades to the library HVAC system, and (3) upgrades to HVAC controls at City Hall. The municipal policies and actions in **Chapter 4** further reflect staff's input from this event.

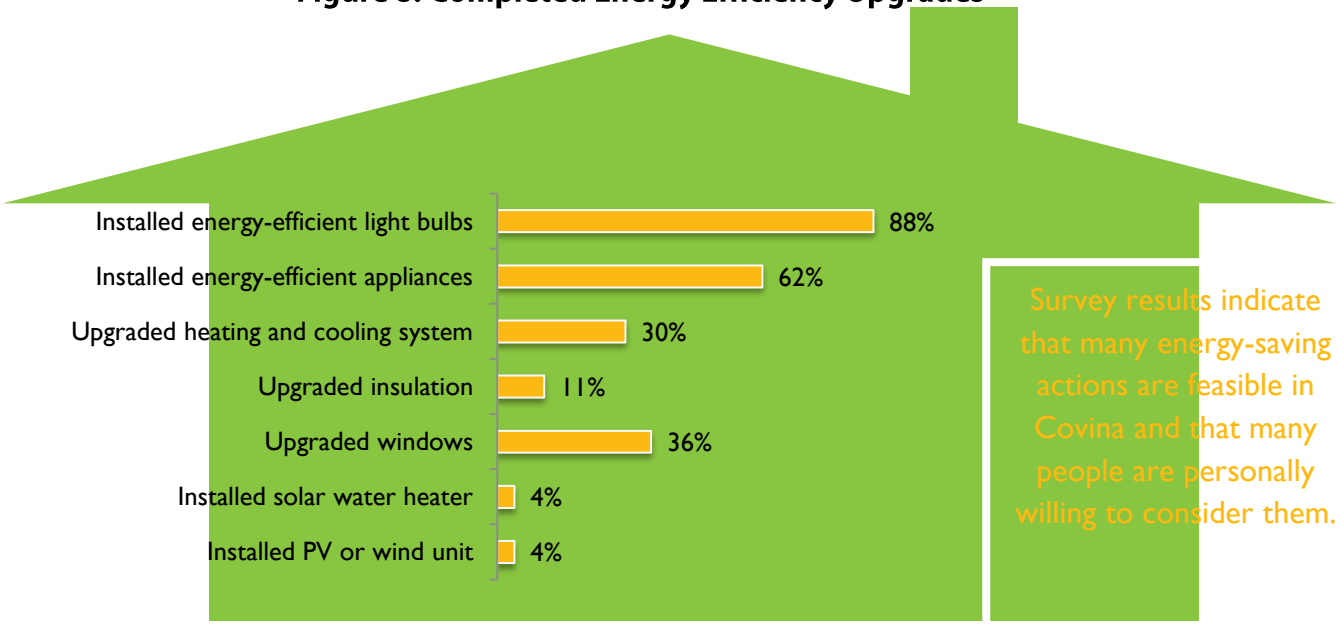
PERSONAL ENERGY ACTION SURVEY

As part of the regional partnership with the SGVCOG, 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.

Approximately 237 Covina residents completed the survey in three languages (English, Chinese, and Spanish), providing feedback on improvements completed in their home or business, interest in completing additional improvements, and support for strategies to achieve electricity efficiency throughout the community. City residents, as opposed to business owners or commuter workers, were the majority of respondents, completing more than 73% of the surveys. Just over 62% of respondents owned their own home, while the remainder rented a house or apartment.

Figure 8 reports the energy upgrades already conducted by respondents in their residences. The results suggest that most residents have already taken basic steps to reduce energy waste in their homes including replacing light bulbs (88%) and replacing appliances with more efficient models (62%).

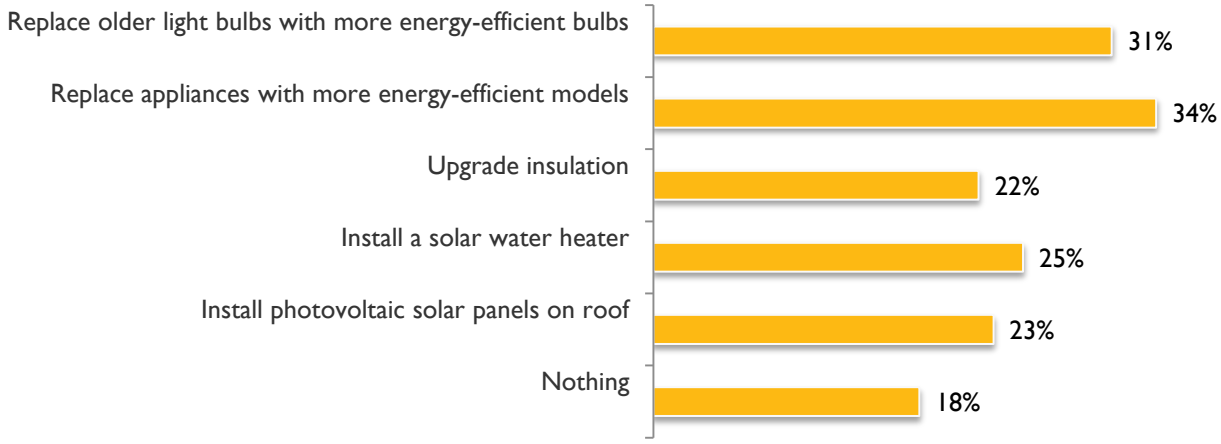
Figure 8: Completed Energy Efficiency Upgrades



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.

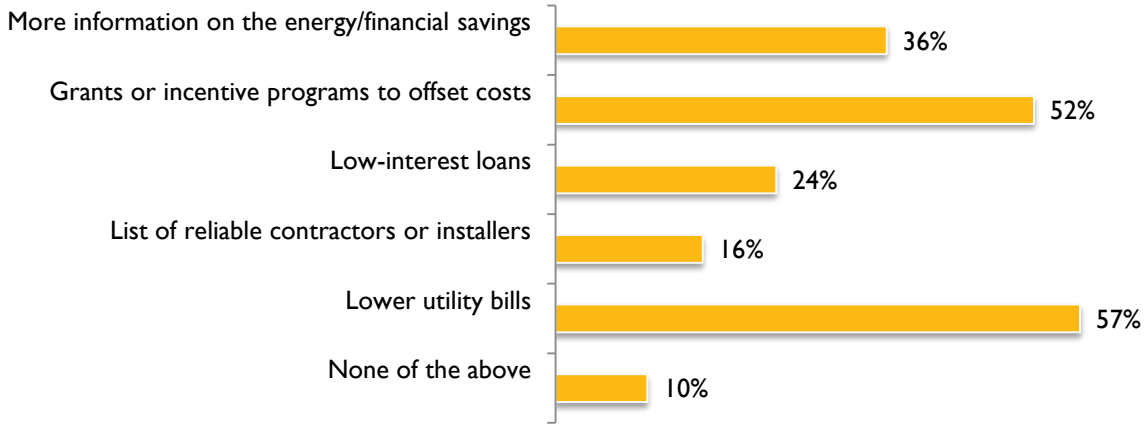
The survey results indicate that many energy-saving actions are feasible in Covina and that the majority of participants are willing to consider these actions for their home or business. As **Figure 9** reports, the most commonly selected opportunities were, again, replacing light bulbs and appliances. A significant number of respondents also selected installing a solar hot water heater (25%) and installing a photovoltaic system (23%) respectively.

Figure 9: 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 10**.

Figure 10: Incentives or Motivators for Energy Efficiency Upgrades



CHAPTER 2

GHG INVENTORY & FORECAST

This greenhouse gas emissions inventory and forecast shows the contribution of community activities to greenhouse gases. Electricity use represented approximately 34% of all greenhouse gas emissions in 2006.

The analysis in this inventory provides the technical foundation for the City of Covina's Energy Action Plan, informing the City and the community of the largest sources of greenhouse gas emissions and electricity use. This information helps the City to identify opportunities for reductions that respond to local characteristics.

INTRODUCTION

INVENTORY AND FORECASTING PURPOSE

This greenhouse gas (GHG) emissions inventory and forecast (Inventory) provides a detailed summary of community-wide and municipal GHG emissions. This information is used to create reduction strategies in the City of Covina'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.

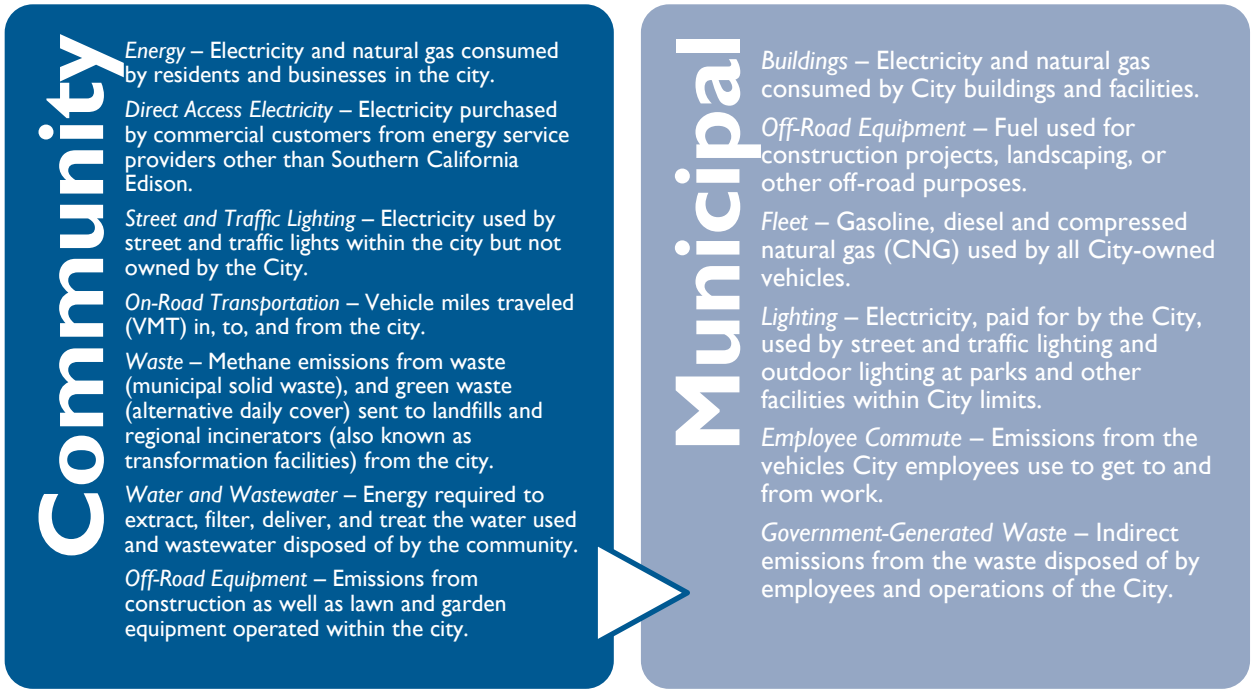
Specifically, the GHG Inventory:

- Presents GHG emissions from community-wide and municipal activities in calendar year 2006.
- Provides a snapshot of total GHGs and electricity-specific emissions from community-wide and municipal activities in calendar year 2010.
- Forecasts how community-wide 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 11**. 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 11: Community and Municipal GHG Emissions Sources, 2006



COMMUNITY-WIDE INVENTORY SUMMARY

The City of Covina emitted approximately 334,290 $MTCO_2e$ in the baseline year 2006. As shown in **Figure 12** and **Table 3**, the transportation sector was the largest contributor to emissions (46%), producing approximately 154,560 $MTCO_2e$ in 2006. Commercial and industrial energy use was the next largest sector with 74,530 $MTCO_2e$, or 22% of total emissions. Residential energy use followed with 66,810 $MTCO_2e$, contributing 20% of total emissions. The remaining 12% of emissions came from direct access electricity, street and traffic lighting, community-generated waste, water, wastewater, and off-road sources such as construction equipment. Combined, these remaining sectors contributed 38,390 $MTCO_2e$. For a detailed description of activity data, such as the breakdown of residential electricity and natural gas uses, refer to **Appendix B**.

Figure 12: Community-Wide GHG Emissions by Sector, 2006 ($MTCO_2e$)

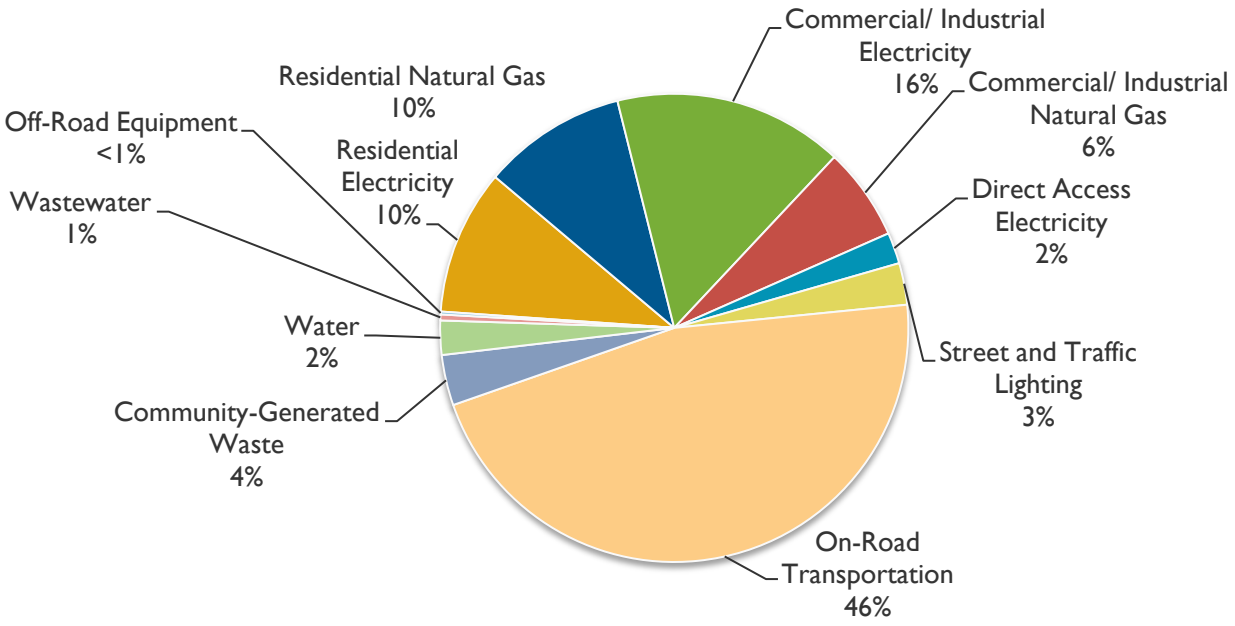


Table 3: Community-Wide GHG Emissions by Sector, 2006 ($MTCO_2e$)

Sector	$MTCO_2e$	Percentage of Total
Residential Electricity	33,550	10%
Residential Natural Gas	33,260	10%
Commercial/Industrial Electricity	53,130	16%
Commercial/Industrial Natural Gas	21,400	6%
Direct Access Electricity	7,190	2%
Street & Traffic Lighting	9,620	3%
On-Road Transportation	154,560	46%
Community-Generated Waste	11,670	4%
Off-Road Equipment	640	<1%
Water	7,890	2%
Wastewater	1,380	1%
Total*	**334,290**	**100%**

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

Figure 12 and **Table 3** show the local considerations that informed development of this Inventory. For example, the model used to estimate on-road transportation assessed the impact of the City's unique geographical setting. Trips that neither originated nor ended in the city, or "pass-through trips", were not included in this analysis. Further, the additional VMT originating from outside the city that is attributed to the Metrolink transit station were excluded from the transportation analysis. This approach avoids penalizing the city's inventory for the construction of a VMT-reducing facility. Another example of local considerations during development of the inventory includes the exclusion of energy use associated with unincorporated county pockets within the city. These pockets were excluded from the energy, waste, water and off-road equipment sectors.

2010 COMMUNITY EMISSIONS UPDATE

Activity data for 2010 was available for many community sectors, including energy, transportation, waste, community off-road equipment, wastewater, and water. This information has been translated into GHG emissions for Covina and all other participating cities and will serve as a common benchmark that will allow 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 4 summarizes activity data and emissions for both 2006 and 2010, showing an overall drop in emissions from 2006 to 2010. The following sectors had significant reductions in activity data during this period: residential electricity (-8%), commercial/industrial electricity and natural gas (-11% and -14% respectively), direct access electricity (-17%), solid waste (-20%), transformed waste (-45%), and construction-related off-road equipment (-100%). Nonresidential decreases, such as commercial/industrial energy and direct access electricity, and consumption-based sectors, such as solid waste and transformed waste, are likely linked to the recent economic downturn and associated slowdown in economic productivity and expansion. The complete 100% drop in off-road construction emissions and activity are a result of a freeze on construction activities within the city between 2006 and 2010.

Traffic lighting, green waste, on-road transportation, water, wastewater, and lawn and garden-related off-road sectors saw little or no change from 2006 to 2010. Some sectors, such as on-road transportation, saw a slight increase in activity data, but a small decrease in emissions due to changes in emissions factors between 2006 and 2010.

Table 4: Comparison of Community GHG Emissions, 2006–2010 ($MTCO_2e$)

Sector	2006 Activity Data	2010 Activity Data	Percentage Change 2006–2010	Unit	2006 $MTCO_2e$	2010 $MTCO_2e$	Percentage Change 2006–2010
Residential Electricity	114,741,940	105,670,920	-8%	kWh	33,550	30,420	-9%
Residential Natural Gas	6,252,810	6,130,860	-2%	Therms	33,260	32,610	-2%
Commercial/Industrial Electricity	181,675,180	160,981,320	-11%	kWh	53,130	46,340	-13%
Commercial/Industrial Natural Gas	4,022,810	3,450,140	-14%	Therms	21,400	18,350	-14%
Direct Access Electricity	17,748,730	14,762,480	-17%	kWh	7,190	6,180	-14%
Street & Traffic Lighting	32,891,990	33,405,960	2%	kWh	9,620	9,610	<-1%
On-Road Transportation	290,419,330	292,428,490	1%	VMT	154,560	151,380	-2%
Waste – Solid Waste	49,230	39,220	-20%	Tons of Waste	9,060	7,290	-20%
Waste – Green Waste	7,410	7,810	5%	Tons of ADC	1,140	1,210	6%
Waste – Transformed	4,830	2,650	-45%	Tons Transformed	1,470	810	-45%
Off-Road Equipment – Lawn and Garden	16,090	16,150	<1%	Households	20	20	0%
Off-Road Equipment – Construction	35	0	-100%	Construction Permits Issued	620	0	-100%
Water	27,006,700	27,172,600	1%	kWh	7,890	7,820	-1%
Wastewater	4,712,870	4,741,610	1%	kWh	1,380	1,360	-1%
				Total*	**334,290**	**313,400**	**-6%**

** 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 Covina. GHG emissions were calculated from activity data collected by the City. Operations and activities by the City in 2006 resulted in approximately 2,860 $MTCO_2e$**. Figure 13** and **Table 5** depict the contribution of each activity to total GHG emissions. Buildings and public lighting produced the majority of the City's emissions, with building energy use producing 750 $MTCO_2e$ and lighting consumption resulting in 620 $MTCO_2e$. Fuel for the City fleet (550 $MTCO_2e$) and water (530

$MTCO_2e$) each made up 19% of total municipal emissions. Employee commuting comprised 11% of total emissions. Government-generated solid waste made up the final 3%.

Figure 13: Municipal GHG Emissions by Sector, 2006 ($MTCO_2e$)

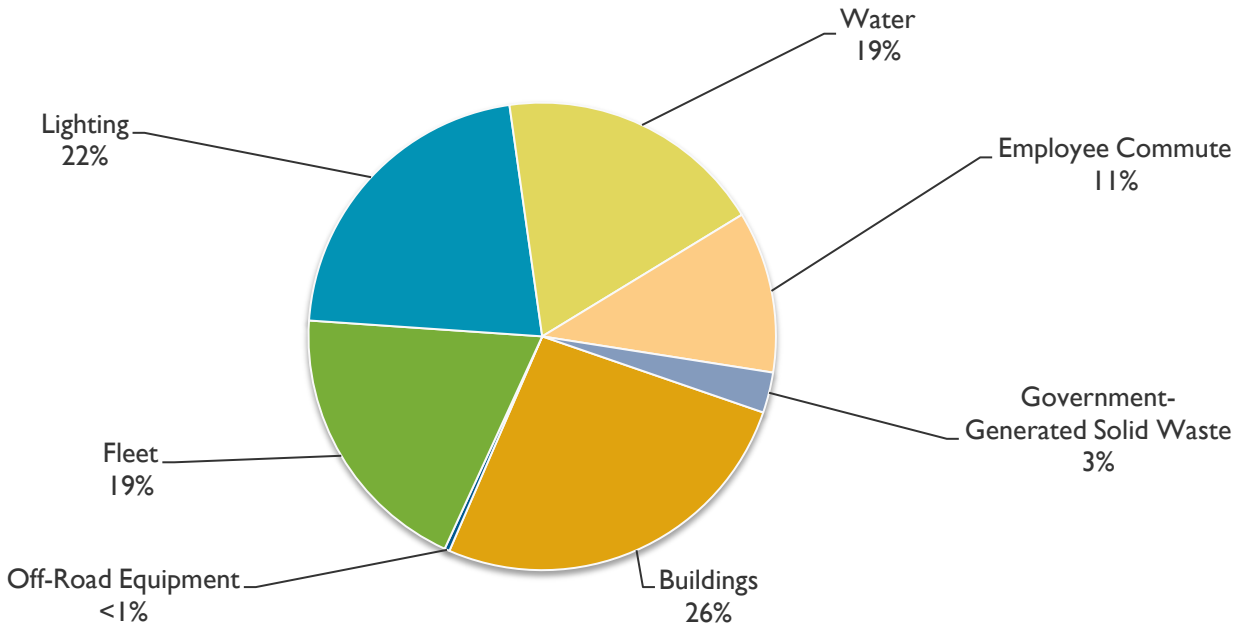


Table 5: Municipal GHG Emissions by Sector, 2006 ($MTCO_2e$)

Sector	$MTCO_2e$	Percentage of Total
Buildings	750	26%
Off-Road Equipment	10	<1%
Fleet	550	19%
Lighting	620	22%
Water	530	19%
Employee Commute	320	11%
Government-Generated Solid Waste	80	3%
Total*	**2,860**	**100%**

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

2010 MUNICIPAL EMISSIONS UPDATE

As with the community data, municipal activity data was available for 2010 for the following sectors: buildings and facilities, lighting, and employee commute. Baseline emissions from off-road equipment, fleet, and government-generated

solid waste were used as proxies to estimate 2010 data. This information, shown in **Table 6:**, has been used to create a snapshot of 2010 municipal GHG emissions. Emissions from City government operations in 2010 were estimated at 2,720 $MTCO_2e$, a 5% decrease from baseline. The only sector that did not stay constant or reduce emissions over the four-year period was City-owned street lighting. Traffic and Southern California Edison (SCE)-owned streetlights, water, and employee commutes each saw emissions reductions as a result of efficiency efforts and other sustainability programs. Energy efficiency improvements at City buildings have contributed to a 13% decrease in energy use from 2006 levels. Projects include installation of energy-efficient lighting and a server virtualization project. Additional information on the City's energy efficiency programs is provided in **Chapter 4**.

