Final Energy Action Plan

Municipal Operations

Strategic Plan Task 3.2.1

Deliverable 4.7

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Prepared for:

City of Norwalk
12700 Norwalk Boulevard
Norwalk, CA 90650

Prepared by:

Willdan Energy Solutions
751 North Vernon Avenue
Azusa, CA 91702

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1. Executive Summary

The focus of this Energy Action Plan (EAP) centers upon California's energy policy, specifically Assembly Bill 32 – Global Warming Solutions Act (AB 32) and the aim for statewide decrease of greenhouse gas emissions (GHG) to 1990 levels by the year 2020. In accordance with these policies and others, the City of Norwalk intends to reduce its energy consumption thereby reducing greenhouse gas emissions to become a more sustainable community.

The City of Norwalk provides services to its residents, businesses and visitors throughout its longstanding community tradition. By acting in accordance to the recommendations made in this EAP, the City of Norwalk will promote preservation of resources for the mutual benefit of its staff and the general public. Those intentions were formalized in the City's *Strategic Action Plan 6.B.1-3 2020 Vision* published by the Norwalk City Council. The EAP is proposed to be the tangible energy-related project that will address the areas of consumption faced by the City in its municipal operations. These areas include reducing energy usage and thereby reducing related electricity costs, greenhouse gas emissions, and the reliance on fossil fuels usage. The City of Norwalk hopes to reduce vulnerability to changes in electricity cost, availability, and reliability, and increase benefits to the private sector through energy-related projects.

The EAP is constructed to analyze energy efficiency opportunities projected across the City's municipal portfolio of facilities and parks in order to make determinations for the following:

- A 25% (twenty-five percent) electricity reduction goal by the year 2025, using a 2010 baseline, as adopted by the Norwalk City Council.
- Identify potential energy efficiency projects that can apply to the City's facility portfolio and contribute to the energy reduction goal.
- Milestones for prioritizing projects to reach the established goal by 2025.
- Implementation and funding strategies to successfully reach the adopted energy reduction goals outlined in the Plan.

The purpose of this Energy Action Plan (EAP) is to establish an overall realistic net energy consumption reduction target and identify and scope programs/projects to achieve the target over time. The EAP builds upon existing energy conservation efforts and identifies energy conservation as an integral component of the City's goals and policies, and State and Federal legislation and initiatives. The Plan consists of a comprehensive estimate for energy savings per facility/park and the projected year in which the project could be implemented. These recommended projects are designed to accompany existing policies aimed at providing the City with the capabilities to monitor regular energy usage and identify areas in need of improvement.

This Plan and planning process has been supported by Southern California Edison (SCE) and its ratepayers. The City appreciates SCE's resources to enable this work, and guidance on how to identify energy strategies that will both save money and protect the environment. Together, the Energy Action Plan along with the development of the City's Energy Benchmarking Policy, the procurement of the Utility Manager Software and the Retro-Commissioning Policy help chart a course for Norwalk to continue to serve residents and businesses and prepare for anticipated regulation. This Plan presents resource efficiency goals, matched with policies and implementation steps to save energy while aligning Norwalk for AB 32 compliance.

2. Introduction – Long Term Vision

California stands as the world's eighth largest economy with its rich and diverse market led by innovations. In 2008 in an effort to curb energy demand, Governor Arnold Swarzeneggar established the first legislation addressing sustainability for future generations. By challenging Californians to combat growing energy prices and global climate change, a foundation for the growing energy market would be well established by its energy partner citizens.

The purpose of this Energy Action Plan is to present information related to the City of Norwalk with the mission of decreasing energy usage from their municipal operations and adapt to the changing need of energy responsibility. The City of Norwalk has set out goals to significantly reduce electricity usage by the year 2025, and has agreed to help in the cooperation, information sharing, and development of best practices for municipal operations that impact energy usage. The City of Norwalk is poised to coordinate efforts in energy efficiency retrofits and installations in order to help the City meet the following electricity usage reduction goals:

- Create a long-term vision for energy efficiency
- Identify and categorize City energy use
- Highlight the City's major facility's baseline energy usage
- Establish reduction targets for energy efficiency, for milestone years 2015, 2020 and 2025
- Prioritize goals, policies, and actions to achieve usage reduction goals
- Develop an implementation plan for the identified goals, policies, and actions

The development of this Energy Action Plan demonstrates the City of Norwalk's commitment to providing programs and services that are energy efficient and sustainable in order to minimize environmental impacts and reduce costs. This EAP addresses energy consumption from purchased electricity for the City's municipal operations, and, more specifically, its buildings. By building upon existing efforts and identifying additional actions to implement and augment statewide energy efficiency goals and policies, California Long-Term Energy Efficiency Strategic Plan strategies, and identifying specific projects suitable for existing and future funding opportunities, the City can achieve its energy, climate and sustainability goals.

This Plan is designed as a living document that can and should be updated regularly. Updates to the EAP should reflect past successes, failures, and lessons learned and to adjust the visions, goals and strategies accordingly. Utility sponsored local government partnerships are helping cities and counties lead by example in addressing energy efficiency first in their own municipal facilities. Within the Southern California Edison territory, more than 170 cities and counties are participating in such programs. This Plan provides guiding objectives and strategies to realize the City's long-term energy efficiency goals.