Table 6: Comparison of Municipal GHG Emissions, 2006–2010 ($MTCO_2e$)

Sector	2006 Activity Data	2010 Activity Data	Percentage Change 2006–2010	Unit	2006 $MTCO_2e$	2010 $MTCO_2e$	Percentage Change 2006–2010
Buildings – Electricity	2,296,890	2,001,240	-13%	kWh	670	580	-16%
Buildings – Natural Gas	14,903	15,429	4%	Therms	80	80	0%
Off-Road Equipment – Gasoline**	66	66	0%	Gallons	<10	<10	0%
Off-Road Equipment – Diesel**	1,270	1,270	0%	Gallons	10	10	0%
Fleet – Gasoline**	60,980	60,980	0%	Gallons	540	540	0%
Fleet – Diesel**	820	820	0%	Gallons	10	10	0%
Fleet – CNG**	320	320	0%	Gallons	<10	<10	0%
Lighting – Streetlights	387,470	404,070	4%	kWh	110	120	8%
Lighting – Traffic Lights	247,060	199,980	-19%	kWh	70	60	-17%
Lighting – SCE-Owned Streetlights	1,371,530	1,359,430	-1%	kWh	400	390	-3%
Lighting – Other Public Lights	124,490	144,300	16%	kWh	40	40	0%
Water – Electricity	1,826,290	1,728,290	-5%	kWh	530	500	-6%
Employee Commute	742,790	726,430	-2%	VMT	320	310	-3%
Government-Generated solid Waste**	460	460	0%	Tons	80	80	0%
				Total*	**2,860**	**2,720**	**-5%**

** Due to rounding, the total may not equal the sum of component parts.*
***2010 activity data was not available at the time of this report. 2006 activity data was used as a proxy for 2010.*

BUSINESS-AS-USUAL GHG EMISSIONS FORECAST

COMMUNITY BUSINESS-AS-USUAL (BAU) INDICATORS

Table 7: lists the various growth indicators and sources used in the forecasting of Covina's community-wide emissions. For a detailed explanation of indicator methods 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 stay 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 7: Comparison of 2006 and 2010 Data to Forecasts of Jobs, Households, Population, and Transportation Comparisons (2006–2020)

Growth Indicator	Emissions Sector	2006	2010	2020	2006–2020 Percentage Change	Sources
Jobs	Commercial/ Industrial Energy	12,900	12,900	13,100	2%	2010 Census, SCAG 2012 RTP, SCAG 2003 RTP
Service Population (Residents + Jobs)	Solid Waste, Water, Wastewater	65,090	60,700	61,800	-5%	2010 Census, SCAG 2012 RTP
Households	Residential Energy, Off-Road Equipment	16,090	15,860	16,200	1%	2010 Census, SCAG 2012 RTP
Annual VMT	On-Road Transportation	290,419,330	292,384,440	297,409,110	2%	Fehr & Peers Transportation Consultants, SCAG 2003 RTP

COMMUNITY BUSINESS-AS-USUAL FORECAST

Table 8 summarizes the growth forecast of GHG emissions by activity sector without any actions or policies in place to reduce GHG emissions. Under the BAU growth scenario, baseline emissions are estimated to grow by 2% in 2020 to 339,650 $MTCO_2e$.

Table 8: Comparison of Community-Wide BAU Forecasts by Sector, 2006–2020 ($MTCO_2e$)

Sector	2006 $MTCO_2e$	2010 $MTCO_2e$	2020 $MTCO_2e$
Residential Energy	66,810	63,030	67,280
Commercial/Industrial Energy	74,530	64,690	75,680
Direct Access Electricity	7,190	6,180	7,300
Street & Traffic Lighting	9,620	9,610	9,610
On-Road Transportation	154,560	151,380	158,310
Community-Generated Waste	11,670	9,310	11,610
Off-Road Equipment	640	20	640
Water	7,890	7,820	7,850
Wastewater	1,380	1,360	1,370
Total*	**334,290**	**313,400**	**339,650**
Percent Change from 2006	**–**	**-6%**	**2%**

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

MUNICIPAL BUSINESS-AS-USUAL FORECAST

The City of Covina's municipal forecast assumes a no-growth scenario for municipal operations, except water, based on data received for 2006 and 2010. Improvements in efficiency and reduced municipal operations caused a 5% reduction in emissions since the baseline year. Nearly half of the reductions since 2006 resulted from lighting efficiency upgrades, pump improvements, and energy efficiency improvements at City facilities. Since the City is one of the local water providers, the increase in emissions in the water sector forecast is tied to projected growth patterns in the service population. **Table 9:** illustrates a forecast drop of emissions by 2020, from 2,860 $MTCO_2e$ in 2006 to 2,700 in 2020.

Table 9: Comparison of Municipal BAU Forecasts by Sector, 2006–2010 ($MTCO_2e$)

Sector	2006 $MTCO_2e$	2010 $MTCO_2e$	2020 $MTCO_2e$
Building Energy	750	660	660
Off-Road Equipment	10	10	10
Fleet	550	550	550
Lighting	620	610	610
Water	530	500	480
Employee Commute	320	310	310
Government-Generated Solid Waste	80	80	80
Total*	**2,860**	**2,720**	**2,700**
Percent Change from 2006	**–**	**-5%**	**-6%**

** Due to rounding, the total may not equal the sum of 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 (AB) 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 about 22% in 2012 and by about 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-wide ABAU forecast. As shown in **Table 10**, these state reduction efforts are anticipated to reduce BAU emissions by 41,020 $MTCO_2e$. The vast majority of these reductions are from the Pavley standards and the RPS. In comparison to the BAU scenario, 2020 emissions with state reduction measures are 11% below baseline 2006 levels rather than 2% above (see **Table 11**).

Table 10: Impact of State Reductions on Community Emissions, 2020 ($MTCO_2e$)

State Reductions Summary	2020 $MTCO_2e$
Pavley Reductions	-24,440
RPS Reductions	-13,540
CA Building Code Reductions	-1,710
CSI Reductions	-1,330
Total State Reductions*	**-41,020**

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

Table 11: Comparison of Community ABAU Forecasts by Sector to 2006 and 2010 Emissions ($MTCO_2e$)

State Reductions Summary	2006 $MTCO_2e$	2010 $MTCO_2e$	2020 $MTCO_2e$
Growth Projection	334,290	313,400	339,650
Total State Reductions	–	–	-41,020
Adjusted BAU Forecast (2020)*	334,290	313,400	298,630
Percent Change from 2006	**–**	**-6%**	**-11%**

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

MUNICIPAL ABAU FORECAST

Only certain state reduction programs affect the municipal BAU forecast. These include 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 12**). The CSI is not applicable to municipalities and is not quantified. **Table 13** shows the effect of the included state reduction efforts on BAU emissions. No reductions came from the Title 24 reductions because the City does not have any set plans to expand buildings in the future. 2020 ABAU emissions are 17% below baseline, a reduction of 330 $MTCO_2e$. Consequently, emissions in 2020 are expected to be 2,370 $MTCO_2e$ in 2020. Although 2020 targets are projected to be achieved through state action alone, it is important to note that State reduction programs are not guaranteed to be fully implemented, much like the LCFS. Local actions by City facility and fleet managers are the best way to reach a 15% reduction below baseline levels in 2020.

Table 12: Impact of State Reductions on Municipal Emissions, 2020 ($MTCO_2e$)

State Reductions Summary	2020 $MTCO_2e$
Pavley Reductions	-130
RPS Reductions	-200
Total State Reductions*	**-330**

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

Table 13: Comparison of Municipal ABAU Forecasts by Sector to 2006 and 2010 Emissions ($MTCO_2e$)

State Reductions Summary	2006 $MTCO_2e$	2010 $MTCO_2e$	2020 $MTCO_2e$
Growth Projection	2,860	2,720	2,700
Total State Reductions	–	–	-330
Adjusted BAU Forecast (2020)*	2,860	2,720	2,370
Percentage Change from 2006	**–**	**-5%**	**-17%**

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

REDUCTION TARGETS

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

STATE RECOMMENDED 2020 REDUCTION TARGETS

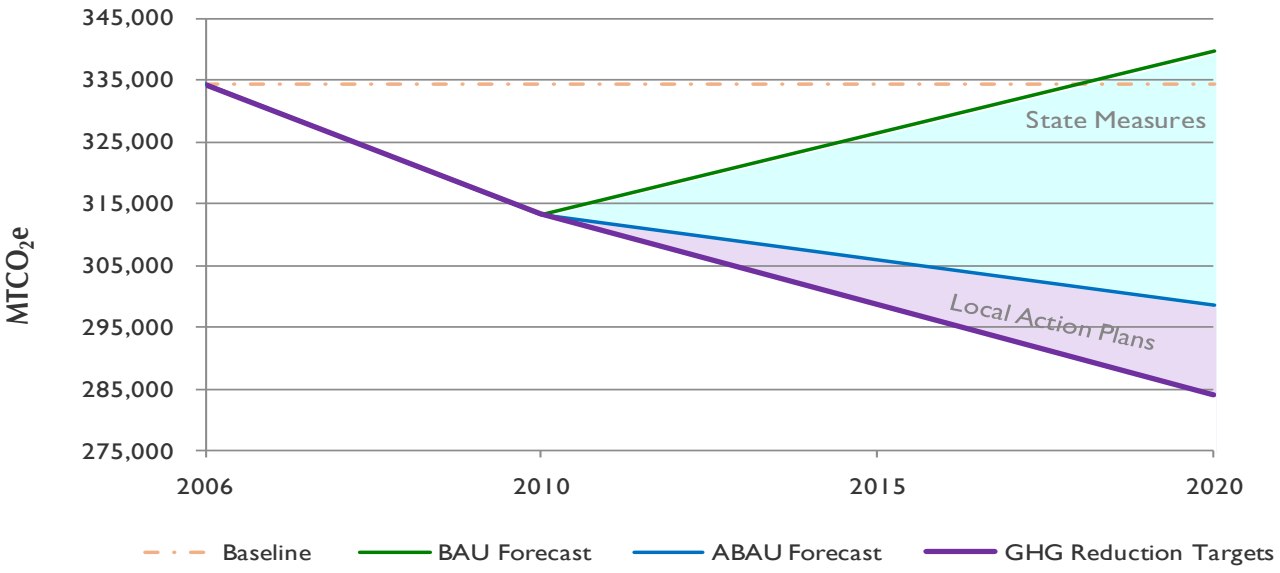
AB 32 recommends that local governments adopt a GHG reduction target of 15% below baseline levels by 2020. The state has not adopted GHG reduction targets beyond 2020; however, in 2005, then-Governor Schwarzenegger signed Executive Order S-3-05, which created a goal to reduce GHG emissions to 1990 levels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

As shown in **Table 14** and **Figure 14**, the City would need to facilitate a reduction in emissions of 14,470 $MTCO_2e$ to meet the State-recommended AB 32 Scoping Plan goal of 15% below baseline levels by 2020.

Table 14: Comparison of BAU Forecast and Reduction Target, 2020 ($MTCO_2e$)

	2020
State-Recommended Reduction Targets (percent below baseline)	15%
State-Recommended Emissions Goal ($MTCO_2e$)	284,150
ABAU Forecast with State Reductions ($MTCO_2e$)	298,630
Local Reduction Needed from Adjusted BAU ($MTCO_2e$)	14,480

Figure 14: Comparison of BAU Forecast and Reduction Target, 2006–2020



CHAPTER 3

ELECTRICITY PROFILE

Covina is a small, built-out community with a centralized downtown, established residential neighborhood, and a mix of retail and office uses. The city consists primarily of low-density single-family housing, but also has significant portions of land for multi-family housing as well as commercial and industrial uses, most of which was developed in the period immediately after World War II. The community's traditional downtown serves as the cultural core of the community, maintaining a number of historic buildings and vibrant retail uses. In comparison to other suburban cities in the San Gabriel Valley, Covina has a more diverse set of uses, with somewhat smaller and older buildings. These characteristics result in unique electricity use in the city, along with opportunities for energy reductions and cost savings. The built environment has significant opportunities for improvements in energy use that would also increase interior comfort levels and building quality.

INTRODUCTION TO ELECTRICITY AND EFFICIENCY

Electricity used in Covina's homes and businesses is provided primarily by Southern California Edison (SCE). SCE generated energy from a mix of nonrenewable, fossil fuel-based sources, such as coal and natural gas, 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 15**.

Figure 15: Efficient Home Features

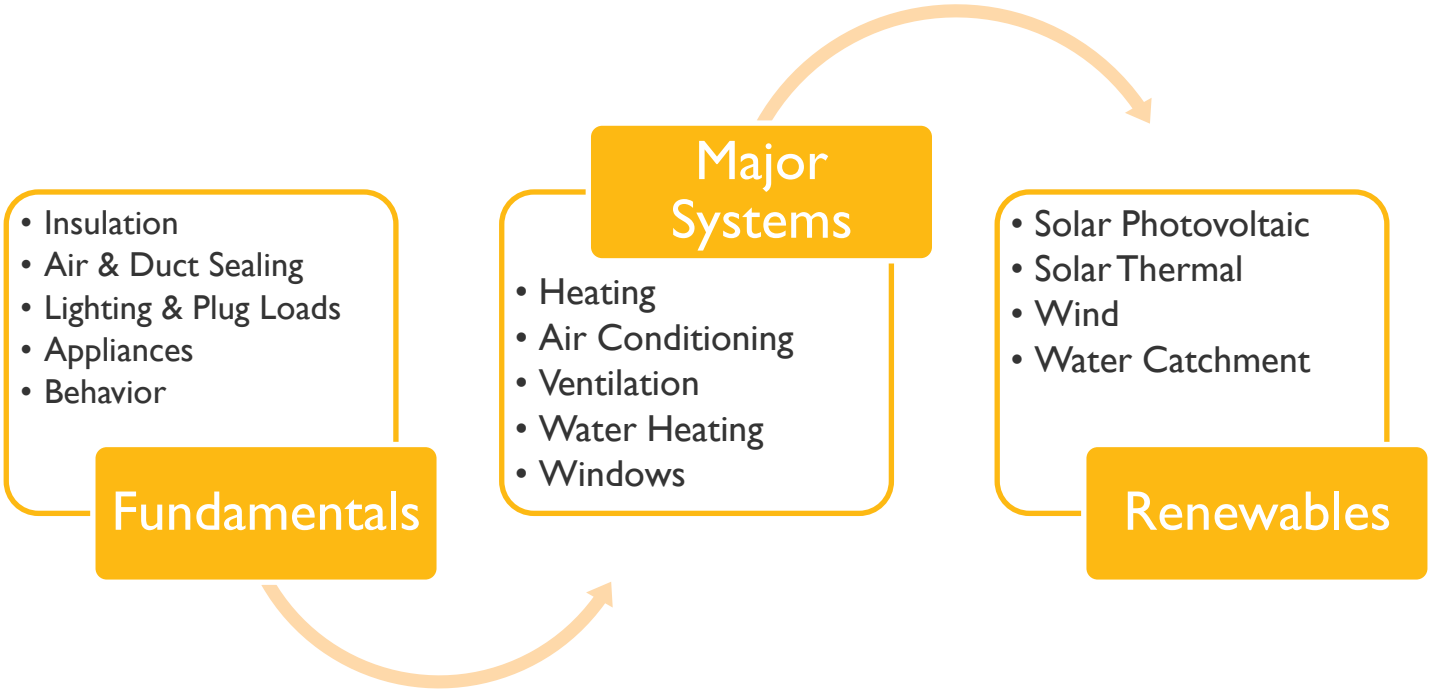
Source: PMC 2012

THE ELECTRICITY REDUCTION LOADING ORDER

GHGs from electricity use can be reduced, primarily through increasing conservation (i.e., avoiding using electricity) and improving efficiency (i.e., 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 are just some examples of energy efficiency and conservation. 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 16** depicts the recommended loading order for undertaking energy efficiency projects and retrofits.

Figure 16: Retrofitting Loading Order



COMMUNITY ELECTRICITY DEMAND

About 88% of Covina's land is residential. Of the residential stock, most (58%) are single unit, detached housing, but there is also mix of small- and large-scale multi-family housing developments (see **Table 15**). The city has a sizeable rental population. In fact, only 58% of housing units in Covina are owner-occupied. Multi-family residences often provide significant energy savings opportunities but may be challenging to target through traditional energy efficiency incentive programs. This is a result of "split incentive," a problem whereby the landlord has no incentive to help tenants upgrade their space or create efficiencies because the tenant sees all the benefit.

Table 15: Covina's Housing Units by Type, 2010

Housing Type	Number	Percentage
1 unit, detached	9,281	58.1%
1 unit, attached	1,434	9%
2 units	119	0.7%
3 or 4 units	673	4.2%
5 to 9 units	952	6%
10 to 19 units	932	5.8%
20 or more units	2,059	12.9%
Mobile home	526	3.3%
Total*	**15,976**	**100%**

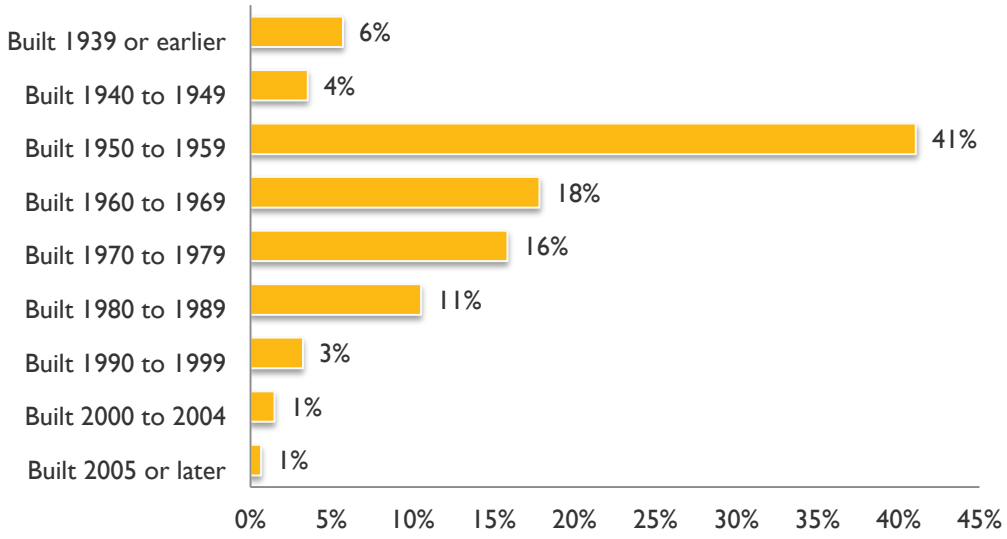
** Due to rounding, the total may not equal the sum of the component parts.*
Source: US Census, American Community Survey 2006–2010, Table DP-04

Although residential uses take up the majority of Covina's land, about 17% of the city is commercial or industrial land. Vacant land is limited, with significant potential for infill development and adaptive reuse around the downtown. The City has already used creative tactics to find land for development as when it exchanged property next to Covina District Field for a downtown parcel currently occupied by a welding school, clearing the way for the Olsen Citrus Walk development in 2010. The Town Center is slated for greater density, as the City works to increase real density to allowable density which is in some areas 40 residential units per acre.

The community's development history and land use pattern greatly shapes the patterns of energy use throughout the city. The city was largely built out by the 1940s. This means that the housing stock is generally very old, as shown in **Table 16**. It also means that while infill and vacant lots remain, there are few greenfield areas for new development. These units are fairly typical in size for post-WWII houses, with a median home size of 1,446 square feet, much smaller than the average home built in the 21st century.

42% of homes in Covina are renter-occupied.

Table 16: Age of Covina's Housing Stock, 2010



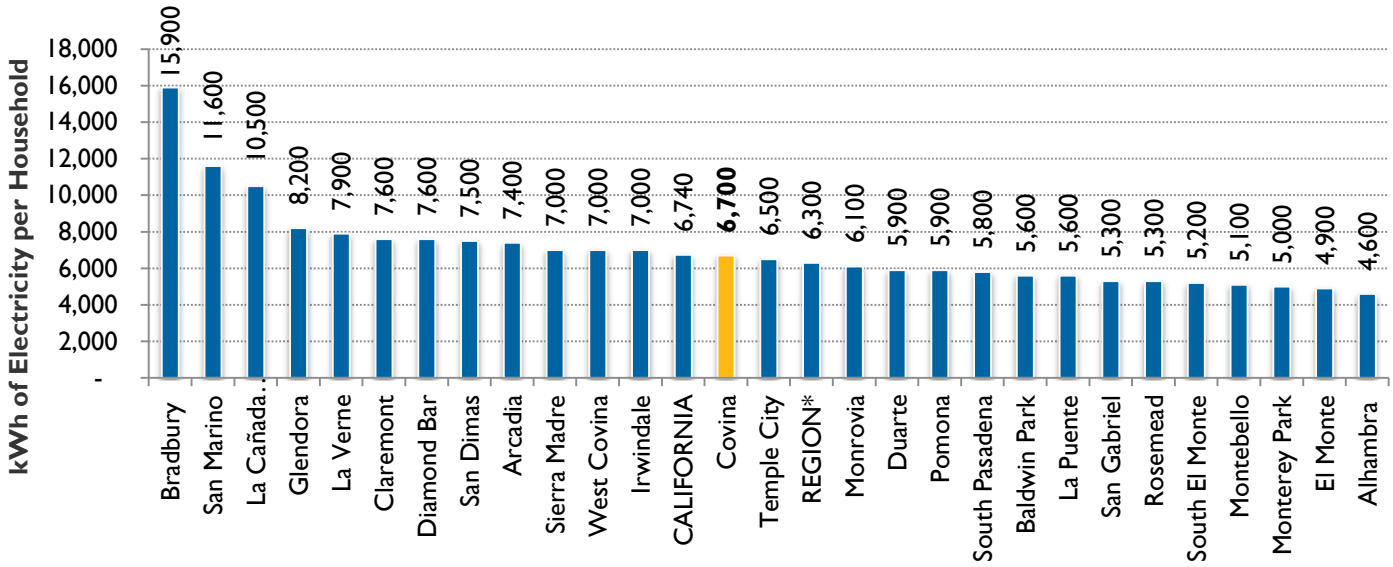
Source: US Census American Community Survey, 2006–2010, Table DP-04.

COMMUNITY COMPARISON TO REGIONAL AND STATEWIDE ELECTRICITY DEMAND

In order to compare local and regional electricity use, electricity data for 2010 was collected for all participating cities. As shown in **Figure 17**, residences in Covina use an average of 6,700 kilowatt-hours (kWh) annually, consistent with the California average of 6,700 kWh but above the regional average in San Gabriel Valley of 6,300 kWh.

The age of Covina's housing stock suggests that there are opportunities for energy efficiency through structural upgrades such as caulking, increased insulating, and window replacements. Efforts to upgrade appliances in homes could also be very successful. These programs may only see limited success among Covina's renter-occupied units, as landlords may have less of an incentive to implement these measures. To overcome this barrier, efforts to support energy efficiency education for both renters and owners should be an integral part of Covina's energy efficiency plans.

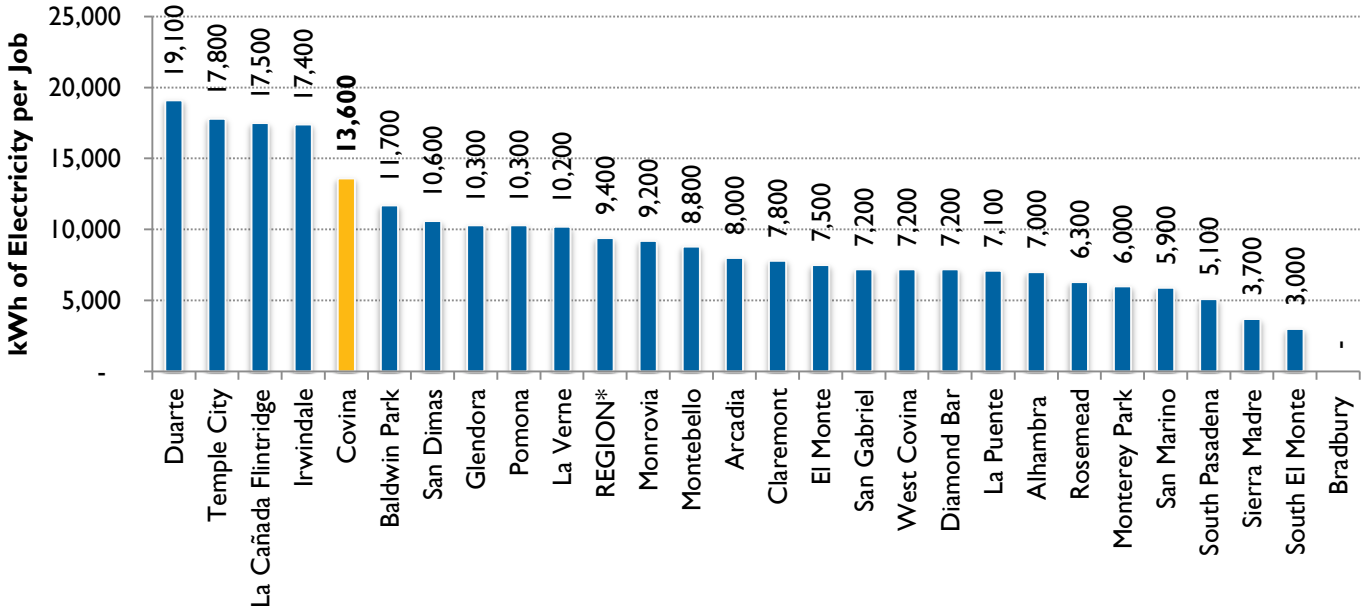
Figure 17: Annual Electricity Use per Household, 2010 (kWh)



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

Covina's commercial and industrial sector has fairly high electricity consumption: 13,600 kWh annually per job, fifth highest among participating communities and well above the regional average of 9,400 kWh, as shown in **Figure 18**. This reflects the nature of Covina's employers (e.g., medical services), many of which have energy-intensive uses. These nonresidential buildings and uses present opportunities for electricity efficiency. Focusing on these uses could lead to significant and innovative savings opportunities for businesses and the city overall.