The EAP will also garner cooperation, information sharing, and the development of best practices for other cities and counties throughout California. The City looks forward to successfully implementing the actions identified in this Plan.

2.1 City Background

The City of Norwalk is an incorporated suburban area located in Los Angeles County, just 17 miles southeast of downtown Los Angeles and is part of the Greater Los Angeles area. Norwalk has long been established as a

metropolitan area with a demanding infrastructure. It is home to the Southeast District of the Los Angeles County Superior Courthouse, Metropolitan State Hospital and the gubernatorial offices within the municipality. By utilizing the technology of today and implementing the EAP Norwalk will realize significant savings. Prior to energy efficiency planning of this magnitude, Norwalk's attitude towards these types of measures had already emerged.

2.1.1 History of Energy Efficiency Planning in the City of Norwalk

The City of Norwalk has a history of acting to promote energy sustainability and conservation by routinely undertaking improvement projects at municipal facilities and working phase out of non-energy efficient technologies. Within the City's area of influence the City has taken a proactive role in implementing energy reduction for the benefit of its staff and citizens. While pursuing energy saving measures in the past the City has identified grants from the Federal government, incentives from utility agencies, and assistance from energy partnerships to assist in the many endeavors they have undertaken. Below are some highlights of the City's previous efforts and ongoing planning.

- City of Norwalk Housing Authority Utility Allowance
- Section 8 landlords and affordable housing developers committed to making their rental units energy efficient.
- Title 24 energy code compliance
- Norwalk Tower "Promise Energy" Solar Water Heating System
- Energy Star Building – Arden's Norwalk Corporate Plaza
- The City plans to renovate the Old Senior Center Facility and will be looking to have that building be LEED (Leadership in Energy & Environmental Design, is a green building certification) certified.
- The Norwalk Economic Development plans to conduct community outreach efforts to promote energy conservation.

In addition, the City is currently updating their General Plan (2013 - 2030) which will guide government operations and future developments to promote energy conservation. The General Plan will set forth the following goals and policies; to achieve energy conservation during the 2013-2021 planning period.

By incorporating the following policies:

- Educate residents, businesses, visitors and governments to reduce energy use and conserve energy
- Share information and promote programs to encourage behavior changes that lead to lower energy bills
- Encourage lower energy use and off peak use during hot summer months
- Promote awareness and education about sustainability and energy conservation through websites, newsletters, and other community and regional outreach opportunities

The City's efforts are not limited to these listed above, the City looks forward to innovate solutions for our changing environmental climate. It will continue to research and explore, areas in green building, alternative fuel, improvements in the building envelope, PACE for its residents, SMART meters and the opportunity to begin a renewable energy portfolio. As long as resources for additional funding allow the City to pursue energy savings goals without increasing burdens on its citizens, they City of Norwalk will continue to leverage those services.

2.1.2 Energy Efficiency Planning in Existing City Policy

2.1.2.1 Strategic Action Plan 6.B.1-3 "2020 Vision"

The City of Norwalk initiated energy efficiency policy following input from its residents, business owners, service organizations, public agencies and valued stakeholders. By bringing cohesive ideas together to form their objectives the community is united by its vision for the future. Creating such legislation defines the City of Norwalk's commitment to preparing for energy demand in the future and ensuring that energy infrastructure in sound.

- "Support and invest in energy efficient and environmentally friendly technologies to develop sustainable infrastructure, reduce City's carbon footprint and lower long-term costs."
- Promote environmental responsibility by creating a citywide campaign to encourage residents to "Go Green", recycle, and conserve water.
- Create energy efficient facilities and public rights of way by changing lighting fixtures and bulbs to the most efficient options to reduce usage and long-term maintenance costs.
- Utilize smart technologies by studying infrastructure to identify technological upgrades in wireless access, monitoring systems, lighting, and solar applications.

The efforts put forth in Norwalk's Strategic Vision Plan have been a great foundation for the development of this Plan.

2.1.2.2 Southern California Edison (SCE) Energy Leader Partnership Program (ELPP) with Norwalk (2012).

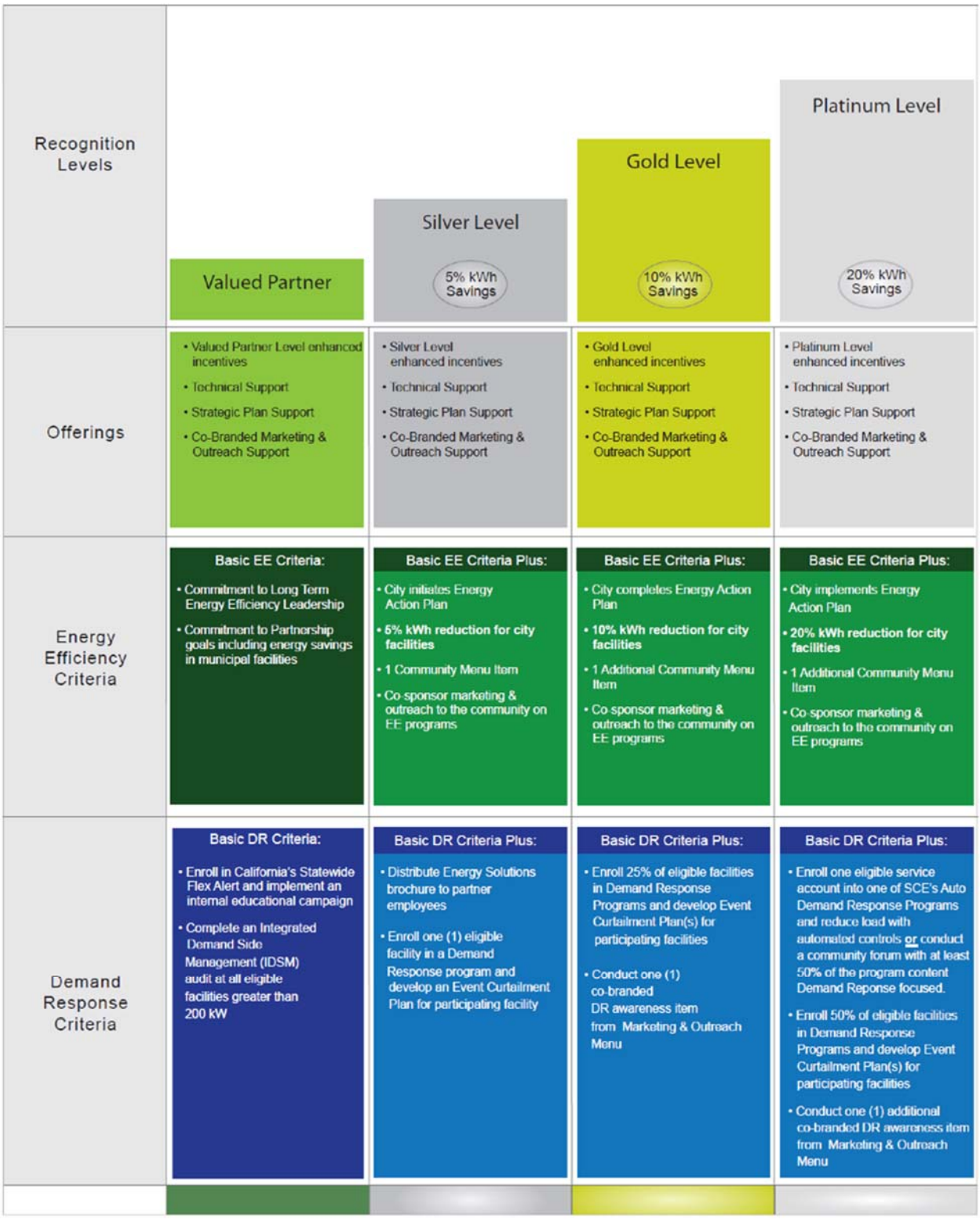
The California Public Utilities Commission has established the Energy Leader Partnership Program (ELPP) in order to support the long-term energy efficiency efforts of the Commission on Environmental, Economic and Social Policy (CEESP), particularly by providing resources to local governments in municipal energy efficiency efforts and increasing interest and participation in demand-side management opportunities. ELPP takes into account a tiered system that corresponds to the efforts and level of energy efficiency achieved by a participating municipality, based on the percentage of reduction in kWh usage. The adoption of an Energy Action Plan positions the City of Norwalk to attain the Gold Level within the ELPP allowing the City to receive even higher incentives and continue to lead by example.

The ELPP has four focus areas: municipal upgrades, demand response, strategic plan support, and energy efficiency programs coordination. The ELPP 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 and earn additional financial incentives, each participating city must achieve the predetermined energy savings and requirements community-wide and for city facilities.

By working together with Southern California Edison the City of Norwalk is open to receive various benefits, such as no-cost third party audits at selected facilities, one-on-one technical support through ELPP's technical assistance consultants, strategic planning support with energy efficiency and sustainability, and marketing/outreach materials for the community. The Partnership allows the City to receive enhanced

incentives from the utilities for electricity and natural gas savings for municipal retrofit projects. As the City's energy efficiency increases, the monetary benefits per kWh saved also increase. The City is presently a Silver level partner and is aiming towards the higher level tiers. Through the Partnership Program, the City has leveraged and disseminated energy efficiency information and technical assistance to use energy more efficiently in municipal facilities and throughout the community. In addition, the City has also leveraged the ELPP to increase community awareness and participation in community-wide energy efficiency programs funded by the two utilities.

In 2012 the City of Norwalk committed to being an entry level "Valued Partner" within the ELPP, which required the City to begin saving energy initiatives at their municipal facilities. Further commitments with SCE would go beyond the municipal electric cost savings, and lead to a larger community energy savings commitment. Until then, the next step for the City of Norwalk to stand out as a leader is to meet the criteria necessary to elevate their ELPP level. For over a year the City has completed much of the criteria to be on track for "Gold" level. In order to advance, an additional municipal savings of 186, 365 kWh is required, and the EAP must be approved by SCE, pending completion. The City looks forward to meeting that requirement with the completion of this Plan.