Figure 18: Annual Electricity Use per Job, 2010 (kWh)



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

MUNICIPAL ELECTRICITY DEMAND

2006 ELECTRICITY USE

In 2006, the City of Covina used approximately 6,253,735 kWh in its municipal operations. This electricity use falls into three categories: buildings and facilities, water service, and street and traffic lighting. Within each category are a number of different rate groups, discussed in greater detail below and illustrated in **Table 17**. The buildings and facilities sector contains the domestic, general service non-demand rated (GS-1), and general service demand rated (GS-2) rate groups. The GS-1 group contains 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 City Yard). The GS-2 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 2,296,890 kWh in 2006, the largest municipal electricity user in the City.

Within the public lighting sector are the outdoor area lighting (AL-2 and OL-1), 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 six groups used a combined total of 2,130,551 kWh in 2006, with about 65% of lighting electricity being used by the SCE-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), and demand-metered pumping (PA-2) rate groups. This sector used 1,826,294 kWh in 2006.

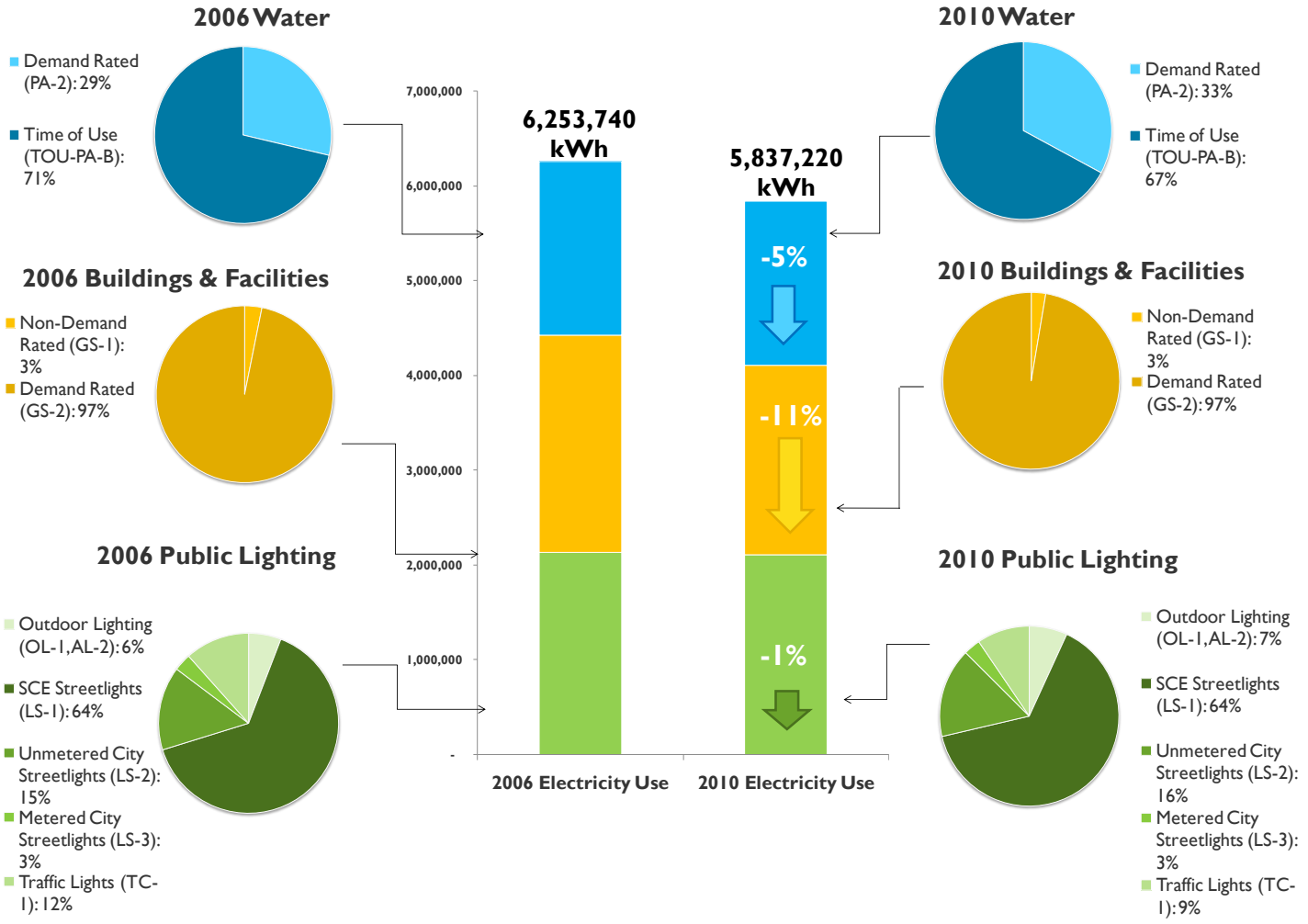
Table 17: City of Covina Municipal Electricity Use by Rate Class, 2006 (kWh)

Buildings & Facilities	2006 Annual kWh	Percentage of Total 2006 kWh
Non-Demand Rated (GS-1)	72,400	1%
Demand Rated (GS-2)	2,224,500	36%
Total – Buildings & Facilities*	**2,296,900**	**37%**
Lighting	**2006 Annual kWh**	**Percentage of Total 2006 kWh**
Outdoor Lighting (AL-2, OL-1)	124,490	2%
SCE-Owned Streetlights (LS-1)	1,371,530	22%
Unmetered City-Owned Streetlights (LS-2)	320,770	5%
Metered City-Owned Streetlights (LS-3)	66,700	1%
Traffic Lights (TC-1)	247,060	4%
Total – Lighting*	**2,130,550**	**34%**
Water	**2006 Annual kWh**	**Percentage of Total 2006 kWh**
Demand Rated (PA-2)	524,160	8%
Time of Use (TOU-PA)	1,302,130	21%
Total – Water*	**1,826,290**	**29%**
Total All Municipal Accounts*	**6,253,740**	**100%**

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

The goal of analyzing both baseline 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 19** compares Covina's municipal electricity use in 2006 and 2010, and provides a breakdown of the types of activities in which that electricity is used. The City decreased total electricity use by approximately 7% from 2006 levels. In 2010, the buildings and facilities sector saw a 12% drop in electricity use, while lighting electricity use declined slightly and electricity use for water pumping decreased almost 25%. The City achieved decreases in electricity use for buildings water pumping through numerous proactive energy efficiency projects. These energy efficiency projects are described in **Chapter 4**.

Figure 19: Changes in Municipal Electricity Use, 2006–2010 (kWh)



The top 10 municipal electricity users (individual facilities and types of public lights) in the city are provided in **Table 18**, whereas **Table 19** provides the top 5 municipal water accounts. After SCE-owned streetlights, the Policy Department was the top electricity account for building or lighting. Between 2006 and 2010, seven of the building and lighting users shown in **Table 18** saw a decrease in electricity use, including four that saw reductions of over 30%. Five facilities saw their electricity bills decline (three by more than 20%), despite rising rates. Of the City's water accounts shown in **Table 19**, the top account has realized a 38% drop in electricity use since 2006 due to the City's energy efficiency efforts. . The projects that the City of Covina has implemented or is planning to implement to reduce electricity use are identified and described in more detail in **Chapter 4**.

Table 18: City of Covina Top 10 Electricity Users by Building and Lighting Accounts, 2006–2010 (kWh)

Rank	Facility Name	Facility Address	2006 Annual kWh	2010 Annual kWh	Percent Change in Annual kWh, 2006–2010	2006 Annual Cost	2010 Annual Cost	Percent Change in Annual Cost, 2006–2010
1	SCE-Owned Streetlights	City-Wide	1,371,530	1,359,430	-1%	$348,200	$408,010	17%
2	Police Department	444 N Citrus Ave	705,600	718,840	2%	$96,811	$92,736	-4%
3	City Library	234 N 2nd Ave	394,730	266,500	-32%	$66,180	$49,590	-25%
4	City-Owned, Unmetered Streetlights	City-Wide	320,770	340,150	6%	$32,010	$34,740	9%
5	City Hall	125 E College St	310,450	356,740	15%	$48,703	$55,430	14%
6	Metrolink Parking Structure	559 N Citrus Ave	262,960	157,040	-40%	$36,521	$21,637	-41%
7	Traffic Signals	City-Wide	247,060	199,890	-19%	$33,270	$32,770	-2%
8	City Yard	534 N Barranca Ave	199,380	115,660	-42%	$37,943	$24,488	-35%
9	City-Owned Area Lighting	City-Wide	115,810	135,620	-32%	$20,630	$10,610	-49%
10	Kalher Russell Park	735 N Glendora Ave	100,290	83,310	-17%	$15,804	$14,655	-7%

Table 19: City of Covina Top 5 Electricity Users by Water Account, 2006–2010 (kWh)

Rank	Facility Rate Class	Facility Address	2006 Annual kWh	2010 Annual kWh	Percent Change in Annual kWh, 2006–2010	2006 Annual Cost	2010 Annual Cost	Percent Change in Annual Cost, 2006–2010
1	TOU-PA-B	1051 E Cypress St	790,880	493,550	-38%	$69,940	$48,771	-30%
2	TOU-PA-B	285 N Forestdale Ave	511,260	666,040	30%	$58,160	$62,660	8%
3	PA-2	701 N Sunflower Ave	278,820	321,000	15%	$36,270	$41,243	14%
4	PA-2	2081 N Rancho La Merced	78,840	-	-100%	$11,080	-	-100%
5	PA-2	502 S Rancho Simi Dr	54,180	60,440	12%	$8,210	$9,606	17%
6	PA-2	301 S 4th Ave	-	114,960	-	-	$13,022	-

CHAPTER 4

ENERGY EFFICIENCY STRATEGY

The energy efficiency strategy in this Energy Action Plan presents reduction targets for electricity use and greenhouse gas emissions. These targets focus both on community activities and municipal operations. The strategy includes a diverse mix of incentive-based, outreach, and regulatory programs for both new and existing development. The goals, policies, and actions in this chapter identify the City's role to achieve electricity efficiency in each sector to avoid reliance on any one strategy or sector to achieve the target.

REDUCTION TARGETS

The City of Covina 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 EAP also presents the State-recommended GHG reduction target of 15% below baseline 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 baseline GHG emissions, this chapter presents electricity reduction targets, developed through this planning process and shown in **Figure 20.** Each reduction target refers to the baseline year of 2006 as a benchmark, and is supported by a series of goals, policies, and actions. The City is committed to achieve Gold Level municipal electricity targets through the ELP. Southern California Edison (SCE) calculates the Gold Level target for municipal energy reductions in reference to a 2004 benchmark. The City has already progressed towards this target, but in order to close the gap the City has committed to achieve a 3% reduction below baseline 2006 levels, a reduction of 205,966 kWh. This level of reduction will allow the City to achieve the equivalent of the Gold Level municipal energy efficiency target, a 10% reduction below baseline 2004 levels.

Figure 20: City of Covina Reduction Targets

50,140 $MTCO_2e$ Target Reduction	Support achievement of a 15% reduction below baseline community GHG emissions levels by 2020.
5,737,100 kWh Target Reduction	Reduce existing residential electricity use 5% below baseline 2006 levels by 2020.
9,971,200 kWh Target Reduction	Reduce nonresidential energy use 5% below baseline 2006 levels by 2020.
Supportive	Move toward net zero electricity use in new residential and nonresidential buildings by 2020.
205,970 kWh Target Reduction	Reduce electricity use at municipal facilities 3% below baseline 2006 levels (equivalent to a 10% reduction below 2004 levels).

STRATEGY STRUCTURE

In order to achieve the target electricity reductions by 2020, the City of Covina 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 21**.

Figure 21: Reduction Strategy Structure

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 work together collectively 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 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 Covina. Not only will electricity efficiency actions reduce utility bills, but they also 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 changes that will occur in Covina. 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 to reduce electricity use within the community.

COMMUNITY POLICIES

GOAL 1: RESIDENTIAL: MAXIMIZE ENERGY EFFICIENCY AND IMPROVE THE QUALITY OF COVINA'S RESIDENTIAL COMMUNITIES.

POLICY 1.1: PROMOTE HOUSEHOLD ENERGY CONSERVATION BY RESIDENTS IN EXISTING STRUCTURES THROUGH EDUCATION AND OUTREACH.

POLICY 1.1

2020 kWh Reduction:

91,280 – 171,150

2020 $MTCO_2e$ Reduction:

20 – 40

Co-Benefits:

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

Actions:

- Update the City's website to encourage resident participation in energy monitoring programs that inform energy use decisions and reduce peak energy demand, such as utility-provided smart meter monitoring programs.
- Work with nonprofits, businesses, and community groups (such as Covina's Teens Endeavor to Accomplish More) to conduct volunteer energy efficiency education efforts and promote energy behaviors and opportunities to the community.
- Continue energy efficiency education and outreach with the Energy Leader Partnership at community events.

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

POLICY 1.2

2020 kWh Reduction:

469,730 – 2,617,990

2020 $MTCO_2e$ Reduction:

120 – 650

Co-Benefits:

Reduces Peak Energy Demand, Reduces Monthly Utility Costs, Supports Local Economy & Job Creation

Actions:

- Promote upgrades of residential and recreational pool pumps to more efficient, variable speed pump models.
- Work with the San Gabriel Valley Energy Wise Partnership and Southern California Regional Energy Consortium to pursue bulk procurement of discounted variable speed pool pumps in order to offer pumps at affordable rates to residents.
- Educate city residents and business owners about rebate offerings for appliances and equipment as programs become available, including those offered by Southern California Edison, the California Energy Commission, and the South Coast Air Quality Management District.
- Hold programmable thermostat exchange program.
- Raise awareness of phantom electrical loads and promote use of energy-saving power strips by holding a Smart Strip giveaway.
- Hold energy-efficient light bulb exchanges at community events when funds are available.
- Promote the use of smart-grid-integrated appliances on the City website and at community events.

POLICY 1.3: ENHANCE THE SINGLE-FAMILY HOUSING STOCK THROUGH SUPPORT OF VOLUNTARY RETROFITS TO SINGLE-FAMILY STRUCTURES.

POLICY 1.3

2020 kWh Reduction:

1,232,280 – 5,776,320

2020 $MTCO_2e$ Reduction:

310 – 1,440

Co-Benefits:

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

Actions:

- Advocate for regional efforts to create an ongoing, revolving loan fund for residential home-energy audits and retrofits.
- Support efforts of the San Gabriel Valley Council of Governments and the Southern California Regional Energy Network to pursue grant money to fund residential retrofits throughout the community, leveraging existing administrative resources and programs through the Housing and Community Development Department.
- Encourage residents to participate in statewide and regional retrofit programs, including Energy Upgrade California.
- Continue to work with the San Gabriel Valley Council of Governments to secure funding and implement innovative contests and community events that promote residential retrofits and give away funding for improvements, building on existing activities such as the Covina Home Tour Scavenger Hunt.
- Support regional educational efforts by distributing materials from the San Gabriel Valley Council of Governments, such as a voluntary energy efficiency checklist to interested homebuyers.
- Continue to work with public and private partners to promote free home energy surveys.

POLICY 1.4: ENCOURAGE MULTI-FAMILY ENERGY EFFICIENCY RETROFITS THROUGH OUTREACH AND EDUCATION.

Actions:

- Conduct outreach to property management agencies and condominium homeowner associations to encourage retrofits, such as pool pump replacements.
- Leverage existing funding sources, such as Community Development Block Grants and home repair funds, for energy efficiency improvements and outreach targeted at the City's affordable housing projects.
- Work with Southern California Edison and the Energy Leader Partnership to promote free- to low-cost retrofit opportunities to property owners of multi-family apartment buildings to improve the community's multi-family housing stock.

POLICY 1.4

2020 kWh Reduction:

106,970 – 325,190

2020 $MTCO_2e$ Reduction:

30 – 80

Co-Benefits:

Provides Permanent Energy Reduction, Reduces Urban Air Temperatures, Monthly Utility Costs, Supports Local Economy & Job Creation

POLICY 1.5: INCENTIVIZE HOME ENERGY BENCHMARKING AS A TOOL TO HELP HOMEOWNERS ASSESS OPPORTUNITIES TO IMPROVE ENERGY PERFORMANCE AND IMPROVE RESALE VALUE.

Actions:

- Promote regional financial incentives and awareness to offset the costs of home energy labeling.
- Promote regional financial incentives, such as Los Angeles County's Green Label Rebate Program, to offset benchmarking costs.
- Promote home energy benchmarking on the City website and at community events.
- Work with the San Gabriel Valley Energy Wise Partnership and the San Gabriel Valley Council of Governments to promote home energy benchmarking resources.

POLICY 1.5

2020 kWh Reduction:

Supportive Policy

2020 $MTCO_2e$ Reduction:

Supportive Policy

Co-Benefits:

Provides Permanent Energy Reduction, Supports Community Education

GOAL 2: STRENGTHEN THE BUSINESS COMMUNITY AND REDUCE ENERGY USE IN THE NONRESIDENTIAL BUILDING STOCK.

POLICY 2.1: STRENGTHEN BUSINESS RELATIONSHIPS BY EDUCATING BUSINESSES ABOUT OPPORTUNITIES TO CONSERVE ENERGY COSTS AND REDUCE ENERGY USE THROUGH IMPROVEMENTS IN DAILY OPERATIONS.

Actions:

- Educate local building owners about free financial assistance for energy efficiency, and use local pilot programs for ongoing education efforts. Potential programs to promote include Southern California Edison's Direct Install and Los Angeles County's Building Performance Partnership.

POLICY 2.1

2020 kWh Reduction:

Supportive Policy

2020 $MTCO_2e$ Reduction:

Supportive Policy

Co-Benefits:

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

- Work with the Covina Chamber of Commerce and the Covina Downtown Association to educate businesses about energy conservation programs and reward business and property owners who have achieved significant savings as a result of energy efficiency programs.
- Continue to highlight energy conservation resources on the City's website and at permit counters, and update materials to highlight energy-efficient practices implemented by local businesses as case studies to the community.
- Educate business owners on the nonresidential building energy consumption disclosure requirements at the time of building sale, lease, or refinancing (Assembly Bill 1103).
- Provide materials to encourage business participation in energy monitoring programs through Southern California Edison or programs such as Energy Star Portfolio Manager to help businesses understand and track ongoing energy performance.

POLICY 2.2: ENCOURAGE THE USE OF INNOVATIVE ENERGY-EFFICIENT APPLIANCES AND EQUIPMENT IN BUSINESSES THAT WILL REDUCE OPERATIONAL EXPENDITURES AND IMPROVE THE EFFICIENCIES OF BUSINESS OPERATIONS.

POLICY 2.2

2020 kWh Reduction:

658,630 – 1,505,440

2020 $MTCO_2e$ Reduction:

170 – 390

Co-Benefits:

Reduces Peak Energy Demand, Conserves Water, Reduces Monthly Utility Costs

Actions:

- Promote energy efficiency rebates for commercial activities, including Southern California Edison rebates through the Energy Management Solutions Program for cooking and refrigeration appliances, lighting, and manufacturing equipment.
- Use model energy efficiency materials from the San Gabriel Valley Council of Governments to use as a standardized tenant improvement checklist and to encourage the installation of Energy Star and/or smart-grid-integrated appliances in nonresidential development. Utilize these materials in all tenant improvements processes through the City to encourage cost-effective energy efficiency improvements.
- Through the business permit renewable process, provide pamphlets and information to promote the use of plug-load sensors and server virtualization in large office complexes and other nonresidential uses.
- Work with the San Gabriel Valley Energy Wise Partnership to develop a model energy-efficient procurement policy that could be implemented by businesses throughout the community.

POLICY 2.3: ENHANCE THE NONRESIDENTIAL BUILDING STOCK BY FACILITATING VOLUNTARY RETROFITS AND ENERGY EFFICIENCY, WITH A SPECIAL FOCUS ON BUILDINGS IN DOWNTOWN.

POLICY 2.3

2020 kWh Reduction:

1,851,650 – 6,943,670

2020 $MTCO_2e$ Reduction:

480 – 1,800

Co-Benefits:

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

Actions:

- Promote nonresidential financing options for energy efficiency improvements, including Los Angeles County Property Assessed Clean Energy (PACE) financing.

- Work with the Covina Downtown Association and the Covina Chamber of Commerce to educate property owners on other feasible options for retrofit energy efficiency financing, including integration of energy efficiency retrofit projects into capital lease structures, mortgage refinancing, and agreements with energy savings performance companies.
- Distribute an informational packet about nonresidential financing and opportunities to businesses when they apply for a new business license or receive their annually renewed business license, including information such as the Los Angeles County PACE program.
- Engage the Covina Downtown Association and the Covina Chamber of Commerce to create a sign or decal that designates local energy-efficient businesses in order to provide additional publicity and incentive for voluntary energy efficiency improvements.

POLICY 2.4: WORK WITH THE SAN GABRIEL VALLEY COUNCIL OF GOVERNMENTS TO PROVIDE EDUCATIONAL MATERIALS FOCUSED ON COST-SAVING RETROFITS AND IMPROVEMENTS IN LARGE NONRESIDENTIAL FACILITIES, INCLUDING THE CITY'S RETAIL, WAREHOUSE, AND OTHER LARGE BUILDINGS, SUCH AS GROCERY STORES.

POLICY 2.4

2020 kWh Reduction:

725,750 – 2,177,260

2020 $MTCO_2e$ Reduction:

190 – 570

Co-Benefits:

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

Actions:

- Work with the San Gabriel Council of Governments to prepare energy efficiency educational materials that outline a range of options for tenant improvements that would be appropriate for large nonresidential facilities.
- During tenant improvement phases, encourage facilities greater than 5,000 square feet to integrate energy-efficient appliances, equipment and, features as cost-saving measures.
- Encourage owners of businesses and facilities larger than 25,000 square feet to participate in Southern California Edison's Retrocommissioning Program to identify cost-effective ways to optimize building performance.

GOAL 3: MAXIMIZE THE EFFICIENCY OF ALL NEW BUILDINGS.

POLICY 3.1: MAXIMIZE THE ENERGY-EFFICIENT DESIGN AND ORIENTATION OF NEW, REMODELED, AND RENOVATED BUILDINGS THROUGH VOLUNTARY SUSTAINABLE BUILDING STANDARDS.

POLICY 3.1

2020 kWh Reduction:

Supportive Policy

2020 $MTCO_2e$ Reduction:

Supportive Policy

Co-Benefits:

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

Actions:

- Encourage voluntary Home Energy Rating System ratings for new residential units through the building permit application and development review processes.
- Work with the San Gabriel Valley Council of Governments to encourage the use of voluntary energy efficiency guidelines and promote the use of the energy efficiency designs with standardized checklists for new development and remodels.

- By 2015, evaluate success of voluntary energy efficiency guidelines and sustainable building standards, then consider other methods to further encourage implementation.

POLICY 3.2: ENCOURAGE THE USE OF ENERGY-EFFICIENT APPLIANCES AND EQUIPMENT IN NEW BUILDINGS.

POLICY 3.2

2020 kWh Reduction:

Supportive Policy

2020 $MTCO_2e$ Reduction:

Supportive Policy

Co-Benefits:

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

Actions:

- Provide educational information on the use of smart-grid-integrated appliances through the City's website and distribution of San Gabriel Valley Energy Wise Partnership materials.
- Promote funding sources for residential appliances as available, including state and federal rebate programs.
- Educate project applicants about available rebates for energy-efficient appliances and equipment.
- Consider updating zoning discretionary review processes to afford applicant benefits that encourage energy and/or sustainable investments.