Recognition Levels
Valued Partner
Silver Level
5% kWh Savings
Gold Level
10% kWh Savings
Platinum Level
20% kWh Savings
Offerings
• Valued Partner Level enhanced incentives
• Technical Support
• Strategic Plan Support
• Co-Branded Marketing & Outreach Support
• Silver Level enhanced incentives
• Technical Support
• Strategic Plan Support
• Co-Branded Marketing & Outreach Support
• Gold Level enhanced incentives
• Technical Support
• Strategic Plan Support
• Co-Branded Marketing & Outreach Support
• Platinum Level enhanced incentives
• Technical Support
• Strategic Plan Support
• Co-Branded Marketing & Outreach Support
Energy Efficiency Criteria
Basic EE Criteria:
• Commitment to Long Term Energy Efficiency Leadership
• Commitment to Partnership goals including energy savings in municipal facilities
Basic EE Criteria Plus:
• City initiates Energy Action Plan
• 5% kWh reduction for city facilities
• 1 Community Menu Item
• Co-sponsor marketing & outreach to the community on EE programs
Basic EE Criteria Plus:
• City completes Energy Action Plan
• 10% kWh reduction for city facilities
• 1 Additional Community Menu Item
• Co-sponsor marketing & outreach to the community on EE programs
Basic EE Criteria Plus:
• City implements Energy Action Plan
• 20% kWh reduction for city facilities
• 1 Additional Community Menu Item
• Co-sponsor marketing & outreach to the community on EE programs
Demand Response Criteria
Basic DR Criteria:
• Enroll in California's Statewide Flex Alert and implement an internal educational campaign
• Complete an Integrated Demand Side Management (IDSM) audit at all eligible facilities greater than 200 kW
Basic DR Criteria Plus:
• Distribute Energy Solutions brochure to partner employees
• Enroll one (1) eligible facility in a Demand Response program and develop an Event Curtailment Plan for participating facility
Basic DR Criteria Plus:
• Enroll 25% of eligible facilities in Demand Response Programs and develop Event Curtailment Plan(s) for participating facilities
• Conduct one (1) co-branded DR awareness item from Marketing & Outreach Menu
Basic DR Criteria Plus:
• Enroll one eligible service account into one of SCE's Auto Demand Response Programs and reduce load with automated controls or conduct a community forum with at least 50% of the program content Demand Reponse focused.
• Enroll 50% of eligible facilities in Demand Response Programs and develop Event Curtailment Plan(s) for participating facilities
• Conduct one (1) additional co-branded DR awareness item from Marketing & Outreach Menu

2.2 Previous projects/planning in energy efficiency

The EAP builds upon existing City initiatives in energy conservation, since joining the SCE Energy Leader Partnership Program Norwalk has actively pursued energy efficiency and conservation improvements in its operations prior to the development of this EAP. The table below summarizes energy-related city projects and plans, policies, and programs to date.

Table 1 – Previous Energy Efforts

Initiatives	Description
Facility Energy Assessments	The City completed SCE-sponsored energy assessments in March of 2103 of the Norwalk Sports & Arts Complex (NASC) and City Hall. The assessments focused primarily on efficiency opportunities related to interior and exterior lighting systems.
Lighting Upgrades	The City also participated in SCE's Direct Install Program for interior lighting upgrades for 8 municipal facilities; Gerdes Park, Alondra Library, Social Services, Transportation, Hermosillo, Mendez, Aquatics Pavilion and the Teen Center.
HVAC Infrastructure Upgrades	The City has also been upgrading old non-efficient HVAC units with higher efficiency units at the following facilities; Sproul Barn, Sproul Recreation, city Hall, Community Info Booth, Alondra Library, and Social Services
Energy Efficiency & Conservation Block Grant (EECBG)	In 2009 the City received a grant from the Department of Energy and implemented the following projects; Cool Roof at the Arts & Sports Complex and City Hall. Installed energy efficient lighting at the Civic Center Parking Structure and the Vehicle Maintenance Bay. Replaced four (4) HVAC units at the Social Services Offices for higher efficiency units.
Energy Efficiency Upgrades	In addition the City has upgraded several Parking Lot Lights from HPS to LED at the Senior Center and the Social Services facility.
Traffic Signals	In 2014 the City upgraded several Safety Lights from HPS to LED saving the City 282,000 kWh in energy use. In years prior the City had also upgrades all the City's Traffic Signals from incandescent to LED.
LED Streetlight Study	The City is currently working closely with SCE to evaluate whether it is financially feasible to purchase 54,000 of the SCE-owned street lights which the City currently pays utility cost for. The purpose of the purchase would be to upgrade lamps from HPS to LED.
Demand Response	The City has been working with SCE to identify potential facilities that can participate in SCE's various Demand Response Programs. Currently the Transportation/Public Services facility is enrolled in SCE's Critical Peak Pricing Program. The Critical Peak Pricing (CPP) rate is designed to reward participating customers for voluntarily reducing electricity usage, or for shifting usage to off-peak hours. Critical peaks occur a few times during the summer due to weather or system conditions, such as increased demand to the power supply.

3. Purpose of EAP

The City recognizes the emergence of energy conservation, renewable energy production, and climate change as critical issues related to long-term sustainable development. As an advocate of sustainable practices and energy efficiency, the City of Norwalk is committed to leading the local community by curbing its energy usage and greenhouse gas emissions across their municipal portfolio of operations. The purpose of this Energy Action Plan is to establish an overall realistic net energy consumption reduction targets and identify and scope projects to achieve the target over time. Norwalk is committed to a brighter future for generations to come, this EAP will provide a framework for the City to determine the feasibility of projects that are conducive to the goals expressed within this plan.

The EAP was developed in 2015 as described below:

1. **Establish 2010 Baseline.** The Norwalk EAP includes a municipal energy baseline that quantifies electricity consumption in 2010. The year 2010 was chosen as the baseline based on guidance from internal stakeholders, city staff and is consistent with most local government energy action plans in California. Complete and accurate electricity energy consumption data was available for the 2010 year. The EAP also summarizes energy consumption information for 2011 through 2013 and depicts trends from the 2010 baseline. The gathering of historical utility data was crucial to fully understanding the City's potential for energy savings, as well as for understanding the City's aggregate and individual facility usage. In the case of this EAP, which focuses on facilities, utility data was obtained from Southern California Edison for 2010, 2011, 2012 and 2013.

2. **Conduct facility walk-throughs.** The EAP team including consultant energy engineers conducted facility walk-throughs of all Norwalk's facilities in January 2015. These site visits, and the ensuing identified energy upgrades were the foundation for the reduction targets and implementation plan. The consultant team worked alongside City staff to coordinate all audit dates and data gathering at the chosen sites. Audit walk-throughs were comprehensive in nature and considered all electric energy–consuming equipment and systems for each facility.

3. **Develop Energy Reduction Targets.** Energy data from SCE was used to determine total electric energy consumption in 2010. Electric energy reduction targets were based on this 2010 baseline total. Following review of the baseline data, stakeholder feedback, and other available information, the EAP development team identified a set of energy projects for the City that would result in a decrease in energy usage. The reduction target goals were determined by a reasonable expectation for implementing projects and other energy reduction initiatives currently underway.

4. **Identify Implementation Steps.** Staff prioritized EAP projects based on City funding budget schedules and feedback from the EAP development team. The EAP outlines actions for Milestone 1 (year 2015), Milestone 2 (year 2020) and Milestone 3 (year 2025) while identifying which projects were best to target in which milestone periods and how the EAP programs corresponded with 2013-2031 General Plan goals and policies.

5. **Conduct Stakeholder Engagement.** The EAP process included stakeholder engagement to obtain feedback on proposed EAP projects and the development of the proposed schedule. Meetings took place monthly with internal stakeholders to communicate the benefits of energy efficiency and

opportunities for energy efficiency and conservation with the recent development of energy related policy initiatives.

With these five tasks, the City developed an EAP designed to lead the City with realistic projects to increase energy efficiency and conservation. The City seeks to engage staff and key stakeholder in a dialogue that motivates to achieve energy savings and reduce long-term energy costs and helps the City achieve its energy reduction targets.

3.1 Rational for EAP

The City of Norwalk has set out an objective aimed to reduce energy consumption, and as a result reduce greenhouse gas emissions (GHG). Furthermore, the Plan is a direct result of commitments made by the State of California and consistent with the objectives of California's Long-Term Energy Efficiency Strategic Plan (CEESP) that sets a clear roadmap for local government agencies to significantly reduce energy usage through 2020. Pursuant to Decision 09-09-047, the California Public Utilities Commission (CPUC) authorized Southern California Edison (SCE) to conduct strategic plan activities centered on energy efficiency and addressing the strategies and related local government goals found in the CEESP. Following a competitive solicitation, SCE awarded funding to Norwalk to develop an EAP to achieve the following two CEESP goals:

- *SCE Strategic Plan Goal 4:* "Local governments lead their communities with innovative programs for energy efficiency, sustainability and climate change."

- *SCE Strategic Plan Goal 3:* "Local governments lead by example with their own facilities and energy usage practices."

This Plan represents the means in which the City of Norwalk will achieve these goals, and illustrates the City's dedication to conserving energy costs at municipal facilities; and also serves as a platform to lead by example. The efforts performed by the City shall facilitate those objectives associated by reducing adverse effects on the environment and raising awareness within the community to preserve the quality of life.

3.1.1 Objectives

The City of Norwalk has researched a number of Southern California cities that have developed Plans to align with the State's goals. As such, the following objectives are those that have been in practice by similar municipalities in recent years. In order to address California's energy reduction goals as well as elevate Norwalk's standing within SCE's Energy Leader Partnership the City must abide by these standards:

- Establish long term vision and plan for energy efficiency in City
- Clearly states the aim and objectives of the plan
- Record the baseline municipal energy usage (kWh)
- Display the highest users (facilities) that the city should target
- Identifies the City reduction goals and milestones
- Provides the plan of municipal facility projects that the City can complete to assist in achieving their reduction
- Identify priority of projects
- Identifies expected funding mechanisms to complete municipal facility energy efficiency projects

- Identifies any policies or procedures the City can implement to assist in reducing energy use
- Add 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
- Language stating the EAP will be integrated in the next General Plan update or other policy documents

3.1.2 Benefits to the City of Norwalk

The Energy Action Plan (EAP) is intended to provide a roadmap that the City can follow to meet its long-term energy efficiency and sustainability goals. The EAP aims to identify quantifiable goals and provides various energy conservation measures that the City can implement to achieve those goals.