POLICY 3.3: PARTICIPATE IN A REGIONAL EFFORT TO IMPLEMENT ENERGY EFFICIENCY STANDARDS FOR NEW DEVELOPMENT.

POLICY 3.3

2020 kWh Reduction:

Supportive Policy

2020 $MTCO_2e$ Reduction:

Supportive Policy

Co-Benefits:

Supports Community Education

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.
- Support the creation of a regional energy manager position at the San Gabriel Valley Council of Governments, who would support implementation of energy efficiency in new development.

GOAL 4: CREATE A PLANNING FRAMEWORK FOR ENERGY EFFICIENCY IMPROVEMENTS AND INVESTMENTS IN THE LOCAL ECONOMY.

POLICY 4.1: ENCOURAGE ENERGY EFFICIENCY THROUGH THE DEVELOPMENT STANDARDS, PERMITTING, AND PLAN REVIEW PROCESSES.

POLICY 4.1

2020 kWh Reduction:

Supportive Policy

2020 $MTCO_2e$ Reduction:

Supportive Policy

Co-Benefits:

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

Actions:

- Update the City's website with a summary of the model energy efficiency guidelines and local programs.
- Work with the San Gabriel Valley Energy Wise Partnership to create residential and nonresidential energy efficiency packets with information on financing and resources, for distribution during pre-application meetings, and at the planning and building counter.

POLICY 4.2: ENCOURAGE AND SUPPORT THE YOUTH OF COVINA TO SPUR COMMUNITY-WIDE ENERGY REDUCTIONS AND SUPPORT ENERGY-EFFICIENT BEHAVIORS AND BEST PRACTICES.

POLICY 4.2

2020 kWh Reduction:

Supportive Policy

2020 $MTCO_2e$ Reduction:

Supportive Policy

Co-Benefits:

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

Actions:

- Work with the Parks and Recreation Department to integrate energy efficiency curriculum and projects into educational and after-school programs.
- Through Covina's Teens Endeavor to Accomplish More group, train students as energy efficiency ambassadors to their schools and other community organizations.
- Consider developing a school energy efficiency competition between schools in Covina and other interested schools throughout the district, including those in the cities of West Covina and Glendora.
- Encourage local youth work training programs to provide energy efficiency skills, including Building Performance Institute training, or other energy efficiency workforce development programs.

POLICY 4.3: COLLABORATE WITH BUSINESSES TO PROMOTE ENERGY EFFICIENCY.

POLICY 4.3

2020 kWh Reduction:

Supportive Policy

2020 $MTCO_2e$ Reduction:

Supportive Policy

Co-Benefits:

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

Actions:

- Encourage the Southern California Regional Energy Network to provide financial assistance to local businesses seeking funding for energy efficiency improvements.
- Highlight businesses that have completed energy efficiency projects, and share information on energy-efficient businesses with the Covina Chamber of Commerce.
- Use the plan review process to identify projects with model energy efficiency savings that the City could highlight and promote.
- Create a sign, decal, or logo to provide to local businesses that have completed energy projects, and encourage businesses to post signs at local operation locations.
- Continue to partner with local businesses on energy efficiency projects with a public benefit.
- Identify additional partnerships to equip businesses with funds for energy efficiency.

POLICY 4.4: ENHANCE ENERGY EFFICIENCY IN THE CITY'S HISTORIC HOUSING STOCK THROUGH PRESERVATION OF HISTORIC RESOURCES AND MAINTENANCE OF COMMUNITY CHARACTER.

Actions:

- Provide training to Planning and Building staff on appropriate energy efficiency measures for historic properties.

POLICY 4.4

2020 kWh Reduction:

Supportive Policy

2020 $MTCO_2e$ Reduction:

Supportive Policy

Co-Benefits:

Provides Permanent Energy Reduction, Reduces Maintenance Costs, Reduces Monthly Utility Costs

GOAL 5: MAXIMIZE USE OF SHADING AND COOLING TO SUSTAIN A COMFORTABLE AND ENERGY-EFFICIENT URBAN ENVIRONMENT.

POLICY 5.1: MAXIMIZE THE COOLING OF BUILDINGS THROUGH STRATEGIC TREE PLANTING AND SHADING TO REDUCE BUILDING ELECTRICITY DEMANDS.

Actions:

- Provide information to project applicants about landscaping that shades building exteriors and reduces the need for air conditioning.
- Provide educational materials to homeowners highlighting the cost savings associated with appropriately placed shade trees.

POLICY 5.1

2020 kWh Reduction:

19,470 – 116,830

2020 $MTCO_2e$ Reduction:

0 – 30

Co-Benefits:

Reduces Peak Energy Demand, Reduces Urban Air Temperatures, Reduces Monthly Utility Costs

POLICY 5.2: REDUCE ELECTRICITY DEMAND BY PROMOTING COOL ROOFS AND SURFACES FOR RESIDENTIAL AND NONRESIDENTIAL BUILDINGS.

POLICY 5.2

2020 kWh Reduction:

121,370 – 262,030

2020 $MTCO_2e$ Reduction:

30 – 70

Co-Benefits:

Reduces Peak Energy Demand, Reduces Urban Air Temperatures, Reduces Monthly Utility Costs

Actions:

- Highlight the benefits and opportunities to install cool roofs at community events, and update the City's website to provide links to resources, including information provided on the Cool California website.
- Through use of a voluntary energy efficiency checklist, promote affordable options for installation of cool roofs on applicable projects.
- When cost effective, utilize cool-colored and permeable pavement in City construction projects.

GOAL 6: ENCOURAGE WATER CONSERVATION TO SUPPORT COMMUNITY ENERGY EFFICIENCY AND CONSERVATION GOALS.

POLICY 6.1: WORK WITH WATER PROVIDERS TO IDENTIFY THE ANTICIPATED WATER SAVINGS FROM THE IMPLEMENTATION OF ADDITIONAL TIERED WATER RATES, WATER DELIVERY SYSTEM UPGRADES, AND OTHER WATER EFFICIENCY PROJECTS TO SUPPORT ENERGY REDUCTIONS.

POLICY 6.1

2020 kWh Reduction:

77,900 – 93,500

2020 $MTCO_2e$ Reduction:

0 – 20

Co-Benefits:

Conserves Water, Supports Community Education, Reduces Monthly Utility Costs

Actions:

- Collaborate with the City's water providers and the City's Water Utility Division to highlight the water-energy relationship in outreach and conservation efforts, and promote transitions to tiered water rates.
- Continue to implement the City's tiered water rate for local water customers served by the City of Covina.
- Promote and distribute Southern California Edison's water efficiency kits and appliances, which include low-flow showerheads and faucet aerators.
- Identify programs and opportunities to capitalize on water meters in the community, encouraging residents to conserve water use through the City's Water Account portal and other resources.

POLICY 6.2: SUPPORT WATER-EFFICIENT LANDSCAPING PRACTICES TO REDUCE ELECTRICITY DEMAND FOR WATER TRANSPORT AND TREATMENT.

POLICY 6.2

2020 kWh Reduction:

169,330 – 349,120

2020 $MTCO_2e$ Reduction:

40 – 80

Co-Benefits:

Conserves Water, Supports Community Education, Reduces Monthly Utility Costs

Actions:

- Continue to implement the Water Conservation Code (Chapter 13.06 of the Municipal Code).
- Utilize the model energy efficiency code to encourage drought-tolerant landscaping and the use of water-efficient irrigation systems.
- Continue promoting water conservation through the City's website and pamphlets.
- Promote drought-tolerant landscaping to the community.
- Become an Environmental Protection Agency Water Sense Partner and provide water education resources to the community.

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 that yield cost savings and enhance municipal operations. Several of these projects have been implemented since the baseline year of 2006, and have already yielded reductions in municipal energy use. These recently completed projects are identified in **Table 20.** Covina has also completed a number of energy audits at various facilities, including major municipal buildings and parks.

Table 20: Energy Efficiency Projects Completed Since 2006[1]

Facility	Project	Project Cost	Annual kWh Savings	Annual Cost Savings	SCE Incentive	Completion Date
Multiple facilities	Booster and water pump upgrades, including Charter Oak Pump, Forestdale Booster, Zone 4 Booster, and Cypress Motor Pump		126,160	$19,810		2009-2011
City Hall	Server virtualization		42,430	$6,280	$5,580	2012
Multiple facilities	Interior lighting upgrades		114,730	$18,010	$12,880	2012
Multiple facilities	Plug load sensors		14,300	$2,250	$720	2012
Downtown parking structure	Light upgrades		9,300	$1,460		2012
City pool	Pump upgrade to variable speed drive		39,050	$6,130	$3,700	2012
City library	Apply Western Colloid cool roof liquid membrane to existing roof and replace incidental boiler					NA[2]
City library	Replace existing HVAC unit with energy-efficient model					NA[2]
Public Works Yard	Install cool roof PVC membrane to existing roofs on the workshop, administration, and watershed buildings					NA[2]
Total*			**345,970**	**$53,940**		

[1] *Due to rounding, the total may not equal the sum of the component parts.*
[2] *Not available at the time of report preparation.*

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. 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 at City facilities to identify additional near-term opportunities for electricity efficiency. Facilities with audits under way include City Hall, the library, park facilities, the Joslyn Center, Hollenbeck Park, outside lighting, the City Yard, and Covina Park. The City has committed to prioritizing the implementation of projects with a payback period of six years or less, which are identified in priority order of shortest to longest payback period in **Table 21**.

Table 21: Near-Term Energy Efficiency Projects in Process

Location	Project	Annual kWh Savings	Cost Savings	SCE Incentives	Estimated Completion Date	Funding Opportunities
Public Works Yard	Efficient lighting upgrades	58,070	$16,270	$3,850	TBC[1]	CEC , EWP, LA County, SCE, SCREC
Police department[2]	Efficiency lighting upgrades	88,000	$10,450	$5,440	TBC[1]	CEC , EWP, LA County, SCE, SCREC
Kahler-Russell Park	Efficiency lighting upgrades	35,520	$5,650	$1,790	TBC[1]	CEC , EWP, LA County, SCE, SCREC
Covina Park facilities	Efficient outdoor lighting at skateboard park, Teen Center and Pool. Interior lighting at Teen Center	28,700	$7,380	$1,660	TBC[1]	CEC , EWP, LA County, SCE, SCREC
City Hall and Public Works building	Efficient indoor and outdoor lighting	35,070	$5,470	$3,000	TBC[1]	CEC , EWP, LA County, SCE, SCREC
Metrolink parking lot	Lot lighting upgrade	125,000	$19,630	TBD	TBC[1]	CEC , EWP, LA County, SCE, SCREC
Zone 4 booster pump	Pump upgrade	48,700	$770	TBD	TBC[1]	EWP, SCE
Total		419,060	$65,620	$15,740		

[1] *To be confirmed by City staff.*
[2] *Not identified in staff workshop, but provides significant savings with relatively short-term payback.*

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 achieve a 10% reduction in electricity use below 2006 levels, in support of Gold Level status in SCE's ELP program.

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 Covina is committed to integrating the Energy Action Plan into the next update of the General Plan.

GOAL 7: OPTIMIZE ENERGY PERFORMANCE WITH A FOCUS ON MAXIMIZING COST SAVINGS AND OPERATIONAL EFFICIENCIES OF CITY FACILITIES AND INFRASTRUCTURE.

POLICY 7.1: INTEGRATE ENERGY MANAGEMENT PRACTICES INTO DAILY OPERATIONS.

Actions:

- The City will work with the SGVCOG to prepare an energy information display that highlights how residents and businesses can improve energy efficiency. The display would be intended for use at community events and City facilities as appropriate, such as City Hall.
- Conduct energy benchmarking on a regular basis, utilizing the automated features in Energy Star's Portfolio Manager, and share results and improvements through the City's website and City publications.
- Participate in the SGVCOG's utility manager program, the Enterprise Energy Management Information System, to track energy use and identify cost-saving opportunities through sub-metering and energy management.
- Upgrade office equipment and appliances to Energy Star or other energy-efficient models. Opportunities exist to improve office equipment at City Hall and kitchen appliances at the Public Works Yard.

POLICY 7.2: EXPAND THE CITY'S ENERGY-EFFICIENT PROCUREMENT POLICY AND OPERATIONAL PROCEDURES TO MAXIMIZE THE EFFICIENCY OF CITY PROPERTY, SAVE COSTS, AND REDUCE MAINTENANCE.

Actions:

- Implement the City's adopted Environmentally Preferable Purchasing Policy to guide each department to consider energy efficiency and long-term operation and maintenance costs in the procurement process.
- Work with the San Gabriel Valley Council of Governments and regional partners to reduce the costs of energy-efficient appliances and equipment through bulk purchases.
- Adopt new operational procedures to require energy efficiency considerations during daily maintenance and facility operations, such as roof and traffic signal replacements.
- During preparation of the Capital Improvement Program, assess opportunities to integrate cost-effective energy efficiency projects into other budgeted efforts, as budgets and projects allow.

POLICY 7.3: MAXIMIZE THE ENERGY EFFICIENCY OF EXISTING AND PLANNED FACILITIES.

Actions:

- Prioritize the replacement of the Joslyn Center auditorium roof for energy efficiency improvements through the Capital Improvement Program as funding becomes available.
- Identify opportunities to replace existing roofs with cool roofs, as funding allows, for facilities such as City Hall.
- Investigate the feasibility of optimizing heating and cooling systems for facilities, such as the installation of programmable thermostats.

- Upon availability of funding for new facilities, rely on resources provided by Southern California Edison's Savings by Design program to maximize the energy efficiency of new facilities and achieve financial incentives.
- Use audits of City facilities to create a prioritized list of energy efficiency improvements, ranked based on payback period and potential to reduce maintenance costs.
- Enhance the efficiency of the building envelope at City Hall. Priority actions include the replacement of single-pane windows with double-pane models or the addition of window coverings or film, the addition of an airlock to front doors, and the installation of a new roof, There may also be the potential to replace the older elevator with more a more energy-efficient model.
- Maximize energy efficiency at the City Library, including the replacement of inefficient, single-pane windows with double-pane or more efficient models.

POLICY 7.4: IDENTIFY LONG-TERM OPTIONS TO REPLACE CITY EQUIPMENT AND HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS WITH MODELS THAT YIELD LOWER OPERATIONAL COSTS.

Actions:

- Upgrade the HVAC system at the library to meet the needs of the current office layout and maximize efficiency.
- Replace the HVAC controls and improve HVAC systems at City Hall to better balance airflow circulation and increase system efficiency.
- Improve the HVAC system at the Police and Fire Station with more efficient models.
- Monitor long-term opportunities for cost-effective bulk purchasing of duct and insulation equipment or programmable thermostats for HVAC systems.
- Work with the San Gabriel Valley Energy Leader Partnership to secure regional or state funding for the replacement of HVAC equipment.

POLICY 7.5: ENHANCE THE EFFICIENCY OF OUTDOOR AND INDOOR LIGHTING.

Actions:

- Continue replacement of traffic signal lights with LEDs.
- Replace illuminated street signs with reflective signage or lighting that is more efficient.
- Install motion sensors on indoor lighting systems without controls, including motion sensors in offices at the Public Works Yard, and exterior lights and catwalks at the Public Works Yard, City Hall, and the library.
- At Hollenbeck Park and city baseball fields, add timer systems to ball field lights and upgrade exterior lighting and bathroom lights.
- Investigate long-term opportunities to upgrade ball field lighting to LED or other energy-efficient models.

POLICY 7.6: CONTINUE SMART ACCOUNTING PRACTICES TO TRACK ENERGY SAVINGS AND FACILITATE ANALYSIS OF ENERGY-SAVING BENEFITS.

Actions:

- Continue to track energy efficiency activity across all government accounts using a separate project accounting code.
- Designate a Public Works staff member to complete a staff report on the costs and benefits of all energy efficiency projects on a biannual basis. The purpose of this report will be to share with decision-makers and City management the financial impact and operational savings achieved through energy efficiency.
- Regularly promote the energy efficiency benefits of projects at staff events to department heads, facilities and maintenance staff, and other relevant city staff.

POLICY 7.7: CONSERVE WATER USE AT CITY FACILITIES TO CONSERVE ELECTRICITY AND MODEL BEST PRACTICES TO THE COMMUNITY.

Actions:

- Promote model water conservation efforts at existing City facilities, including the drought-tolerant landscaping at Heritage Park and conversion of the City Yard to drip system irrigation.
- Implement long-term plans to convert existing landscaping in front of the Grand Avenue Water to a drought-tolerant landscape with drip irrigation.
- Identify opportunities to install irrigation controls at landscaped city facilities.
- Consider replacement of lawns at City facilities and parks with artificial turf or drought-tolerant landscaping.

POLICY 7.8: WORK WITH THE SGVCOG AND REGIONAL PARTNERS TO CREATE AN ENERGY MANAGEMENT POSITION TO TRACK ENERGY USE AT CITY FACILITIES, IDENTIFY OPPORTUNITIES FOR EFFICIENCIES AND COST SAVINGS, AND IMPLEMENT ENERGY EFFICIENCY PROJECTS.

Actions:

- Continue to support City staff participation in regional planning efforts and trainings related to energy efficiency.
- Encourage creation of a regional energy manager position to coordinate the City of San Gabriel's efficiency efforts and help departments implement energy-reduction activities.

REDUCTION SUMMARY

This EAP identifies a clear path for the City to achieve the community electricity reduction targets of 5% below 2006 residential electricity levels and 5% below 2006 nonresidential levels. The City has also reduced municipal energy use through SCE-approved projects; with all completed and in-process projects, the City has reduced municipal electricity use by 5% since 2006. With the additional near-term projects identified in this Plan, the City will achieve the municipal energy efficiency targets for the ELP. In addition, the City will be able to work toward the AB 32 State-recommended target for all GHGs, which is equal to 15% below baseline emissions by 2020. In total, state programs and policies in this

EAP have the potential to reduce forecasted emissions to 13% below 2006 levels, reducing emissions by approximately 3,290 $MTCO_2e$. **Figure 22** and **Figure 23** illustrate the kWh and GHG reductions achieved by goal for 2020.

Figure 22: Estimated 2020 Savings by Goal Topic (kWh)

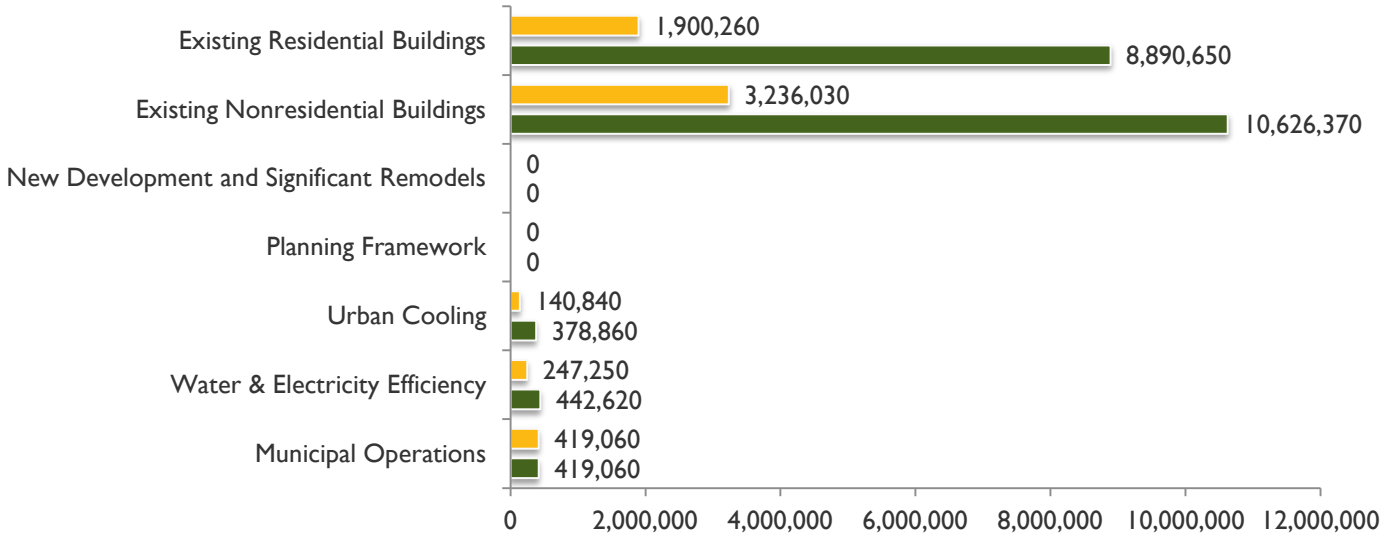
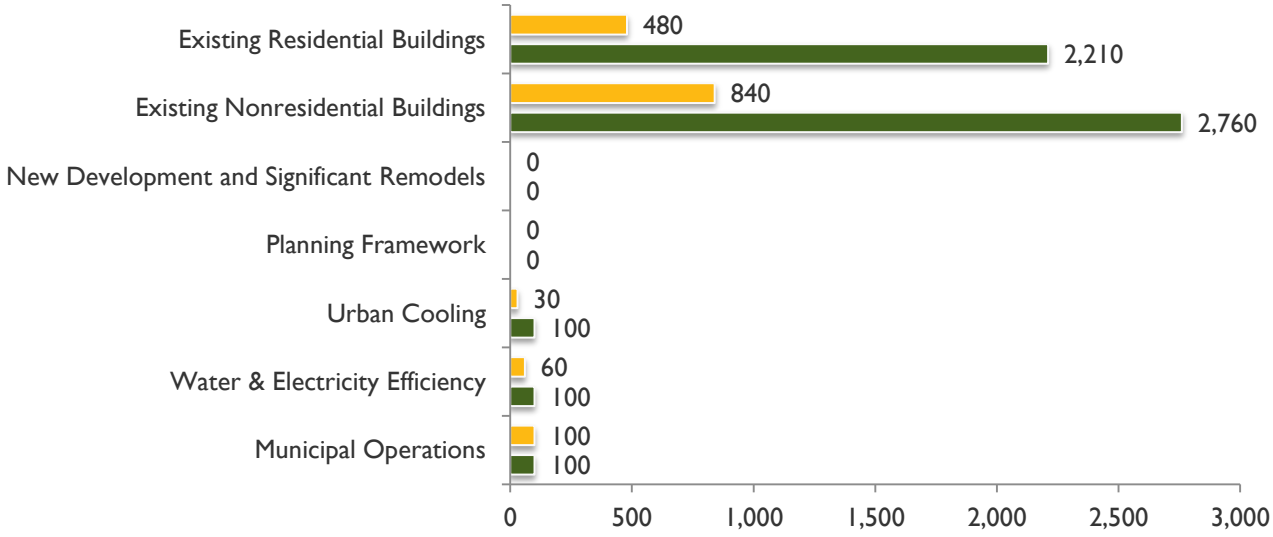


Figure 23: Estimated 2020 Savings by Goal Topic ($MTCO_2e$)



CHAPTER 5

PLAN IMPLEMENTATION

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

CHAPTER 5

This chapter outlines a path for the City of Covina 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.

Covina 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 the City'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 of Covina 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.

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

MONITORING AND UPDATING THE EAP

The City 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 policy 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 the City meets its reduction target.

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

- Facilitate implementation of policies and actions related to municipal operations.
- Prepare an annual progress report for review and consideration by the City Council.
- Utilize the 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 GREENHOUSE GAS INVENTORY, ENERGY PROFILE, AND ENERGY ACTION PLAN.

- 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 ENERGY ACTION PLAN.

- 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 ENERGY ACTION PLAN.

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

IMPLEMENTATION POLICY 5: FULFILL SCE'S ENERGY LEADER PARTNERSHIP PROGRAM REQUIREMENTS TO IMPLEMENT THIS ENERGY ACTION PLAN.

- Confirm review and acceptance/adoption of this EAP by the City council.
- Identify the plan's implementation time frame to begin within six months of approval.
- Integrate EAP implementation projects into the city's operating budget.
- Integrate EAP initiatives into the city's general plan and other appropriate policy documents.
- Implement the identified policies, actions, and projects identified in this EAP.

- Demonstrate to SCE that the energy efficiency actions identified in this EAP have been implemented and the criteria identified in **Appendix D** have been met.

IMPLEMENTATION AND MONITORING TOOLS

MONITORING AND REPORTING TEMPLATE

To determine whether the City 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 policies will need to be implemented to meet the target.

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 Energy Efficiency Climate Action Plan (EECAP) implementation, the workbook includes a reporting template for staff to asses the performance of each policy based on the key metrics identified. The tool provides energy savings, GHG reduction, and monetary costs or savings in the template. This allows staff to easily export and use data to present EECAP progress to city advisory bodies, assist in annual fiscal budget planning, and highlights city and community success in reducing energy use through city newsletters and online media.

ENTERPRISE ENERGY MANAGEMENT INFORMATION SYSTEM

The SGVCOG is collaborating with the City of Covina and Los Angeles County to implement the 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, and other criteria.

IMPLEMENTATION PROGRAM

The information in this implementation program provides an overall, planning-level framework for achieving the reductions in this Plan. **Table 22** 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 energy 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 regional reductions, costs, and financial benefits.

Table 22: Implementation Program Table

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Targets	Participant Type	Average Reduction per Participant		Beginning Time Frame	Implementing Department	Supporting Departments & Organizations
Policy 1.1: Promote household energy conservation by residents in existing structures through education and outreach.	-131,220	720	Households	180	kWh	Near-Term	Community Development , Public Works	SGVCOG, SGVEWP
Policy 1.2: Encourage residential upgrades to more energy-efficient, cost-saving appliances and equipment	-1,543,860	1,000 730	Households Pool pumps	150 1,700	kWh kWh	Mid-Term	Community Development and Public Works	SGVCOG, SGVEWP, SCE, CEC, South Coast Air Quality Management District
Policy 1.3: Enhance the single-family housing stock through support of voluntary retrofits to single-family structures.	-3,504,300	1,350	Single-family households	2,350	kWh	Mid-Term	Community Development and Public Works	SGVCOG, SGVEWP, Los Angeles County

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Targets	Participant Type	Average Reduction per Participant		Beginning Time Frame	Implementing Department	Supporting Departments & Organizations
Policy 1.4: Encourage multi-family energy efficiency retrofits through outreach and education.	-216,080	170	Multi-family households	1,210	kWh	Mid-Term	Community Development and Public Works	SGVCOG, SGVEWP, Los Angeles County, SCREC
Policy 1.5: Incentivize home energy benchmarking as a tool to help homeowners assess opportunities to improve energy performance and improve resale value.	Supportive	Supportive	Households	Supportive	Supportive	Mid-Term	Community Development and Public Works	SGVCOG, SGVEWP, Los Angeles County
Policy 2.1: Strengthen business relationships by educating businesses about opportunities to conserve energy costs and reduce energy use through improvements in daily operations.	Supportive	Supportive	Businesses	Supportive	Supportive	Near-Term	Community Development and Public Works	SGVCOG, SGVEWP, SCE, City of Covina Chamber of Commerce, Covina Downtown Association
Policy 2.2: Encourage the use of innovative energy-efficient appliances and equipment in businesses that will reduce operational expenditures and improve the efficiencies of business operations.	-1,082,040	983,850	Non-residential square feet	4%	% kWh	Mid-Term	Community Development and Public Works	SGVCOG, SGVEWP, SCE

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Targets	Participant Type	Average Reduction per Participant		Beginning Time Frame	Implementing Department	Supporting Departments & Organizations
Policy 2.3: Enhance the nonresidential building stock by facilitating voluntary retrofits and energy efficiency improvements , with a special focus on buildings in Downtown	-4,397,660	992,460	Non-residential square feet	13%	% kWh	Mid-Term	Community Development and Public Works	SGVCOG, SGVEWP, SCE, City of Covina Chamber of Commerce, Covina Downtown Association
Policy 2.4: Work with the San Gabriel Valley Council of Governments to provide educational materials focused on cost-saving retrofits and improvements in large nonresidential facilities, including the City's medical and office building stock.	-1,451,510	10	Large businesses (greater than 50,000 square feet)	10%	% kWh	Mid-Term	Community Development and Public Works	SGVCOG, SGVEWP, SCE, City of Covina Chamber of Commerce
Policy 3.1: Maximize the energy-efficient design and orientation of new, remodeled, and renovated buildings through voluntary sustainable building standards.	Supportive	Supportive	New and significantly remodeled buildings	Supportive	Supportive	Long-Term	Community Development and Public Works	SGVCOG, SGVEWP, SCE, City of Covina Chamber of Commerce , US Green Building Council
Policy 3.2: Encourage the use of energy-efficient appliances and equipment in new buildings.	Supportive	Supportive	New and significantly remodeled buildings	Supportive	Supportive	Long-Term	Community Development and Public Works	SGVCOG, SGVEWP, SCE, City of Covina Chamber of Commerce

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Targets	Participant Type	Average Reduction per Participant		Beginning Time Frame	Implementing Department	Supporting Departments & Organizations
Policy 3.3: Participate in a regional effort to implement energy efficiency standards for new development.	Supportive	Supportive	New and significantly remodeled buildings	Supportive	Supportive	Long-Term	Community Development and Public Works	SGVCOG, SGVEWP, SCE
Policy 4.1: Encourage energy efficiency through the development standards, permitting, and plan review processes.	Supportive	Supportive	Updated planning framework	Supportive	Supportive	Mid-Term	Community Development and Public Works	SGVCOG, SGVEWP, SCE, Los Angeles Chapter of the US Green Building Council
Policy 4.2: Encourage and support the youth of Covina to spur community-wide energy reductions and support energy-efficient behaviors and best practices.	Supportive	Supportive	Outreach events	Supportive	Supportive	Mid-Term	Community Development, Public Works, and Parks and Recreation	SGVCOG, SGVEWP, Covina-Valley Unified School District
Policy 4.3: Collaborate with businesses to promote energy efficiency.	Supportive	Supportive	Updated planning framework	Supportive	Supportive	Near-Term	Community Development and Public Works	SGVCOG, SGVEWP, Covina Downtown Association
Policy 4.4: Enhance energy efficiency in the City's historic housing stock through preservation of historic resources and maintenance of community character.	Supportive	Supportive	Updated planning framework	Supportive	Supportive	Near-Term	Community Development and Public Works	SGVCOG, SGVEWP, SCREC,

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Targets	Participant Type	Average Reduction per Participant		Beginning Time Frame	Implementing Department	Supporting Departments & Organizations
Policy 5.1: Maximize the cooling of buildings through strategic tree planting and shading to reduce building electricity demands.	-68,150	1,670	Households	40	kWh	Mid-Term	Community Development and Public Works	SGVCOG, SGVEWP
Policy 5.2: Reduce electricity demand by promoting cool roofs and surfaces for residential and nonresidential buildings.	-191,700	810	Trees	150	kWh	Mid-Term	Community Development and Public Works	SGVCOG, SGVEWP, Los Angeles County, Covina-Valley Unified School District
		327,950	Nonresidential square feet	0.2	kWh			
Policy 6.1: Work with water providers to identify the anticipated water savings from the implementation of additional tiered water rates, water delivery system upgrades, and other water efficiency projects to support energy reductions.	-85,700	4,420	Households	20	kWh	Near-Term	Public Works and Parks and Recreation	SGVCOG, SGVEWP, SCE, Covina Irrigating Company, Metropolitan Water District
Policy 6.2: Support water-efficient landscaping practices to reduce electricity demand for water transport and treatment.	-259,230	230	Acres of turf/grass landscaping	1,110	kWh per Acre	Near-Term	Public Works and Parks and Recreation	SGVCOG, SGVEWP, SCE, Covina Irrigating Company, Metropolitan Water District , USEPA,

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Targets	Participant Type	Average Reduction per Participant		Beginning Time Frame	Implementing Department	Supporting Departments & Organizations
Policy 7.1: Integrate energy management practices into daily operations.	Supportive	Supportive	N umber of energy assessments completed	Supportive	Supportive	Near-Term	Public Works	SGVCOG, SGVEWP, SCE
Policy 7.2: Expand the City's energy-efficient procurement policy and operational procedures to maximize the efficiency of City property, save costs, and reduce maintenance.	Supportive	Supportive	Implementation of energy efficiency procedures	Supportive	Supportive	Near-Term	Public Works	SGVCOG, SGVEWP, SCE
Policy 7.3: Maximize the energy efficiency of existing and planned facilities.	Supportive	Supportive	Implementation of energy efficiency procedures	Supportive	Supportive	Near-Term	Public Works	SGVCOG, SGVEWP, SCE, Los Angeles County, SCREC
Policy 7.4: Identify long-term options to replace City equipment and heating, ventilation, and air conditioning (HVAC) systems with models that yield lower operational costs.	Supportive	Supportive	Number of HVAC units replaced	Supportive	Supportive	Near-Term	Public Works	SGVCOG, SGVEWP, SCE, Los Angeles County, SCREC
Policy 7.5: Enhance the efficiency of outdoor and indoor lighting.	Supportive	Supportive	Number of lighting units replaced	Supportive	Supportive	Near-Term	Public Works	SGVCOG, SGVEWP, SCE, Los Angeles County, SCREC

Policy	2020 Electricity Reductions (kWh)[1]	2020 Performance Targets	Participant Type	Average Reduction per Participant		Beginning Time Frame	Implementing Department	Supporting Departments & Organizations
Policy 7.6: Continue smart accounting practices to track energy savings and facilitate analysis of energy-saving benefits	Supportive	Supportive	Supportive	Supportive	Supportive	Near-Term	Public Works	SGVCOG, SGVEWP, SCE, Los Angeles County
Policy 7.7: Conserve water use at City facilities to conserve electricity and model best practices to the community.	Supportive	Supportive	Gallons of water conserved	Supportive	Supportive	Near-Term	Public Works	SGVCOG, SGVEWP, SCE,
Policy 7.8: Work with the SGVCOG and regional partners to create an energy management position to track energy use at City facilities, identify opportunities for efficiencies and cost savings, and implement energy efficiency projects.	Supportive	Supportive	Supportive	Supportive	Supportive	Near-Term	Public Works	SGVCOG, SGVEWP, SCE, Los Angeles County

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

CONTINUED PARTNERSHIP OPPORTUNITIES

One component to the successful implementation of Covina'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 is an opportunity for the City to create and achieve a long-term vision for energy efficiency. The City of Covina has developed this Plan 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.

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 measurable beneficial impact for local jurisdictions' emissions.

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 GHG emissions, with a target to reduce emissions to 1990 levels by 2020.

Baseline Inventory

The base year for assessment of energy use against which future progress can be measured for a single calendar year (2005–2008), consistent with legislative guidance and the AB 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. 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, 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-Wide 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/.

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 Energy Action Plan 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 considerations. 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 Efficiency and Conservation Block Grant

The Energy Efficiency and Conservation Block Grant program was funded through the American Recovery and Reinvestment Act and managed by the US Department of Energy to assist cities, counties, states, and territories to develop, promote, and implement energy efficiency and conservation programs and projects.

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) 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 & Electric Company

Enterprise Energy Management Information Systems

The San Gabriel Valley Council of Governments (SVGCOG) 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.

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 (GHG)

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 (VMT), energy usage from electricity and gas, and waste. Inventories include estimates for carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), 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.

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

Method

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 San Gabriel Valley Council of Governments 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, measurable, 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. Starting in July 2011, the PSC convened approximately once a month. 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 Implementer 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

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

Sectors

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

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 and 2035. The regional targets adopted by the Southern California Association of Governments 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.

Simple Payback Period

Amount of time required to recover an initial investment.

Source: California Long Term Energy Efficiency Strategic Plan

South Coast Air Quality Management District

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 United States. The district's goal is to protect the health of residents while remaining sensitive to businesses.

Southern California Edison

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 Southern California Edison (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 Southern California Edison 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 Goods Charge.

Southern California Regional Energy Consortium

A 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, methods, 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

REFERENCES

REFERENCES

Burr Consulting. 2004. West San Gabriel Valley Draft Municipal Service Review. http://www.burrconsulting.com/upload/LA%20LAFCO/WSG%20Draft%20Final%20MSR%20Nov%2030%20_clean_.pdf

———. 2004. East San Gabriel Valley Draft Municipal Service Review. Burr Consulting. http://www.lalafco.org/MSR%20SOI%20Updates/ESG%20Final%20MSR%20_clean_.pdf

California Water Service Company. 2011. California Water Service Company–2010 Urban Water Management Plan–East Los Angeles District. Accessed October 7, 2011. http://www.calwater.com/your_district/uwmp/bk/2010_Urban_Water_Management_Plan_(BK).pdf

CARB (California Air Resources Board). 2009. California's 1990-2004 Greenhouse Gas Emissions Inventory and 1990 Emissions Level, GHG Inventory Technical Support Document. Sacramento. http://www.arb.ca.gov/cc/inventory/doc/methods_v1/ghg_inventory_technical_support_document.pdf

———. 2010. California Waste-to-Energy Emissions Calculations. http://arb.ca.gov/cc/capandtrade/capandtrade.htm

———. 2010. Local Government Operations Protocol, version 1.1. Sacramento. http://www.arb.ca.gov/cc/protocols/localgov/pubs/lgo_protocol_v1_1_2010-05-03.pdf

———. 2010. Off-Road Emissions Inventory. Sacramento. http://www.arb.ca.gov/msei/offroad/offroad.htm.

———. 2010. Pavley I and Low Carbon Fuel Standard Postprocessor Version 1.0. http://www.arb.ca.gov/cc/sb375/tools/postprocessor.htm.

———. 2011. ARB Landfill Emissions Tool, version 1.3. http://www.arb.ca.gov/cc/protocols/localgov/localgov.htm.

———. 2011. Emissions Factor Software (EMFAC 2011). Sacramento. http://www.arb.ca.gov/jpub/webapp//EMFAC2011WebApp/rateSelectionPage_1.jsp.

California Department of Finance. 2010. E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2010, with 2000 Benchmark. Sacramento.

California Department of Resources Recycling and Recovery. 2011. Disposal Reporting System (DRS). http://www.calrecycle.ca.gov/LGcentral/Reports/DRS/default.aspx.

California Department of Water Resources. 2004. California's Groundwater Bulletin 118 - San Gabriel Valley Groundwater Basin. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/4-13.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.

———. 2007. Impact Analysis: 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings.

———. 2010. 2009 California Residential Appliance Saturation Study. Sacramento. http://www.energy.ca.gov/2010publications/CEC-200-2010-004/CEC-200-2010-004-ES.PDF.

California Energy Commission and California Public Utilities Commission. 2010. "About the California Solar Initiative." http://www.gosolarcalifornia.org/about/csi.php.

———. 2011. California Solar Initiative: California Solar Statistics - Geographical Statistics. http://www.californiasolarstatistics.ca.gov/reports/locale_stats.

California Public Utilities Commission. 2008. California Long Term Energy Efficiency Strategic Plan. Sacramento. http://www.cpuc.ca.gov/NR/rdonlyres/D4321448-208C-48F9-9F62-1BBB14A8D717/0/EEStrategicPlan.pdf.

———. 2009. 33% Renewable Portfolios Standard Implementation Analysis Report. http://www.cpuc.ca.gov/NR/rdonlyres/1865C207-FEB5-43CF-99EB-A212B78467F6/0/33PercentRPSImplementationAnalysisInterimReport.pdf.

———. 2011. California Renewables Portfolio Standard. Sacramento. http://www.cpuc.ca.gov/PUC/energy/Renewables/index.htm.

The Climate Registry. 2009. Utility Specific Electricity Emissions Factors. http://www.climateregistry.org/resources/docs/PUP_Metrics-June-2009.xls.

County of Los Angeles. 2012. Solid Waste Information Management System. http://dpw.lacounty.gov/epd/swims/.

Fehr & Peers. 2012. SCAG Travel Model Data for Covina Memorandum. Riverside, CA.

———. 2012. Adjustment Process for SCAG Model Data Related to Socio-Economic Data Memorandum. Riverside, CA.

The Gas Company. 2012. City of Covina Municipal Account Data. Los Angeles, CA: The Gas Company.

———. 2012. 2006 Natural Gas Usage Data. Los Angeles, CA: The Gas Company.

Heaney, J.P. et al. "Nature of Residential Water Use and Effectiveness of Conservation Programs." http://bcn.boulder.co.us/basin/local/heaney.html

Los Angeles County Sanitation District. n.d. Website - Wastewater Facilities. http://www.lacsd.org/about/wastewater_facilities/default.asp

Metropolitan Water District of Southern California. 2007. Groundwater Assessment Study - Report Number 1308. http://www.mwdh2o.com/mwdh2o/pages/yourwater/supply/groundwater/gwas.html

———. 2010. The Regional Urban Water Management Plan. http://www.mwdh2o.com/mwdh2o/pages/yourwater/RUWMP/RUWMP_2010.pdf

Onsite Energy Corporation. July 27, 2012. Investment-Grade Audit Report for City of Covina, California. Carlsbad, California.

SCAG (Southern California Association of Governments). 2008. Year 2003 Regional Travel Demand Model. Los Angeles, CA.

———. 2010. City of Covina Racial and Ethnic Profile.

———. 2012. Regional Transportation Plan.

SCE (Southern California Edison). 2011. City of Covina Municipal Accounts – Year 2006.

———. 2011. City of Covina Municipal Accounts – Year 2010.

———. 2011. Electricity Report for the City of Covina– Year 2006.

———. 2011. Electricity Report for the City of Covina – Year 2010.

———. 2012. Energy Efficiency Partnerships. Rosemead, CA. http://www.sce.com/business/energy-solutions/energy-efficiency-partnerships.htm

US Census Bureau. 2012. American FactFinder, Covina Quick Facts. Washington, D.C.

———. 2012. Longitudinal Employer-Household Dynamics. Washington, D.C. http://lehd.did.census.gov/led/

REFERENCES

US Department of Energy. 2009. PV Watts Calculator. http://rredc.nrel.gov/solar/calculators/PVWATTS/version1/US/California/Los_Angeles.html

US Department of Housing and Urban Development. 2011. State of the Cities Data Systems, Building Permits Database. http://www.huduser.org/portal/datasets/socds.html

US Environmental Protection Agency. 2005. "Emissions Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle." http://www.epa.gov/otaq/climate/420f05004.pdf

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 already taken in homes or businesses, 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.

APPENDIX A

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

Your City is initiating an Energy Efficiency Plan to achieve determine the City'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

INVENTORY AND FORECAST PURPOSE

This greenhouse gas (GHG) emissions inventory and forecast (Inventory) will act as a foundation for the City of Covina's Energy Action Plan (EAP) by informing the City and the community of the largest sources of GHG emissions, and thus the largest opportunities for reduction. The Inventory identifies the major and minor sources of GHG emissions to help in the process of creating reduction strategies in the EAP in response to local emissions characteristics.

Specifically, the Inventory does the following:

- Presents GHGs from community-wide and municipal activities in calendar year 2006.
- Forecasts how community-wide emissions will increase by 2020 and 2035 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 an EAP and to establish GHG emissions reduction and energy efficiency targets, if desired.

RELEVANT EMISSIONS

The Inventory includes the major sources of GHGs caused by activities in Covina per best practice and consistent with the methods outlined in the Best Practices Memo and in the Regional Framework and those recommended by the California Air Resources Board (CARB). The Inventory analyzes the following community and municipal emissions sources:

COMMUNITY

- **Energy** – Electricity and natural gas consumed by residents, businesses, and industry in the city in 2006.
- **Direct Access Electricity** – Electricity purchased by commercial customers from utilities other than Southern California Edison (SCE). Direct access natural gas was not requested and will not be reported in the Inventory.
- **Street and Traffic Lighting** – Electricity used by street and traffic lights within the city but not owned by the City of Covina.
- **On-Road Transportation** – Vehicle miles traveled (VMT) in, to, and from the city in 2006.
- **Waste** – Methane emissions from solid waste, also known as municipal solid waste, and green waste (alternative daily cover, or ADC) sent to landfills and regional incinerators (also known as transformation facilities) from the city in 2006.
- **Water** – The electricity used to pump, deliver, and treat water for consumption in city limits.
- **Wastewater** – The energy required to collect and treat the wastewater disposed in the city in 2006.
- **Off-Road Equipment** – Emissions from construction, as well as lawn & garden equipment/vehicles operated within the city.

MUNICIPAL

- **Buildings** – Electricity and natural gas consumed by City buildings and facilities in 2006.
- **Off-Road Equipment** – Fuel used for construction projects, landscaping, or other off-road purposes in 2006.
- **Fleet** – Gasoline, diesel, and compressed natural gas (CNG) used by all City-owned vehicles.
- **Lighting** – Electricity, paid for by the City, used by street, traffic, and outdoor lighting within city limits.
- **Water** – Electricity used by City-owned water and wastewater pumps.
- **Employee Commute** – Emissions from the vehicles City employees use to get to and from work.
- **Government-Generated Solid Waste** – Indirect emissions from the waste disposed by employees and operations of the City.

KEY CONCEPTS

The following terms are used throughout the Inventory and are fundamental to understanding the contents of the greenhouse gas inventory and forecast:

- **Baseline year** – Emissions are quantified for the baseline year of 2006, which is consistent with the baseline year definition of Assembly Bill (AB) 32, the California Global Warming Solutions Act. This baseline year allows the City to track and observe the impact of its actions taken to date and better inform future GHG reduction strategies.
- **Business-as-usual (BAU)** – The scenario on which all forecasts are based. Assumes no specific actions are taken to reduce emissions and growth comes from the expansion of activity and services within the city.
- **Carbon dioxide equivalent (CO_2e)** – Represents the three main GHGs—carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O)—in comparable terms, since all three gases trap heat in the atmosphere differently. Greenhouse gases are reported in metric tons of CO_2e ($MTCO_2e$).
- **Sectors** – Emissions are grouped by the type of activity that generated the emissions, such as on-road transportation, residential energy use, or commercial energy use.

COMMUNITY-WIDE INVENTORY

INVENTORY SUMMARY

The community of Covina emitted approximately 334,290 $MTCO_2e$ in the baseline year 2006. As shown in **Figure B-1** and **Table B-1**, the transportation sector was the largest contributor to emissions (46%), producing approximately 154,560 $MTCO_2e$. The commercial/industrial energy sector was the next largest contributor, emitting 74,530 $MTCO_2e$, or 22% of the total emissions. The residential energy sector comprised 20% of the total emissions (66,810 $MTCO_2e$). The remaining 12% of emissions came from direct access electricity, street and traffic lighting, community-generated waste, water, wastewater, and off-road sources such as construction equipment. Combined, these remaining sectors contributed 38,390 $MTCO_2e$.

Figure B-1: Community-Wide GHG Emissions by Sector, 2006 ($MTCO_2e$)

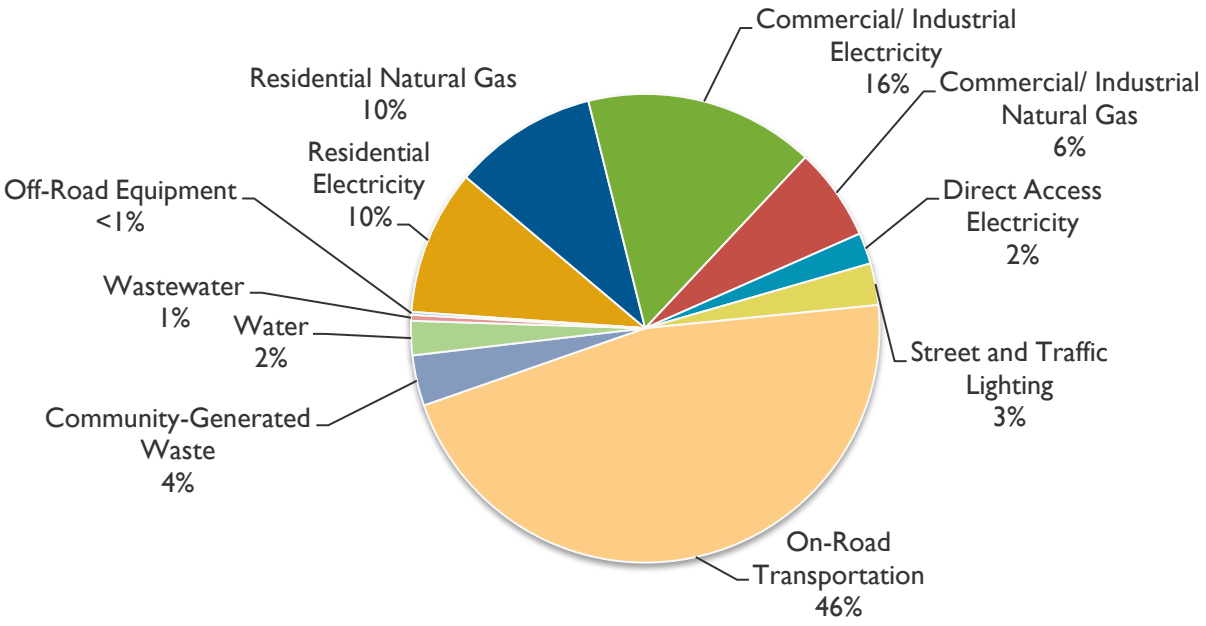


Table B-1: Community-Wide GHG Emissions by Sector, 2006 ($MTCO_2e$)

Sector	$MTCO_2e$	Percentage of Total
Residential Energy	66,810	20%
Commercial/Industrial Energy	74,530	22%
Direct Access Electricity	7,190	2%
Street & Traffic Lighting	9,620	3%
On-Road Transportation	154,560	46%
Waste	11,670	3%
Off-Road Equipment	640	<1%
Water	7,890	2%
Wastewater	1,380	<1%
Total*	**334,290**	**100%**

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

DETAILED ANALYSIS BY SECTOR

Each sector in the community inventory consists of multiple subsectors that contribute to the total emissions. **Table B-2** summarizes activity data and GHG emissions for each community sector and subsector. This information shows the individual impact of each activity included in summary **Table B-1**. For example, the residential energy category in **Table B-1** consists of emissions from residential electricity and residential natural gas. Additional information on the calculation of on-road transportation VMT is provided in **Attachment 1** and **Attachment 2** to this Appendix.