The City's goals to increase energy efficiency of its operations are related to those being developed at the federal and state levels, and by other local agencies and entities, including public utilities. Strategies and measures discussed in the EAP build on the City's innovative work to date, serving to protect natural systems, reduce emissions and waste, improve energy and water efficiency, and ensure long-term access to reliable, clean, and affordable energy. The EAP outlines the City's commitment and strategy to adapt to a changing climate, as well as to protect the built environment, public health and welfare, and natural resources from the vulnerabilities caused by changing climate conditions.

If all the projects and actions outlined in this Plan are undertaken the City will reduce electrical energy usage by 25% by 2025 from 2010 levels. These outcomes further implement and build on the City's existing environmental stewardship and leadership

3.1.3 Environmental

Reduced Pollution and Fossil Fuel Usage – Energy efficiency improvements at a facility can provide results with regard to the health and safety of the municipality. Energy-efficient buildings are known to have higher standards of indoor air quality, low emitting materials, air filters, outdoor air delivery, and carbon dioxide monitoring. Further, the efficiency measures incorporated into these buildings include enhanced lighting, thermal controls, and daylighting, which have proved to have the added health benefits for facility occupants. In addition, reductions in energy will help the city reduce greenhouse gas emissions, the following benefits apply:

- Helps to increase the community's resilience to the effects of climate change.
- Provides a policy document with specific implementation measures to be considered as part of the planning process for future development projects.
- Provides a list of specific actions that will reduce energy usage and GHG emissions, with the highest priority given to actions that provide the greatest reduction in EE and benefit the community at the least cost.
- Identifies the City's energy strategy to achieve energy efficiency goals and targets, in addition to the overall GHG emissions reductions.
- Implements programs that integrate with the State of California's long-term energy efficiency goals.

By capitalizing on these benefits the City of Norwalk is not only reducing energy usage and GHG emissions but also helping to prevent the worst impacts of climate change from coming to bear in future decades.

3.1.4 Economic

Reduced Energy Costs – local governments are obligated to abide by their fiduciary duties and remain prudent when making decisions regarding management of public funds. The benefits of the EAP fall onto the City's constituents; reduced energy costs can result in an increase in available resources or reduced tax revenue needs. Funds generated that otherwise would have been spent on wasted energy can be invested back into the community.

Energy can account for as much as 10 percent of a local government's annual operating budget (U.S. DOE, 2005), a proportion that is likely to grow as energy prices rise. As President Obama noted when introducing his economic recovery plan American Recovery and Reinvestment Act (ARRA) in December 2008, reducing energy use in public buildings could save American taxpayers billions of dollars each year.

Business Opportunities for the Private Sector – Energy efficiency projects cultivate certain opportunities for local businesses by bringing local experts to the table. Engineers, planners, architects, suppliers, contractors, and other consultants see to every detail from the planning through the verification stages. An example of the various functions provided during the life of the project may include some of the following:

- Electrical contracting
- Environmental and solar consulting
- Landscape contracting
- Welding contracting
- Excavation contracting
- Crane operation
- Rental services
- Tools and hardware

3.1.5 Risk Management

Less Vulnerability to Changes in Energy Costs, Availability, and Reliability – the implementation of energy efficiency practices into municipal operations not only decreases City utility consumption and costs, but also the subsequent costs passed back to residents and businesses. As utility prices continue to increase, energy efficiency will help lesson negative financial impacts at the local level. Californians have experienced rolling blackouts as a way of constraining electricity usage during peak times of the year. Such events of shortages have occurred in our history; gasoline shortages of 2008 and autumn of 2012 brought about the high energy prices similar to those pressures endured during the 1970s. The EAP provides a map designed to address changes in electricity availability and reduce energy demand. By making plans for a rainy day the City of Norwalk can weather the storm by forecasting changes and preparing short and long term solutions.

3.2 Effort in relation to policy drives from other agencies (state/regional)

3.2.1 AB32, SB375, CEESP and others

Following the energy crisis of 2006 in California, Governor Arnold Schwarzenegger declared that our state would be bold enough to takes those actions necessary to provide relief to our aging energy infrastructure. Assembly Bill 32 was signed into law as the California Global Warming Solutions Act of 2006. This policy established a plan to reduce greenhouse gas emissions throughout the state by 2020. Considering the fact that California stood as the 12th largest emitter of carbon worldwide this policy had specific requirements set out in order to accomplish such a bold achievement. Further, the requirements are constrained by a limited timeline with specific milestones. As such, the City of Norwalk is obliged to meet the stipulations as an "energy partner".