Table B-2: Detailed Activity Data and GHG Emissions, 2006 ($MTCO_2e$)

Subsector	Activity Data	Unit	$MTCO_2e$
Residential Electricity	114,741,944	kWh	33,550
Residential Natural Gas	6,252,809	Therms	33,260
Commercial/Industrial Electricity	181,675,178	kWh	53,130
Commercial/Industrial Natural Gas	4,022,813	Therms	21,400
Direct Access Electricity	17,748,728	kWh	7,190
Street & Traffic Lighting	32,891,993	kWh	9,620
On-Road Transportation	290,440,860	Annual VMT	154,560
Waste – Solid Waste	49,230	Tons of Waste	9,060
Waste – Green Waste	7,410	Tons of ADC	1,140
Waste – Transformed	4,830	Tons Transformed	1,470
Off-Road Equipment – Lawn & Garden	16,087	Households	20
Off-Road Equipment – Construction	35	Permits Issued	620
Water	27,006,700	kWh	7,890
Wastewater – Indirect	4,712,873	kWh	1,380
Total*			334,290

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

MUNICIPAL INVENTORY

INVENTORY SUMMARY

Operations and activities by the City of Covina in 2006 resulted in approximately 2,860 $MTCO_2e$. **Figure B-2** and **Table B-3** depict the contribution of each activity to the total GHG emissions. Energy used for the building and lighting sectors accounted for nearly 50% of the City's total municipal operation emissions; the buildings sector produced 750 $MTCO_2e$, and the lighting sector produced 620 $MTCO_2e$. The City fleet contributed 19% of total municipal emissions, followed closely by water pumping and employee commute, which contributed 19% and 12%, respectively. The remaining sectors, off-road equipment and government-generated solid waste, were responsible for approximately 3% of total GHG emissions.

Figure B-2: Municipal GHG Emissions by Sector, 2006 ($MTCO_2e$)

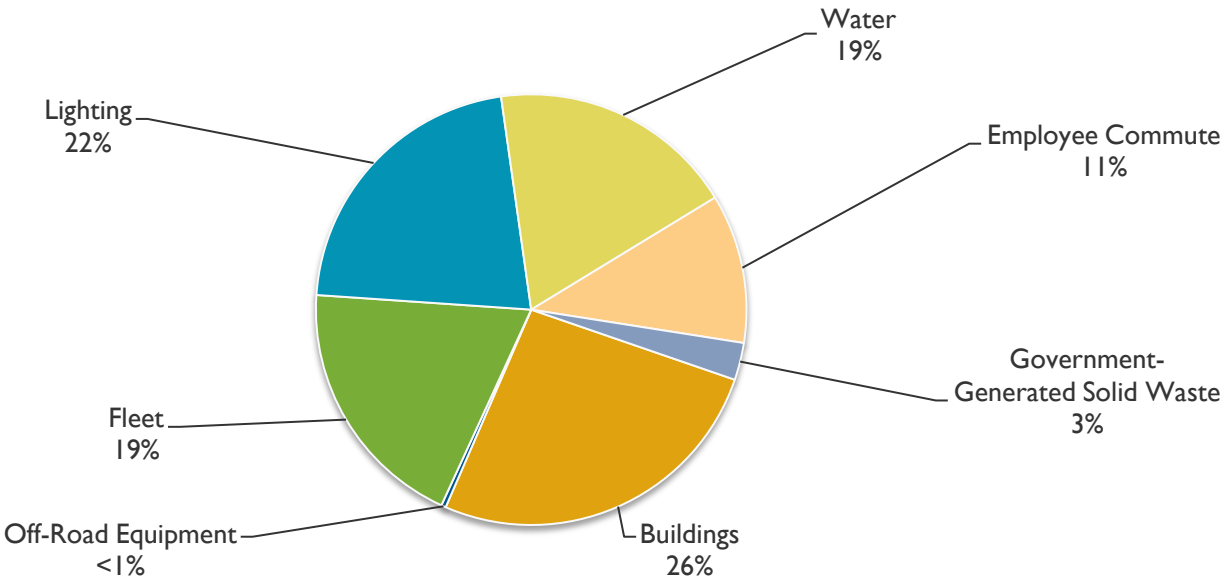


Table B-3: Municipal GHG Emissions by Sector, 2006 ($MTCO_2e$)

Sector	$MTCO_2e$	Percentage of Total
Buildings	750	26%
Off-Road Equipment	10	<1%
Fleet	550	19%
Lighting	620	22%
Water	530	19%
Employee Commute	320	11%
Government-Generated Solid Waste	80	3%
Total*	**2,860**	**100%**

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

DETAILED ANALYSIS BY SECTOR

Much like the community inventory, the municipal inventory has multiple subsectors that are included in each sector reported in **Table B-3**. Detailed activity data for each municipal subsector and its individual contribution to GHG emissions are shown below in **Table B-4**.

Table B-4: Detailed Municipal Activity Data and GHG Emissions, 2006 ($MTCO_2e$)

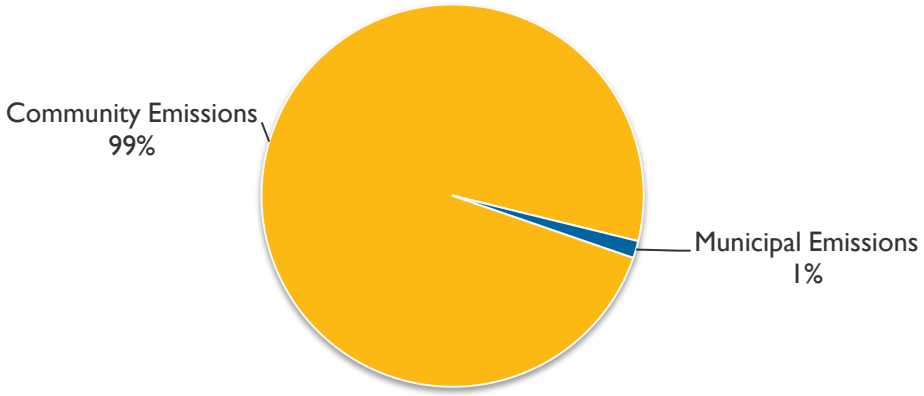
Subsector	Activity Data	Unit	$MTCO_2e$
Buildings – Electricity	2,296,890	kWh	670
Buildings – Natural Gas	14,900	Therms	80
Off-Road Equipment – Gasoline	70	Gallons	<10
Off-Road Equipment – Diesel	1,270	Gallons	10
Fleet – Gasoline	60,980	Gallons	540
Fleet – Diesel	820	Gallons	10
Fleet – CNG	320	Gallons	<10
Lighting – Streetlights	387,470	kWh	110
Lighting – Traffic Lights	247,060	kWh	70
Lighting – SCE-Owned Streetlights	1,371,530	kWh	400
Lighting – Other Public Lights	124,490	kWh	40
Water – Electricity	1,826,290	kWh	530
Employee Commute	744,390	VMT	320
Government-Generated Solid Waste	460	Tons	80
Total*			2,860

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

RELATION TO COMMUNITY-WIDE INVENTORY

Municipal emissions account for less than 1% of community-wide emissions, as shown in **Figure B-3**. Municipal GHG emissions are considered a subset of community-wide GHG emissions since the majority of municipal activities occur within the boundaries of Covina. This means that all municipal operations are included in the commercial, industrial, transportation, waste, or other categories of this community-wide inventory as applicable. For example, electricity use by City buildings is part of the community-wide commercial energy sector. Similar to the way in which businesses and factories perform their own facility-scale GHG inventories, the City municipal operations emissions inventory analyzes municipal emissions in more detail in order to help the City assess and identify its major sources of GHGs. **Figure B-3** illustrates the relative scale of municipal and community-wide emissions.

Figure B-3: Municipal and Community GHG Emissions, 2006 ($MTCO_2e$)



2010 EMISSIONS ASSESSMENT

Activity data for 2010 was available for many community and several municipal sectors, including energy, on-road transportation, waste, community off-road equipment, wastewater, and water. This information has been translated into greenhouse gas emissions for Covina and all other participating cities. This common inventory year will serve as a shared platform that will allow activities from all participating cities in the San Gabriel Valley to be compared accurately. This 2010 interim inventory will also help cities track the GHG and energy reductions from programs implemented since the baseline year.

Table B-5 below summarizes activity data and emissions for both 2006 and 2010, showing an overall drop in emissions from 2006 to 2010. The following sectors had significant reductions in activity data during this period: residential electricity (-8%), commercial/industrial electricity and natural gas (-11% and -14% respectively), direct access electricity (-17%), solid waste (-20%), transformed waste (-45%), and construction-related off-road equipment (-100%). Nonresidential decreases, such as commercial/industrial energy and direct access electricity, and consumption based sectors, such as solid waste and transformed waste, are likely linked to the recent economic downturn and associated slowdown in economic productivity and expansion. The complete 100% drop in off-road construction emissions and activity are a result of a freeze on construction activities within the city between 2006 and 2010.

Traffic lighting, green waste, on-road transportation, water, wastewater, and lawn and garden–related off-road sectors saw little or no change from 2006 to 2010. Some sectors, such as on-road transportation, saw a slight increase in activity data, but a small decrease in emissions due to changes in emissions factors between 2006 and 2010.

Table B-5:
Baseline and 2010 Community Activity Data and Emissions, 2006

Sector	2006 Activity Data	2010 Activity Data	Percentage Change 2006–2010	Unit	2006 $MTCO_2e$	2010 $MTCO_2e$	Percentage Change 2006–2010
Residential Electricity	114,741,940	105,670,920	-8%	kWh	33,550	30,420	-9%
Residential Natural Gas	6,252,810	6,130,860	-2%	Therms	33,260	32,610	-2%
Commercial/Industrial Electricity	181,675,180	160,981,320	-11%	kWh	53,130	46,340	-13%
Commercial/Industrial Natural Gas	4,022,810	3,450,140	-14%	Therms	21,400	18,350	-14%
Direct Access Electricity	17,748,730	14,762,480	-17%	kWh	7,190	6,180	-14%
Street & Traffic Lighting	32,891,990	33,405,960	2%	kWh	9,620	9,610	<-1%
On-Road Transportation	290,419,330	292,428,490	1%	VMT	154,560	151,380	-2%
Waste – Solid Waste	49,230	39,220	-20%	Tons of Waste	9,060	7,290	-20%
Waste – Green Waste	7,410	7,810	5%	Tons of ADC	1,140	1,210	6%
Waste – Transformed	4,830	2,650	-45%	Tons Transformed	1,470	810	-45%
Off-Road Equipment – Lawn & Garden	16,090	16,150	<1%	Households	20	20	0%
Off-Road Equipment – Construction	30	0	-100%	Construction Permits Issued	620	0	-100%
Water	27,006,700	27,172,600	1%	kWh	7,890	7,820	-1%
Wastewater	4,712,870	4,741,610	1%	kWh	1,380	1,360	-1%
Total*					**334,290**	**313,400**	**-6%**

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

Municipal 2010 activity data is available for building energy use, lighting, water, and employee commute. For off-road, fleet, and municipal waste, 2006 baseline activity data is used as a proxy for 2010 data. As reported in **Table B-6**, decreases in activity data and emissions occurred within the building electricity, traffic lighting, SCE-owned streetlights, water electricity, and employee commute sectors and subsectors, which resulted in a 150 $MTCO_2e$ reduction. The 13% reduction in building electricity use is likely a result of energy efficiency measures performed during the four-year period, as are the decreasing in the City's electricity use for traffic lights. However, emissions from the City-owned streetlight subsector increased by 10 $MTCO_2e$. The net decrease of 140 $MTCO_2e$ from 2006 to 2010 represents a 5% decrease in overall emissions.

Table B-6: Baseline and 2010 Municipal Activity Data and Emissions, 2006

Sector	2006 Activity Data	2010 Activity Data	Percentage Change 2006–2010	Unit	2006 $MTCO_2e$	2010 $MTCO_2e$	Percentage Change 2006–2010
Buildings – Electricity	2,296,890	2,001,240	-13%	kWh	670	580	-16%
Buildings – Natural Gas	14,900	15,430	4%	Therms	80	80	0%
Off-Road Equipment – Gasoline**	70	70	0%	Gallons	<10	<10	0%
Off-Road Equipment – Diesel**	1,270	1,270	0%	Gallons	10	10	0%
Fleet – Gasoline**	60,980	60,984	0%	Gallons	540	540	0%
Fleet – Diesel**	820	822	0%	Gallons	10	10	0%
Fleet – CNG**	320	320	0%	Gallons	<10	<10	0%
Lighting – Streetlights	387,470	404,070	4%	kWh	110	120	8%
Lighting – Traffic Lights	247,060	199,9890	-19%	kWh	70	60	-17%
Lighting – SCE-Owned Streetlights	1,371,530	1,359,430	-1%	kWh	400	390	-3%
Lighting – Other Public Lights	124,470	144,300	16%	kWh	40	40	0%
Water – Electricity	1,826,290	1,728,290	-5%	kWh	530	500	-6%
Employee Commute	742,790	728,020	-2%	VMT	320	310	-3%
Government-Generated solid Waste**	460	460	0%	Tons	80	80	0%
Total*					**2,860**	**2,720**	**-5%**

** Due to rounding, the total may not equal the sum of component parts.*
*** 2010 activity data was not available at the time of this report. 2006 activity data was used as a proxy for 2010.*

BUSINESS-AS-USUAL FORECAST

A business-as-usual (BAU) forecast is an estimate of how GHG emissions will grow over time without influence from state, regional, or local reduction efforts. This BAU emission forecast assumes 2006 energy consumption, waste disposal, and energy efficiency rates and focuses on two target years: 2020 and 2035. The 2020 target year is estimated for consistency with AB 32 targets; 2035 is studied for consistency with the Senate Bill 375 horizon.

COMMUNITY BAU INDICATORS

Table B-7 lists the various growth indicators and sources used to forecast Covina's community-wide emissions. All indicators for 2020 and 2035, except those used for transportation, are from the Southern California Association of Government (SCAG) Proposed Final 2012 Regional Transportation Plan (RTP). Residential energy use is tied to the number of households within city limits for the target years. Similarly, commercial and industrial energy use emissions are assumed to grow with the number of jobs. Growth in waste emissions is based on the total service population of Covina, as this includes projected residential, commercial, and industrial growth.

Fehr & Peers Transportation Consultants used SCAG's 2003 RTP travel model to forecast the growth in VMT. Fehr & Peers evaluated population, household, and jobs forecasts from the 2003 RTP model with comparable data sources to confirm the accuracy of the VMT forecasts. Due to a misalignment of transportation analysis zones (TAZ) and GIS data for the city's boundaries, Fehr & Peers calculated a 20% reduction in demographic outputs. This adjustment excluded the demographics that were only partially within the city's boundaries. Since the 2003 RTP travel model forecasts exceeded the Fehr & Peers 5% adjustment margin of error, Fehr & Peers modified the City's VMT 2003 and 2035 forecasts downward by 33.9% and 40.4%, respectively. These adjustments were based on the US Census and the 2008 SCAG RTP model.

A further adjustment to VMT was made to account for trips associated with the Metrolink station in the city, which is accessed by commuters from various locations throughout Southern California. Since these trips are associated with regional Metrolink ridership and support a regional reduction in VMT, this approach avoids penalizing the City for the local capture of commuter trips. As the City lacks direct control over the Metrolink station and the diverted regional traffic it causes, citywide VMT was adjusted downward for 2003 and 2035 by approximately 2%. This reduction was based on an estimate of 700 daily trips associated with the Metrolink station and an evaluation finding that approximately 25% percent of origins/destinations associated with the Metrolink station in TAZ #2356 were associated with the Metrolink station.

Using the 2003 RTP travel model, Fehr & Peers calculated VMT for 2003 and 2035, and estimated VMT for 2010 and 2020. In order to calculate data for the City's baseline year of 2006, annual VMT was interpolated using the compound annual growth rate (CAGR) from 2003 to 2035. For consistency with the 2005 calculation, VMT for 2010 and 2020 was recalculated using the CAGR. Further discussion of the Fehr & Peers analysis is provided in **Attachment 1** and **Attachment 2** of this Appendix.

Table B-7: BAU Growth Indicators and Affected Sectors, 2006–2035

Growth Indicator	Emissions Sector	2006	2010	2020	2035	2006–2035 Percentage Change	Sources
Jobs	Commercial/ Industrial Energy	12,900	12,900	13,100	13,600	5%	2010 Census, SCAG 2012 RTP, SCAG

Growth Indicator	Emissions Sector	2006	2010	2020	2035	2006–2035 Percentage Change	Sources
							2003 RTP
Service Population (Residents + Jobs)	Solid Waste, Water, Wastewater	65,090	60,700	61,800	63,800	-2%	2010 Census, SCAG 2012 RTP
Households	Residential Energy, Off-Road Equipment	16,090	15,860	16,200	16,700	4%	2010 Census, SCAG 2012 RTP
Annual VMT	On-Road Transportation	290,419,330	292,384,440	297,409,110	305,272,560	5%	Fehr & Peers Transportation Consultants, SCAG 2003 RTP

Community Business-as-Usual Forecast

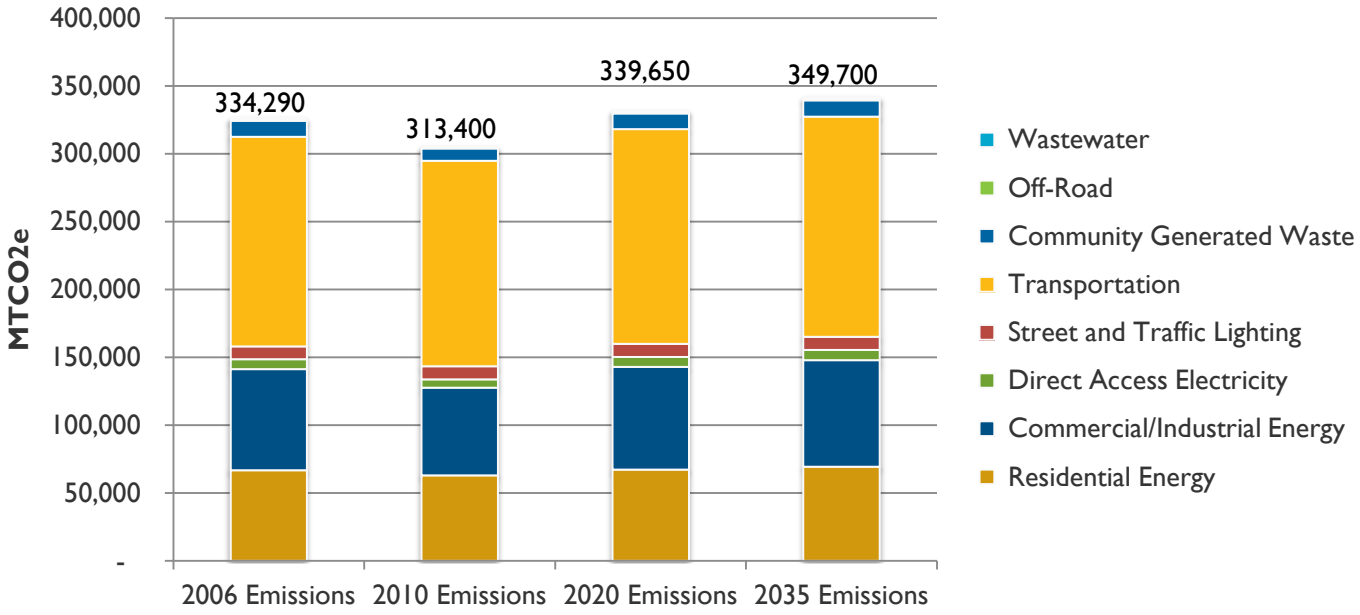
Table B-8 and **Figure B-4** summarize the growth forecast of GHG emissions by activity sector without any actions or policies in place to reduce GHG emissions. Under the BAU growth scenario, emissions are estimated to grow from baseline by 2% in 2020 to 339,650 $MTCO_2e$ and by 5% to 349,700 $MTCO_2e$ in 2035.

Table B-8: Community BAU Emissions by Sector, 2006–2035 ($MTCO_2e$)

Sector	2006 $MTCO_2e$	2010 $MTCO_2e$	2020 $MTCO_2e$	2035 $MTCO_2e$
Residential Energy	66,810	63,030	67,280	69,360
Commercial/Industrial Energy	74,530	64,690	75,680	78,570
Direct Access Electricity	7,190	6,180	7,300	7,580
Street & Traffic Lighting	9,620	9,610	9,610	9,610
On-Road Transportation	154,560	151,380	158,310	162,450
Waste	11,670	9,310	11,610	11,990
Off-Road Equipment	640	20	640	610
Water	7,890	7,820	7,850	8,110
Wastewater	1,380	1,360	1,370	1,420
Total*	334,290	313,400	339,650	349,700
Percent Change from 2006	–	-6%	2%	5%

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

Figure B-4: Community BAU Emissions by Sector, 2006–2035 ($MTCO_2e$)



MUNICIPAL BUSINESS-AS-USUAL FORECAST

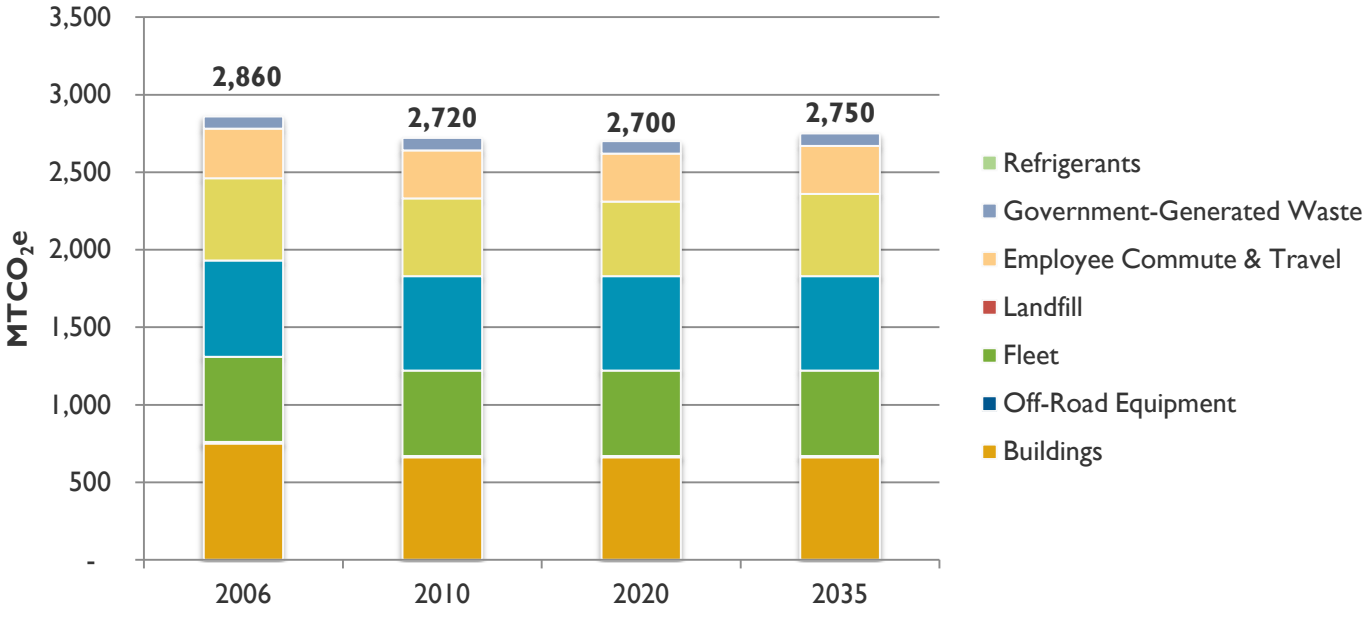
The growth indicators used for the municipal BAU forecast are different from those used for the community. Municipal indicators are based on anticipated changes to municipal operations and equipment in the future. Based on input from City staff, all sectors except water are forecast assuming no growth in municipal operations. This no-growth scenario is projected from 2010 activity data, where available, in order to capture changes that have occurred since 2006. Because the City is a water provider, the growth forecast for the water sector is tied to projected growth in service population. **Table B-9** and **Figure B-5** illustrate a forecast growth of 30 $MTCO_2e$ from 2010 to 2035.