In 2008, the California Assembly Bill 32 Scoping Plan required that the California Air Resources Board (CARB) pursue the following greenhouse gas emissions reductions through the regulations and market mechanisms setout herein:

- GHG emission reduction to 2000 levels by 2010.
- GHG emissions reduction to 1990 levels by 2020 (25% total reduction)
- GHG emissions reductions to 80% below 1990 level by 2050.

The "Scoping Plan" cites local government action as an integral step to meeting the State's energy and GHG goals. In addition to partnering with local governments to encourage the establishment of regional emission reductions goals and community regulations, the Scoping Plan uses specific mechanisms to reduce emissions state-wide, including incentives, direct regulation, and compliance mechanisms. It's important to note that energy reduction goals do not equate to GHG emission reductions, reducing energy greatly reduces GHG emissions and is a vital step for the City to take.

3.3 Policy Statement

The EAP was developed to serve as a guide for energy reductions throughout municipal operations. The Plan includes strategies to achieve energy reduction. By providing a guide for the City to follow, reductions in energy use can be achieved which will result in energy savings. It provides the basic structure for City staff and decision makers to implement and encourage energy reduction in their facilities.

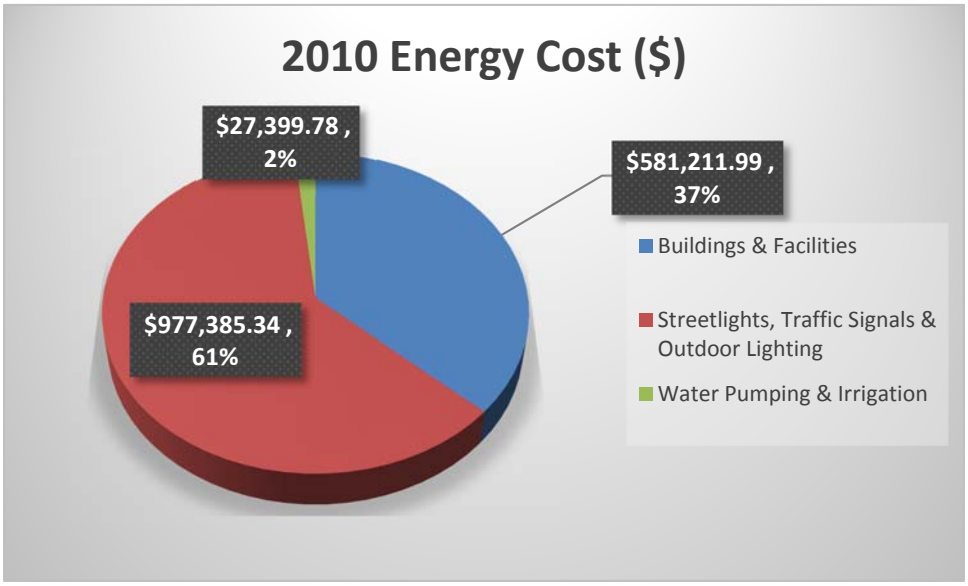
4. City of Norwalk Energy Use

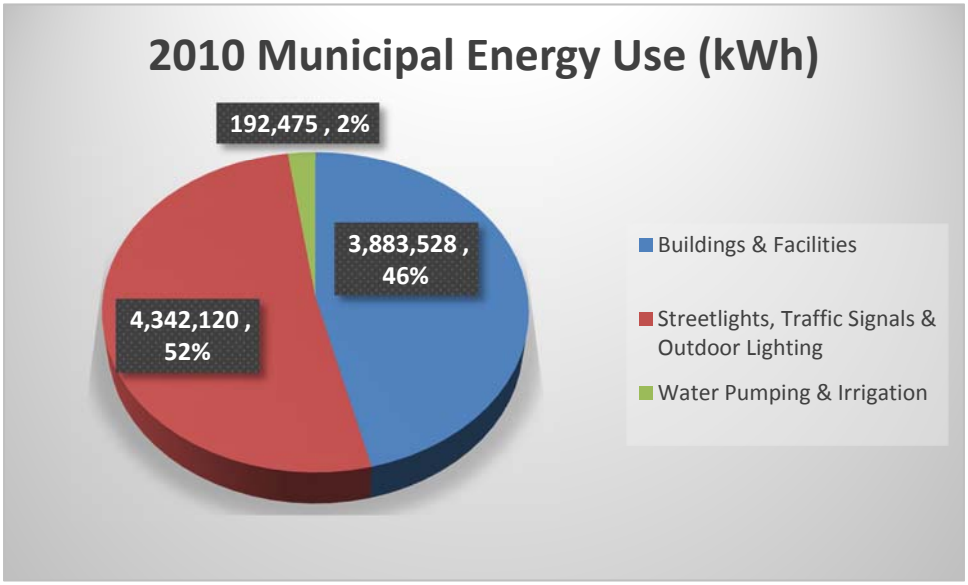
4.1 City of Norwalk Baseline Municipal Energy Use

The following table lists the City's energy use for the established baseline year of 2010. The data was received from Southern California Edison for all City electricity accounts and it broken down by category. The City-wide energy use baseline established for the City of Norwalk is 8,418, 123 kWh. The baseline is based on 2010 annual consumption data gathered from Southern California Edison records across the City's portfolio of service accounts.