Table B-9: Municipal BAU Emissions by Sector, 2006–2035 ($MTCO_2e$)

Sector	2006 $MTCO_2e$	2010 $MTCO_2e$	2020 $MTCO_2e$	2035 $MTCO_2e$
Building Energy	750	660	660	660
Off-Road Equipment	10	10	10	10
Fleet	550	550	550	550
Lighting	620	610	610	610
Water	530	500	480	530
Employee Commute	320	310	310	310
Government-Generated Solid Waste	80	80	80	80
Total*	2,860	2,720	2,700	2,750
Percent Change from 2006	–	-5%	-6%	-4%

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

Figure B-5: Municipal BAU Emissions by Sector, 2006–2035 ($MTCO_2e$)



STATE-ADJUSTED FORECAST

State Reduction Programs

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 summarized below are incorporated into the BAU forecast to create a more realistic estimate of Covina'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 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 Standards, CCR Title 24. Title 24 of the California Code of Regulations mandates minimum construction standards for each new home and business 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 around 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 subsequent 2013 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 parts contain direct electricity, natural gas, and water savings provisions for every new structure built in California. Title 24 is a statewide standard applied by building designers and contractors while enforced at the local level by cities like Covina through project plan review and field inspections.

This Inventory incorporates the net energy benefit of new Title 24, Part 6 and 11 requirements that did not exist in the baseline year. These estimates are based on California Energy Commission studies that compare each new update of these two parts to its former version. The AB 32 Scoping Plan calls for ongoing triennial updates to Title 24, Part 6 and 11 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 these respective codes 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.

Low Carbon Fuel Standard. 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

[2] California Air Resources Board 2010.

[3] California Public Utilities Commission 2009.

legal standing of the program has been resolved, the LCFS will not be considered in the adjusted business-as-usual (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 of the state programs highlighted above are included in the community-wide ABAU forecast. As shown in **Table B-10** and **Table B-11,** these state reduction efforts are anticipated to reduce emissions by 41,030 $MTCO_2e$ in 2020 and 63,730 $MTCO_2e$ in 2035. The majority of these reductions are from the Pavley standards and the RPS. In comparison to the BAU scenario, **Table B-11** shows 2020 emissions with state reduction measures are 11% below baseline 2006 levels rather than 2% above. Similarly, 2035 emissions go from 5% above baseline levels to 14% below after state efforts are taken into account.

Table B-10: Impact of State Policies on Community GHG Emissions, 2020–2035 ($MTCO_2e$)

State Reductions Summary	2020 $MTCO_2e$	2035 $MTCO_2e$
Pavley Reductions	-24,440	-37,580
RPS Reductions	-13,540	-22,220
CA Building Code Reductions	-1,710	-2,700
CSI Reductions	-1,330	-1,230
Total State Reductions*	**-41,020**	**-63,730**

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

Table B-11: Comparison of Community BAU and ABAU Forecast, 2006–2035 ($MTCO_2e$)

State Reductions Summary	2006 $MTCO_2e$	2010 $MTCO_2e$	2020 $MTCO_2e$	2035 $MTCO_2e$
Growth Projection	334,290	313,400	339,650	349,700
Total State Reductions	–	–	-41,020	-63,730
Adjusted BAU Forecast (2020, 2035)*	**334,290**	**313,400**	**298,630**	**285,970**
Percentage Change from 2006	**–**	**-6%**	**-11%**	**-14%**

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

State reductions from baseline and 2010 were not quantified because the effects of those programs are already reflected in the activity data collected. For example, the efforts to increase the amount of clean energy in electricity through the RPS are already captured in the emissions coefficients used to translate electricity use into $MTCO_2e$.

Municipal ABAU Forecast

Only certain state reduction programs affect the municipal BAU forecast. These include the RPS and the Pavley standards. Since the City has no plans for new buildings, updates to the California Building Code Standards and the CSI are not quantified. **Table B-12** shows the effect of the included state reduction efforts, and **Table B-13** shows how these state efforts change the BAU emissions. Emissions are reduced by 330 $MTCO_2e$ in 2020 and 530 $MTCO_2e$ in 2035. The majority of these reductions are from the RPS and the Pavley standards. With state reduction measures, 2020 emissions are 17% below baseline 2006 levels compared to 6% below in the BAU scenario. Similarly, 2035 emissions go from 4% below baseline to 22% below after state efforts are taken into account.

Table B-12: Impact of State Policies on Municipal GHG Emissions, 2020–2035 ($MTCO_2e$)

State Reductions Summary	2020 $MTCO_2e$	2035 $MTCO_2e$
Pavley Reductions	-130	-210
RPS Reductions	-200	-320
Total State Reductions*	**-330**	**-530**

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

Table B-13: Comparison of Municipal BAU and ABAU Forecast, 2006–2035 ($MTCO_2e$)

State Reductions Summary	2006 $MTCO_2e$	2010 $MTCO_2e$	2020 $MTCO_2e$	2035 $MTCO_2e$
Growth Projection	2,860	2,720	2,700	2,750
Total State Reductions	–	–	-330	-530
Adjusted BAU Forecast (2020, 2035)*	2,860	2,720	2,370	2,220
Percent Change from 2006	**–**	**-5%**	**-17%**	**-22%**

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

Municipal electricity reductions achieved through major energy retrofits or other programs will be quantified and reported in the EAP.

Reduction Targets

The next step is for the City is to determine energy reduction targets for 2020 and 2035. The new energy reduction targets will be the goal of the EAP and will provide a quantitative way of measuring the plan's success. The EAP's energy reduction targets 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 state reductions represent a significant decrease in emissions, AB 32 recommends that local governments adopt a GHG reduction target of 15% below baseline (2005–2008) 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. While

not legislatively mandated, it is anticipated that the State will adopt targets similar to those included in Executive Order S-3-05 after the State's achievement of the 2020 target can be better evaluated.

As shown in **Table B-14**, the City would need to facilitate an additional 5% reduction in community-wide emissions to meet the AB 32 Scoping Plan GHG reduction goal for 2020. In GHG emissions, this 5% reduction translates to a reduction of 14,480 $MTCO_2e$ below ABAU emissions in 2020. Similarly, to be on a trajectory toward the Executive Order S-3-05 target for 2050, the City would need to reduce community-wide emissions 47%, or 135,540 $MTCO_2e$, by 2035.

Table B-14: Community GHG Emissions and State-Recommended Reduction Targets, 2020–2035 ($MTCO_2e$)

	2020	2035
State-Recommended Reduction Targets (percent below baseline)	15%	55%
State-Recommended Emissions Goal ($MTCO_2e$)	284,150	150,430
ABAU Forecast with State Reductions ($MTCO_2e$)	298,630	285,970
Local Reduction Needed from Adjusted BAU ($MTCO_2e$)	**14,480**	**135,540**

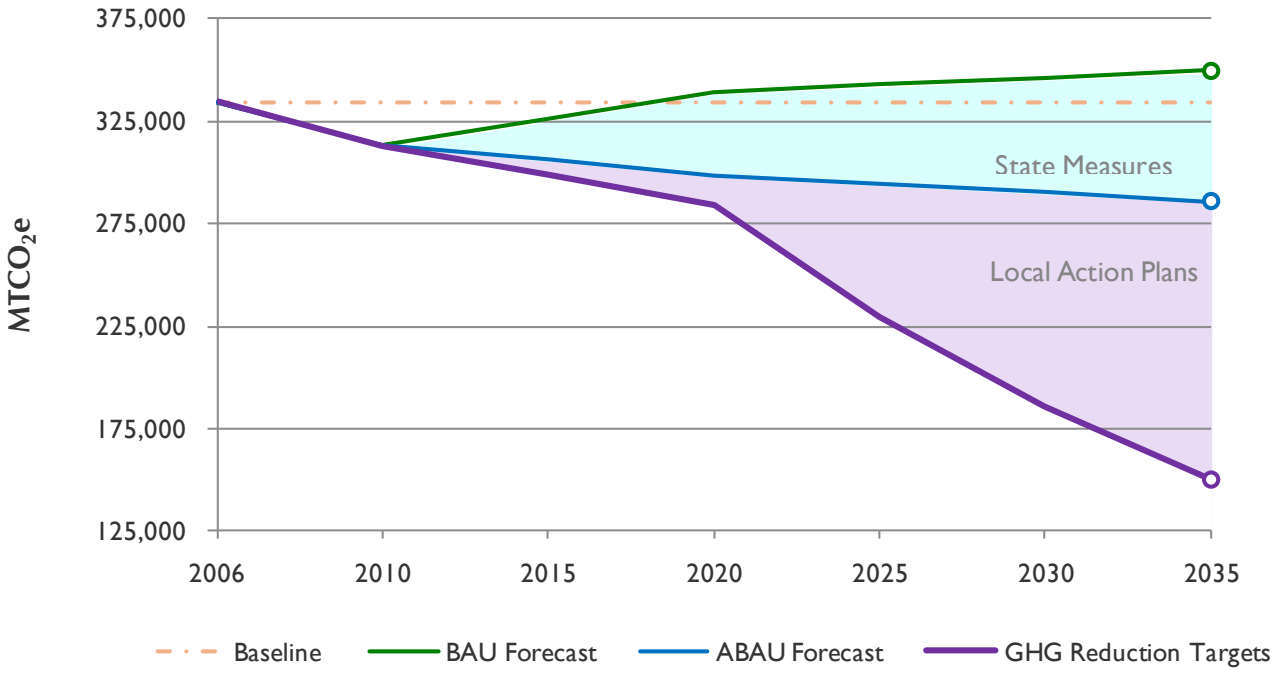
The State-recommended reduction targets for community-wide GHG emissions can also be applied to municipal operations. **Table B-15** below outlines the State-recommended reduction targets and necessary reductions the City would need to facilitate in order to meet the recommended goals for 2020 and 2035. Municipal emissions in Covina are forecast to reach 70 $MTCO_2e$ above the State-recommended reduction targets for 2020. It is important to remember, however, that state reduction programs are not guaranteed to be fully implemented, much like the LCFS. Local actions by City facility and fleet managers are the best way to successfully achieve a 15% reduction below baseline levels in 2020.

Table B-15: Municipal GHG Emissions and State-Recommended Reduction Targets, 2020-2035 ($MTCO_2e$)

	2020	2035
State-Recommended Reduction Targets (percent below baseline)	15%	55%
State-Recommended Emissions Goal ($MTCO_2e$)	2,430	1,290
ABAU Forecast with State Reductions ($MTCO_2e$)	2,360	2,140
Local Reduction Needed from Adjusted BAU ($MTCO_2e$)	**-70**	**850**

Figure B-6 shows the City's BAU and ABAU forecasts in relation to baseline and recommended 2020 and 2035 reduction targets. The blue shaded area represents the reductions Covina is estimated to see through state GHG reduction programs such as the RPS and CSI. The purple section shows the GHG reductions that fall under local jurisdiction. The intent of the Energy Action Plan, and all future GHG reduction plans, is to close the gap represented by the purple area through energy efficiency projects and GHG reduction efforts.

Figure B-6: GHG Forecast and State-Recommended Reduction Target Summary, 2020–2035 ($MTCO_2e$)



Conclusion and Next Steps

The community and municipal inventories are important milestones for assessing and mitigating the City of Covina's impact on climate change from the activities of the people, businesses, and industry. The Inventory also provides data that will shape the development of the EAP by providing a justifiable basis for the City's analysis of its impact on climate change. 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 B, ATTACHMENT 1:SCAG TRAVEL MODEL DATA FOR COVINA – REVISED DRAFT

MEMO FROM FEHR & PEERS, JUNE 27, 2012.

APPENDIX B

ISP INSERT ATTACHMETN 1 HERE

APPENDIX B, ATTACHMENT 2: ADJUSTMENT PROCESS FOR SCAG MODEL DATA RELATED TO SOCIO-ECONOMIC DATA

MEMO FROM FEHR & PEERS, JANUARY 23, 2012.

APPENDIX B

ISP INSERT ATTACHMENT 2 HERE

APPENDIX C

GHG TECHNICAL METHODS AND ASSUMPTIONS REPORT

APPENDIX C

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, greenhouse gas (GHG) reductions, and costs. 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 measures. 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 measure. 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, California Environmental Protection Agency, California Energy Commission, California Air Resources Board, California Air Pollution Control Officers Association, 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 outlines the sources of activity data for the community-wide GHG inventory and **Table C-2** shows the sources for municipal inventory activity data. **Table C-3** and **Table C-4** list the specific emission coefficients used for each piece of activity data and GHG emissions as shown in **Appendix B** as well as those used in the quantification presented below in **Table C-5**.

Table C-1: Sources for Community 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	CalRecycle online Disposal Reporting System
Waste – Green Waste	CalRecycle online Disposal Reporting System
Waste – Transformed	CalRecycle online Disposal Reporting System
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-2: 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
Employee Commute	City survey completed by City employees
Government-Generated Solid Waste	City records

Table C-3: Baseline Emissions Factors and Sources, 2006

Subsector	Original Emissions Factor		Source	Final Emissions Factor	
SCE Electricity	641.26	lbs CO_2/MWh	LGOP v1.1, Table G.6	0.00029	$MTCO_2e$/kWh
	0.031	lbs CH_4/MWh	LGOP v1.1, Table G.7		
	0.009	lbs N_2O/MWh	LGOP v1.1, Table G.7		
Direct Access Electricity	889.75	lbs CO_2/MWh	LGOP v1.1, Table G.7	0.00041	$MTCO_2e$/kWh
	0.031	lbs CH_4/MWh	LGOP v1.1, Table G.7		
	0.009	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		
Stationary Diesel	10.21	lbs CO_2/Gallon	LGOP v1.1, Table G.1	0.01027	$MTCO_2e$/Gallon
	0.0015	lbs CH_4/Gallon	LGOP v1.1, Table G.4		
	0.0001	lbs N_2O/Gallon	LGOP v1.1, Table G.4		
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*
Fleet CNG	0.054	kg CO_2/scf	LGOP v1.1, Table G.11	0.000054	$MTCO_2$/scf
	0.737	g CH_4/mile	LGOP v1.1, Table G.13	0.000031	$MTCO_2e$/mile
	0.05	g N_2O/mile	LGOP v1.1, Table G.13		
Fleet LPG	5.59	kg CO_2/Gallon	LGOP v1.1, Table G.11	0.00559	$MTCO_2$/Gallon
	0.037	g CH_4/mile	LGOP v1.1, Table G.13	0.000022	$MTCO_2e$/mile
	0.067	g N_2O/mile	LGOP v1.1, Table G.13		
On-Road	505.5	g CO_2/mile	EMFAC 2011	0.00053	$MTCO_2e$/mile

Subsector	Original Emissions Factor		Source	Final Emissions Factor	
Transportation	1.05	CO_2e/CO_2	Fehr & Peers Transportation Consultants		
Off-Road Construction	825	tons CO_2/day in LA County	OFFROAD2007	273,900	$MTCO_2e$/year in LA County
	0.0989	tons CH_4/day in LA County	OFFROAD2007		
	0.0007	tons N_2O/day in LA County	OFFROAD2007		
Off-Road Lawn and Garden	8.03	tons CO_2/day in LA County	OFFROAD2007	3,410	$MTCO_2e$/year in LA County
	0.0148	tons CH_4/day in LA County	OFFROAD2007		
	0.0063	tons N_2O/day in LA County	OFFROAD2007		

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

Table C-4: Emissions Factors and Sources, 2010

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		
Stationary Diesel	10.21	lbs CO_2/Gallon	LGOP v1.1, Table G.1	0.01027	$MTCO_2e$/Gallon
	0.0015	lbs CH_4/Gallon	LGOP v1.1, Table G.4		
	0.0001	lbs N_2O/Gallon	LGOP v1.1, Table G.4		
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**
Fleet CNG	0.054	kg CO_2/scf	LGOP v1.1, Table G.11	0.000054	$MTCO_2$/scf
	0.737	g CH_4/mile	LGOP v1.1, Table G.13	0.000031	$MTCO_2e$/mile
	0.05	g N_2O/mile	LGOP v1.1, Table G.13		
Fleet LPG	5.59	kg CO_2/Gallon	LGOP v1.1, Table G.11	0.00559	$MTCO_2$/Gallon

Subsector	Original Emissions Factor		Source	Final Emissions Factor	
	0.037	g CH_4/mile	LGOP v1.1, Table G.13	0.000022	$MTCO_2e$/mile
	0.067	g N_2O/mile	LGOP v1.1, Table G.13		
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.*

QUANTIFICATION OF GHG AND ELECTRICITY REDUCTIONS

Table C-5: GHG and Electricity Reduction Methods and Sources, 2020

Policy 1.1	Promote household energy conservation by residents in existing structures through education and outreach.
Implementation Actions:	• Update the City's website to encourage resident participation in energy monitoring programs that inform energy use decisions and reduce peak energy demand, such as utility-provided smart meter monitoring programs. • Work with nonprofits, businesses, and community groups (such as Covina's Teens Endeavor to Accomplish More) to conduct volunteer energy efficiency improvements and promote energy behaviors and opportunities to the community. • Continue energy efficiency education and outreach with the Energy Leader Partnership at community events.
Applicable Reduction Target:	Reduce annual existing residential electricity use 5% below baseline 2006 levels.
kWh Reductions (2020):	-91,280 to -171,150
$MTCO_2e$ Reductions (2020):	-20 to -40
Assumed Reduction per Participant:	143 kWh to 214 kWh
Performance Target(s) (2020):	640 to 800 participating households.
Implementation Time Frame:	Near-Term
Implementation Department(s):	Community Development and Public Works

Policy 1.1	Promote household energy conservation by residents in existing structures through education and outreach.
Reduction Method:	Using the Bonneville Power Administration source on behavioral-based energy efficiency programs, a 2-3% reduction per participant was multiplied by the average household kWh use. This figure was multiplied by the target participation range.
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 residential upgrades to more energy-efficient, cost-saving appliances and equipment.
Implementation Actions:	• Promote upgrades of residential and recreational pool pumps to more efficient, variable speed pump models. • Work with the San Gabriel Valley Energy Wise Partnership and Southern California Regional Energy Consortium to pursue bulk procurement of discounted variable-speed pool pumps in order to offer pumps at affordable rates to residents. Educate city residents and business owners about rebate offerings for appliances and equipment as programs become available, including those offered by Southern California Edison, the California Energy Commission and the South Coast Air Quality Management District. • Hold programmable thermostat exchange program. • Raise awareness of phantom electrical loads and promote use of energy-saving power strips by holding a Smart Strip giveaway. • Hold energy-efficient light bulb exchanges at community events when funds are available. • Promote the use of smart-grid-integrated appliances on the City website and at community events.
Applicable Reduction Target:	Reduce annual existing residential electricity use 5% below baseline 2006 levels.
kWh Reductions (2020):	-469,730 to -2,617,990
$MTCO_2e$ Reductions (2020):	-120 to -650
Assumed Reduction per Participant:	3.15% kWh reduction in single-family homes and 4.5% kWh reduction in multi-family homes. 30% to 50% reduction per pool
Performance Target(s) (2020):	Appliance upgrades in 539 to 1,079 single-family households and 143 to 238 multi-family households. Pump upgrades for 450 to 1,000 pools.
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works

Policy 1.2	Encourage residential upgrades to more energy-efficient, cost-saving appliances and equipment.
Reduction Method:	Using the California Residential Appliance Saturation Study, the most common appliances and their yearly average electricity use were combined to create a model of how much electricity was used by appliances in Covina households in 2006. Assumed high and low reductions were then applied with assumed participation rate ranges for single-family and multi-family households. Average operation kWh requirements for pools and average reduction per variable speed pool pump were multiplied by the assumed participation rate to calculate pool pulp upgrade reductions.
Reduction Sources:	CAPCOA (California Air Pollution Control Officers Association). 2010. Quantifying Greenhouse Gas Mitigation Measures. http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf. KEMA, Inc. 2009. California Residential Appliance Saturation Study, Volume 2: Results. CEC-200-2010-004. Pacific Gas and Electric. 2007. Draft Report Residential Swimming Pools. http://www.energy.ca.gov/title24/2008standards/prerulemaking/documents/2007-02-26-27_workshop/supporting/PGE-DRAFT_REPORT_RESIDENTIAL_SWIMMING_POOL.PDF

Policy 1.3	Enhance the single-family housing stock through support of voluntary retrofits to single-family structures.
Implementation Actions:	– Advocate for regional efforts to create an ongoing, revolving loan fund for residential home-energy audits and retrofits. – Support efforts of the San Gabriel Valley Council of Governments and the Southern California Regional Energy Network to pursue grant money to fund residential retrofits throughout the community, leveraging existing administrative resources and programs through the Housing and Community Development Department. – Encourage residents to participate in statewide and regional retrofit programs, including Energy Upgrade California. – Continue to work with the San Gabriel Valley Council of Governments to secure funding and implement innovative contests and community events that promote residential retrofits and give away funding for improvements, building on existing activities such as the Covina Home Tour Scavenger Hunt. – Support regional educational efforts by distributing materials from the San Gabriel Valley Council of Governments, such as a voluntary energy efficiency checklist to interested homebuyers. – Continue to work with public and private partners to promote free home energy surveys.
Applicable Reduction Target:	Reduce annual existing residential electricity use 5% below baseline 2006 levels.
kWh Reductions (2020):	-1,232,280 to -5,776,320
$MTCO_2e$ Reductions (2020):	-310 to -1,440
Assumed Reduction per Participant:	1140 kWh to 3570 kWh

Policy 1.3	Enhance the single-family housing stock through support of voluntary retrofits to single-family structures.
Performance Target(s) (2020):	1,080 to 1,620 participating single-family households
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Using electricity use from the Covina Inventory and Forecast Report, the number of households reported by the California Department of Finance, and the percent of owner-occupied and renter-occupied households from the 2010 US Census, average electricity use per owner-occupied household and renter-occupied household was created for the 2010 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, Inc. Encino CA Home Energy Assessment. REAS, Inc. 2011. Residential Energy Assessment Services, Inc. San Fernando CA Home Energy Performance Assessment. Building Doctors. 2011. Los Angeles CA Home Energy Performance Assessment.

Policy 1.4	Encourage multi-family energy efficiency retrofits through outreach and education.
Implementation Actions:	• Conduct outreach to property management agencies and condominium homeowner associations to encourage retrofits, such as pool pump replacements. • Leverage existing funding sources, such as Community Development Block Grants and home repair funds, for energy efficiency improvements and outreach targeted at the City's affordable housing projects. • Work with Southern California Edison and the Energy Leader Partnership to promote free- to low-cost retrofit opportunities to property owners of multi-family apartment buildings to improve the community's multi-family housing stock.
Applicable Reduction Target:	Reduce annual existing residential electricity use 5% below baseline 2006 levels.
kWh Reductions (2020):	-106,970 to -325,190
$MTCO_2e$ Reductions (2020):	-30 to -80
Assumed Reduction per Participant:	1,140 kWh to 3,570 kWh
Performance Target(s) (2020):	100 to 240 participating multi-family households
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works

Policy 1.4	Encourage multi-family energy efficiency retrofits through outreach and education.
Reduction Method:	Using electricity use from the Covina Inventory and Forecast Report, the number of households reported by the California Department of Finance, and the percent of owner-occupied and renter-occupied households from the 2010 US Census, average electricity use per owner-occupied household and renter-occupied household was created for the 2010 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, Inc. Encino CA Home Energy Assessment. REAS, Inc. 2011. Residential Energy Assessment Services, Inc. San Fernando CA Home Energy Performance Assessment. Building Doctors. 2011. Los Angeles CA Home Energy Performance Assessment.

Policy 1.5	Incentivize home energy benchmarking as a tool to help homeowners assess opportunities to improve energy performance and improve resale value.
Implementation Actions:	• Promote regional financial incentives and awareness to offset the costs of home energy labeling. • Promote regional financial incentives, such as Los Angeles County's Green Label Rebate Program, to offset benchmarking costs. • Promote home energy benchmarking on the City website and at community events. • Work with the San Gabriel Valley Energy Wise Partnership and the San Gabriel Valley Council of Governments to promote home energy benchmarking resources.
Applicable Reduction Target:	Reduce annual existing residential electricity use 5% below baseline 2006 levels.
kWh Reductions (2020):	Supportive
$MTCO_2e$ Reductions (2020):	Supportive
Assumed Reduction per Participant:	Not Applicable
Performance Target(s) (2020):	Not Applicable
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Not Applicable
Reduction Sources:	Not Applicable

Policy 2.1	**Strengthen business relationships by educating businesses about opportunities to conserve energy costs and reduce energy use through improvements in daily operations.**
Implementation Actions:	• Educate local building owners about free financial assistance for energy efficiency, and use local pilot programs for ongoing education efforts. Potential programs to promote include Southern California Edison's Direct Install and Los Angeles County's Building Performance Partnership. • Work with the Covina Chamber of Commerce and the Covina Downtown Association to educate businesses about energy conservation programs and reward business and property owners who have achieved significant savings as a result of energy efficiency programs. • Continue to highlight energy conservation resources on the City's website and at permit counters, and update materials to highlight energy-efficient practices implemented by local businesses as case studies to the community. • Educate business owners on the nonresidential building energy consumption disclosure requirements at the time of building sale, lease, or refinancing (Assembly Bill 1103). • Provide materials to encourage business participation in energy monitoring programs through Southern California Edison or programs such as Energy Star Portfolio Manager to help businesses understand and track ongoing energy performance.
Applicable Reduction Target:	Reduce annual nonresidential electricity use 5% below baseline 2006 levels.
kWh Reductions (2020):	Supportive
$MTCO_2e$ Reductions (2020):	Supportive
Assumed Reduction per Participant:	Not Applicable
Performance Target(s) (2020):	Not Applicable
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Not Applicable
Reduction Sources:	Not Applicable

Policy 2.2	**Encourage the use of innovative energy-efficient appliances and equipment in businesses that will reduce operational expenditures and improve the efficiencies of business operations.**
Implementation Actions:	• Promote energy efficiency rebates for commercial activities, including Southern California Edison rebates through the Energy Management Solutions Program for cooking and refrigeration appliances, lighting, and manufacturing equipment. • Use model energy efficiency materials from the San Gabriel Valley Council of Governments to use as a standardized tenant improvement checklist and to encourage the installation of Energy Star and/or smart-grid-integrated appliances in nonresidential development. Utilize these materials in all tenant improvement processes through the City to encourage cost-effective energy efficiency improvements. • Through the business permit renewable process, provide pamphlets and information to promote the use of plug-load sensors and server virtualization in large office complexes and other nonresidential uses. • Work with the San Gabriel Valley Energy Wise Partnership to develop a model energy-efficient procurement policy that could be implemented by businesses throughout the community.
Applicable Reduction Target:	Reduce annual nonresidential electricity use 5% below baseline 2006 levels.
kWh Reductions (2020):	-658,630 to -1,505,440
$MTCO_2e$ Reductions (2020):	-170 to -390
Assumed Reduction per Participant:	3% to 4% reduction in total kWh per business
Performance Target(s) (2020):	655,900 to 1,311,800 nonresidential square feet
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Using the California End-Use Survey (CEUS), the average percentage of electricity used on appliances was applied to the overall nonresidential electricity kWh used in Covina. Citywide kWh nonresidential consumption by appliance was calculated by applying the CEUS figures for percentage of electricity consumed by each appliance. These kWh figures were multiplied by the Climate and Air Pollution Planning Assistant reduction by appliance estimates to calculate total kHw reductions by appliance, which were then summed to calculate overall reductions.
Reduction Sources:	ICLEI - Local Governments for Sustainability. 2012. Climate and Air Pollution Planning Assistant (CAPPA) Version 1.5. 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 2.3	**Enhance the nonresidential building stock by facilitating voluntary retrofits and energy efficiency improvements, with a special focus on buildings in downtown.**
Implementation Actions:	• Promote nonresidential financing options for energy efficiency improvements, including Los Angeles County Property Assessed Clean Energy (PACE) financing. • Work with the Covina Downtown Association and the Covina Chamber of Commerce to educate property owners on other feasible options for retrofit energy efficiency financing, including integration of energy efficiency retrofit projects into capital lease structures, mortgage refinancing, and agreements with energy savings performance companies. • Distribute an informational packet about nonresidential financing and opportunities to businesses when they apply for a new business license or receive their annually renewed business license, including information such as the Los Angeles County PACE program. • Engage the Covina Downtown Association and the Covina Chamber of Commerce to create a sign or decal that designates local energy-efficient businesses in order to provide additional publicity and incentive for voluntary energy efficiency improvements.
Applicable Reduction Target:	Reduce annual nonresidential electricity use 5% below baseline 2006 levels.
kWh Reductions (2020):	-1,851,650 to -6,943,670
$MTCO_2e$ Reductions (2020):	-480 to -1,800
Assumed Reduction per Participant:	11% to 16% reduction in total kWh per business
Performance Target(s) (2020):	17,243,100 to 43,107,800 nonresidential square feet
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Using the California End-Use Survey (CEUS), the average percentage of electricity used on the building envelope and lighting (heating, cooling, and lighting) was applied to the overall nonresidential electricity kWh used in Covina. 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 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.

Policy 2.3	**Enhance the nonresidential building stock by facilitating voluntary retrofits and energy efficiency improvements, with a special focus on buildings in downtown.**
Reduction Sources:	ICLEI - Local Governments for Sustainability. 2012. Climate and Air Pollution Planning Assistant (CAPPA) Version 1.5. 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	**Work with the San Gabriel Valley Council of Governments to provide educational materials focused on cost-saving retrofits and improvements in large nonresidential facilities, including the City's retail, warehouse, and other large buildings, such as grocery stores.**
Implementation Actions:	• Work with the San Gabriel Valley Council of Governments to prepare energy efficiency educational materials that outline a range of options for tenant improvements that would be appropriate for large nonresidential facilities. • During tenant improvement phases, encourage facilities greater than 5,000 square feet to integrate energy-efficient appliances, equipment, and features as cost-saving measures. • Encourage owners of businesses and facilities larger than 25,000 square feet to participate in Southern California Edison's Retrocommissioning Program to identify cost-effective ways to optimize building performance.
Applicable Reduction Target:	Reduce annual nonresidential electricity use 5% below baseline 2006 levels.
kWh Reductions (2020):	-725,750 to -2,177,260
MTCO2e Reductions (2020):	-190 to -570
Assumed Reduction per Participant:	7% to 13% reduction in total kWh per business
Performance Target(s) (2020):	Four to five large nonresidential buildings
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works

Policy 2.4	**Work with the San Gabriel Valley Council of Governments to provide educational materials focused on cost-saving retrofits and improvements in large nonresidential facilities, including the City's retail, warehouse, and other large buildings, such as grocery stores.**
Reduction Method:	"Large Buildings" was assumed as any facility greater than 50,000 square feet. The Los Angeles County Office of the Assessor parcel database was used to find the amount of nonresidential square footage in buildings greater than 50,000 square feet in Covina. This percentage of overall square footage was separated from overall nonresidential kWh to estimate the electricity used by large buildings. Using the California End-Use Survey (CEUS), the average percentage of electricity used on the building envelope and lighting (heating, cooling, and lighting) was applied to the large building nonresidential electricity kWh used in Covina. Consumption in kWh by retrofit item was calculated by applying the CEUS figures for percentage of electricity consumed by each item. 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.
Reduction Sources:	ICLEI - Local Governments for Sustainability. 2012. Climate and Air Pollution Planning Assistant (CAPPA) Version 1.5. 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 3.1	**Maximize the energy-efficient design and orientation of new, remodeled, and renovated buildings through voluntary sustainable building standards.**
Implementation Actions:	• Encourage voluntary Home Energy Rating System ratings for new residential units through the building permit application and development review processes. • Work with the San Gabriel Valley Council of Governments to encourage the use of voluntary energy efficiency guidelines and promote the use of energy efficiency designs with standardized checklists for new development and remodels. • By 2015, evaluate success of voluntary energy efficiency guidelines and sustainable building standards, then consider other methods to further encourage implementation.
Applicable Reduction Target:	Supportive of residential and nonresidential targets.
kWh Reductions (2020):	Supportive
$MTCO_2e$ Reductions (2020):	Supportive
Assumed Reduction per Participant:	Not Applicable

Policy 3.1	Maximize the energy-efficient design and orientation of new, remodeled, and renovated buildings through voluntary sustainable building standards.
Performance Target(s) (2020):	Not Applicable
Implementation Time Frame:	Long-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Not Applicable
Reduction Sources:	Not Applicable

Policy 3.2	Encourage the use of energy-efficient appliances and equipment in new buildings.
Implementation Actions:	• Provide educational information on the use of smart-grid-integrated appliances through the City's website and distribution of San Gabriel Valley Energy Wise Partnership materials. • Promote funding sources for residential appliances as available, including state and federal rebate programs. • Educate project applicants about available rebates for energy-efficient appliances and equipment. • Consider updating zoning discretionary review processes to afford applicant benefits that encourage energy and/or sustainable investments.
Applicable Reduction Target:	Supportive of residential and nonresidential targets.
kWh Reductions (2020):	Supportive
$MTCO_2e$ Reductions (2020):	Supportive
Assumed Reduction per Participant:	Not Applicable
Performance Target(s) (2020):	Not Applicable
Implementation Time Frame:	Long-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Not Applicable
Reduction Sources:	Not Applicable

Policy 3.3	Participate in a regional effort to implement energy efficiency standards for new development.
Implementation 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. • Support the creation of a regional energy manager position at the San Gabriel Valley Council of Governments, who would support implementation of energy efficiency in new development.
Applicable Reduction Target:	Supportive of residential and nonresidential targets.
kWh Reductions (2020):	Supportive

Policy 3.3	Participate in a regional effort to implement energy efficiency standards for new development.
$MTCO_2e$ Reductions (2020):	Supportive
Assumed Reduction per Participant:	Not Applicable
Performance Target(s) (2020):	Not Applicable
Implementation Time Frame:	Long-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Not Applicable
Reduction Sources:	Not Applicable

Policy 4.1	Encourage energy efficiency through the development standards, permitting, and plan review processes.
Implementation Actions:	• Update the City's website with a summary of the model energy efficiency guidelines and local programs. • Work with the San Gabriel Valley Energy Wise Partnership to create residential and nonresidential energy efficiency packets with information on financing and resources, for distribution during pre-application meetings, and at the planning and building counter.
Applicable Reduction Target:	Supportive of residential and nonresidential targets.
kWh Reductions (2020):	Supportive
$MTCO_2e$ Reductions (2020):	Supportive
Assumed Reduction per Participant:	Not Applicable
Performance Target(s) (2020):	Not Applicable
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Not Applicable
Reduction Sources:	Not Applicable

Policy 4.2	Encourage and support the youth of Covina to spur community-wide energy reductions and support energy-efficient behaviors and best practices.
Implementation Actions:	• Work with the Parks and Recreation Department to integrate energy efficiency curriculum and projects into educational and after-school programs. • Through Covina's Teens Endeavor to Accomplish More group, train students as energy efficiency ambassadors to their schools and other community organizations. • Consider developing a school energy efficiency competition between schools in Covina and other interested schools throughout the district, including those in the cities of West Covina and Glendora. • Encourage local youth work training programs to provide energy efficiency skills, including Building Performance Institute training, or other energy efficiency workforce development programs.
Applicable Reduction Target:	Supportive of residential and nonresidential targets.
kWh Reductions (2020):	Supportive
$MTCO_2e$ Reductions (2020):	Supportive
Assumed Reduction per Participant:	Not Applicable
Performance Target(s) (2020):	Not Applicable
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development, Public Works, Parks & Recreation
Reduction Method:	Not Applicable
Reduction Sources:	Not Applicable

Policy 4.3	Collaborate with businesses to promote energy efficiency.
Implementation Actions:	• Encourage the Southern California Regional Energy Network to provide financial assistance to local businesses seeking funding for energy efficiency improvements. • Highlight businesses that have completed energy efficiency projects, and share information on energy-efficient businesses with the Covina Chamber of Commerce. • Use the plan review process to identify projects with model energy efficiency savings that the City could highlight and promote. • Create a sign, decal, or logo to provide to local businesses that have completed energy projects, and encourage businesses to post signs at local operation locations. • Continue to partner with local businesses on energy efficiency projects with a public benefit. • Identify additional partnerships to equip businesses with funds for energy efficiency.
Applicable Reduction Target:	Supportive of residential and nonresidential targets.

Policy 4.3	Collaborate with businesses to promote energy efficiency.
kWh Reductions (2020):	Supportive
$MTCO_2e$ Reductions (2020):	Supportive
Assumed Reduction per Participant:	Not Applicable
Performance Target(s) (2020):	Not Applicable
Implementation Time Frame:	Near-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Not Applicable
Reduction Sources:	Not Applicable

Policy 4.4	Enhance energy efficiency in the City's historic housing stock through preservation of historic resources and maintenance of community character.
Implementation Actions:	• Provide waivers or reduced fees for building permit applications to complete energy efficiency upgrades and building repairs consistent with the Secretary of the Interior Standards for Rehabilitation.
Applicable Reduction Target:	Supportive of residential and nonresidential targets.
kWh Reductions (2020):	Supportive
$MTCO_2e$ Reductions (2020):	Supportive
Assumed Reduction per Participant:	Not Applicable
Performance Target(s) (2020):	Not Applicable
Implementation Time Frame:	Near-Term
Implementation Department(s):	Community Development
Reduction Method:	Not Applicable
Reduction Sources:	Not Applicable

Policy 5.1	Maximize the cooling of buildings through strategic tree planting and shading to reduce building electricity demands.
Implementation Actions:	• Provide information to project applicants about landscaping that shades building exteriors and reduces the need for air conditioning. • Provide educational materials to homeowners highlighting the cost savings associated with appropriately placed shade trees.
Applicable Reduction Target:	Reduce annual existing residential electricity use 5% below baseline 2006 levels.
kWh Reductions (2020):	-19,470 to -116,830
$MTCO_2e$ Reductions (2020):	0 to -30
Assumed Reduction per Participant:	20 to 60 kWh reduction per household

Policy 5.1	Maximize the cooling of buildings through strategic tree planting and shading to reduce building electricity demands.
Performance Target(s) (2020):	1,340 to 2,000 households
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Identified percentage of homes with cooling appliances and calculated the kWh used per home on cooling. Applied the CAPPA percentage reduction in cooling kWh per participating household to calculate community wide reductions.
Reduction Sources:	ICLEI - Local Governments for Sustainability. 2012. Climate and Air Pollution Planning Assistant (CAPPA) Version 1.5. Itron, Inc. 2007. California Commercial End-use Survey - Results Page. http://capabilities.itron.com/CeusWeb/Chart.aspx.

Policy 5.2	Reduce electricity demand by promoting cool roofs and surfaces for residential and nonresidential buildings.
Implementation Actions:	• Highlight the benefits and opportunities to install cool roofs at community events, and update the City's website to provide links to resources, including information provided on the Cool California website. • Through use of a voluntary energy efficiency checklist, promote affordable options for installation of cool roofs on applicable projects. • When cost effective, utilize cool-colored and permeable pavement in City construction projects.
Applicable Reduction Target:	Supportive of residential and nonresidential targets.
kWh Reductions (2020):	-121,370 to -262,030
$MTCO_2e$ Reductions (2020):	-30 to -70
Assumed Reduction per Participant:	146 kWh per residential cool roof. 0.217 kWh to 0.228 kWh per square foot of nonresidential cool roof.
Performance Target(s) (2020):	Installation of 540 to 1,080 residential cool roofs. Installation of 196,770 to 459,130 square feet of nonresidential cool roof area.
Implementation Time Frame:	Mid-Term
Implementation Department(s):	Community Development and Public Works
Reduction Method:	Sacramento Municipal Utility District case studies were used to find a range of reductions per residential cool roof. Since the case studies were not in Los Angeles County, the reductions were reduced to be more conservative. These reductions were then applied to the target residential participation rate. For nonresidential reductions, the US Department of Energy low-slope cool roof calculator was used to identify a range of kWh reductions per square foot. This range was then applied to the nonresidential target participation rate.

Policy 5.2	Reduce electricity demand by promoting cool roofs and surfaces for residential and nonresidential buildings.
Reduction Sources:	Sacramento Municipal Utilities District. 2012. Cool Roofs. https://www.smud.org/en/residential/save-energy/rebates-incentives-financing/cool-roofs.htm US Department of Energy. 2012. DOE Cool Roof Calculator Version 1.2. http://www.ornl.gov/sci/roofs%2Bwalls/facts/CoolCalcEnergy.htm

Policy 6.1	Work with water providers to identify the anticipated water savings from the implementation of additional tiered water rates, water delivery system upgrades, and other water efficiency projects to support energy reductions.
Implementation Actions:	• Collaborate with the City's water providers and the City's Water Utility Division to highlight the water-energy relationship in outreach and conservation efforts and promote transitions to tiered water rates. • Continue to implement the City's tiered water rate for local water customers served by the City of Covina. • Promote and distribute Southern California Edison's water efficiency kits and appliances, which include low-flow showerheads and faucet aerators. • Identify programs and opportunities to capitalize on water meters in the community, encouraging residents to conserve water use through the City's Water Account portal and other resources.
Applicable Reduction Target:	Supportive of residential and nonresidential targets.
kWh Reductions (2020):	-77,900 to -93,500
$MTCO_2e$ Reductions (2020):	0 to -20
Assumed Reduction per Participant:	20 kWh
Performance Target(s) (2020):	4,020 to 4,830 participating households.
Implementation Time Frame:	Near-Term
Implementation Department(s):	Public Works and Parks and Recreation
Reduction Method:	Assumes a minimum installation of one showerhead and one faucet per participating household. Applied CAPPA water reductions per fixture to the participating household number to identify community wide water reductions. This figure was multiplied by the gallons to kWh coefficient identified in the City of Covina Greenhouse Gas Inventory and Forecast Report. Reductions may be larger due to behavioral change.
Reduction Sources:	ICLEI - Local Governments for Sustainability. 2012. Climate and Air Pollution Planning Assistant (CAPPA) Version 1.5.8.

Policy 6.2	**Support water-efficient landscaping practices to reduce electricity demand for water transport and treatment.**
Implementation Actions:	• Continue to implement the Water Conservation Code (Chapter 13.06 of the Municipal Code). • Utilize the model energy efficiency code to encourage drought-tolerant landscaping and the use of water-efficient irrigation systems. • Continue promoting water conservation through the City's website and pamphlets. • Promote drought-tolerant landscaping to the community. Become an Environmental Protection Agency Water Sense Partner and provide water education resources to the community.
Applicable Reduction Target:	Supportive of residential and nonresidential targets.
kWh Reductions (2020):	-169,330 to -349,120
$MTCO_2e$ Reductions (2020):	-40 to -80
Assumed Reduction per Participant:	169,520 gallons of water saved per landscaped acre.
Performance Target(s) (2020):	150 to 290 acres of residential landscaping. 30 to 80 acres of nonresidential landscaping.
Implementation Time Frame:	Near-Term
Implementation Department(s):	Community Development
Reduction Method:	Used the 2000 General Plan Land Use Element to estimate acreage of residential and nonresidential irrigated landscaping. Multiplied these figures by CAPPA estimates of water used per acre of irrigated landscaping and the percent reduction achieved through more efficient irrigation systems.
Reduction Sources:	City of Covina. 2000. General Plan Land Use Element. http://www.covinaca.gov/images/webuser/CommDev/General_Plan_/Land_Use.pdf ICLEI - Local Governments for Sustainability. 2012. Climate and Air Pollution Planning Assistant (CAPPA) Version 1.5.8.

APPENDIX D

ENERGY LEADER PARTNERSHIP REQUIREMENTS CHECKLIST

APPENDIX D

ENERGY ACTION PLAN – ENERGY LEADER PARTNERSHIP REQUIREMENTS CHECKLIST

NOVEMBER 2012

Silver Level – Initiate EAP

The Partner City demonstrates initiation of an EAP to qualify for the Silver Level. This can include any of the following options:

A. Partner selected and was approved for Strategic Plan menu item 3.2.1
B. A draft of an EAP is submitted by the Partner City
C. RFP issued or consultant hired to complete EAP

Gold Level – Complete EAP

The Partner City must submit a completed plan to SCE, which includes all of the following components:

A. Establishes long-term vision and plan for energy efficiency in the city
B. Clearly states the aim and objectives of the plan
C. Records the baseline municipal energy usage (in kilowatt-hours)
D. Displays the highest users (facilities) that the City should target
E. Identifies the City's reduction goals and milestones
F. Provides the plan of municipal facility projects that the City can complete to assist in achieving its reduction
   i. Identifies priority of projects
   ii. Identifies expected funding mechanisms to complete municipal facility energy efficiency projects
G. Identifies any policies or procedures the City can implement to assist in reducing energy
H. Adds statement/paragraph identifying all actions including (but not limited to) municipal retrofit projects and policies that will constitute meeting the "Implementation" requirement in the ELP Platinum Level
I. Includes language stating the EAP will be integrated in the next general plan update or other policy documents

Platinum Level – Implement EAP

A. EAP approved by City council with the plan's implementation time frame beginning within six months of approval
B. Implementation actions must include the following:
   a. Evidence of inclusion (as a line item) of EAP implementation in City operating budget
      Example: Establishment of energy-revolving fund or reference to energy efficiency in the annual maintenance budget demonstrating long-term implementation of EAP
   b. Evidence of integration of EAP initiatives in city general plan or other policy documents
   c. As referenced in Gold Level H, the completion of the identified actions that were delineated in the EAP
   d. Substantial evidence showing implementation of energy efficiency actions as identified in the EAP (such as invoices for municipal projects)

ELP REQUIREMENTS CHECKLIST

Please use the following table to help identify areas of the EAP that satisfy the requirements.

EAP Requirements for Gold Level	Section and Page Number Where Found
A. Establishes long-term vision and plan for energy efficiency in the city	Chapter 1, "Role of the EAP" section, page 6
B. Clearly states the aim and objectives of the plan	Chapter 1, "Role of the EAP" section, page 6
C. Records the baseline municipal energy usage (kWh)	Chapter 3, "Municipal Electricity Demand" section, page 37
D. Displays the highest users (facilities) that the city should target	Chapter 3, "Municipal Electricity Demand" section, page 39
E. Identifies the City's reduction goals and milestones	Chapter 4, "Reduction Targets" section, page 44
F. Provides the plan of municipal facility projects that the City can complete to assist in achieving its reduction i. Identifies priority of projects ii. Identifies expected funding mechanisms to complete municipal facility energy efficiency projects	Chapter 4, "Municipal Electricity Efficiency Projects and Policies" section, page 55, Table 21
G. Identifies any policies or procedures the City can implement to assist in reducing energy	Chapter 4,"Community-wide Electricity Efficiency Strategies, Policy 1.1 – 7.8, pages 44 -58
H. Adds statement/paragraph identifying all actions including (but not limited to) municipal retrofit projects and policies that will constitute meeting the "Implementation" requirement in the ELP Platinum Level	Chapter 5, "Monitoring and Updating the EAP" section, page 63
I. Includes language stating the EAP will be integrated in the next general plan update or other policy documents	Chapter 4 , "Monitoring and Updating the EAP" section, page 63