Table 2 – Municipal Operations/Category

Municipal Operations/Category	kWh	Annual Cost ($)
Buildings & Facilities	3,883,528	$ 581,211.99
Streetlights, Traffic Signals & Outdoor Lighting	4,342,120	$ 977,385.34
Water Pumping & Irrigation	192,475	$ 27,399.78
Total 2010 Baseline Usage	8,418,123	$ 1,585,997.11



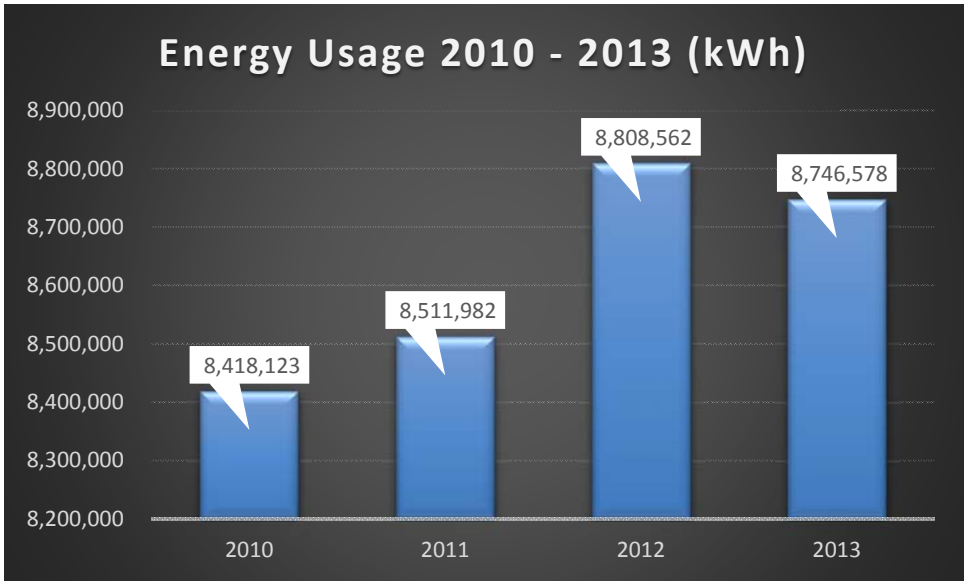


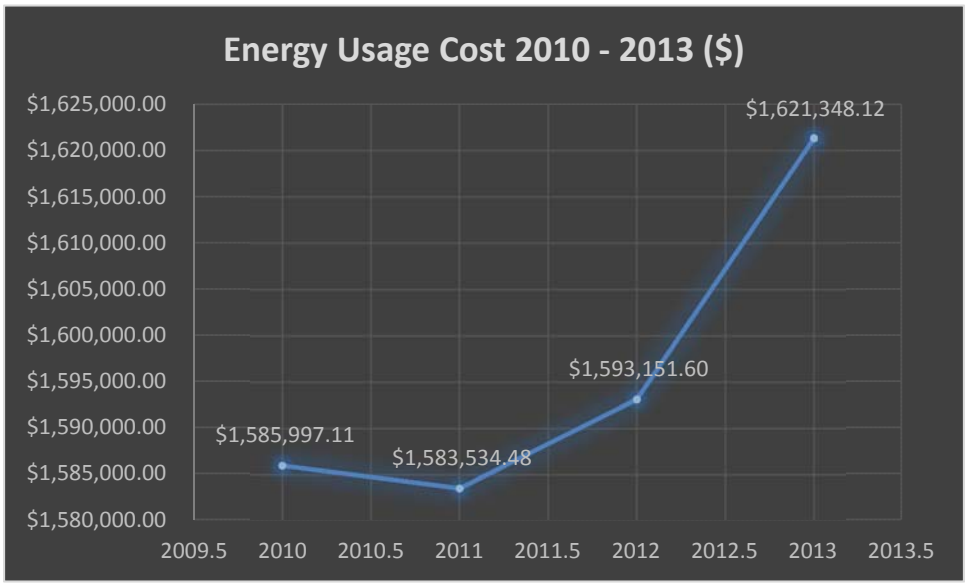
4.2 Energy Usage Inventory

The table below presents energy usage for municipal operations from baseline year of 2010 through the year 2013.

Table 3 – Municipal Energy Usage

Municipal Energy Usage 2010 - 2013			
Year	kWh	Cost ($)	
2010	8,418,123	$	1,585,997.11
2011	8,511,982	$	1,583,534.48
2012	8,808,562	$	1,593,151.60
2013	8,746,578	$	1,621,348.12





5. City of Norwalk Target Reduction Goals

The key component of an Energy Action Plan (EAP) is to establish target energy reduction goals. Accordingly, this EAP has set a goal to reduce City of Norwalk's existing municipal energy use by 25% by 2025. It has also set milestone goals of year 2015 and 2020. The reduction goal was determined with reference to the Global Warming Solutions Act of 2006 (AB 32) which requires by California law a reduction of greenhouse gas emissions (GHG) to 1990 levels by 2020.

The City's 2010 municipal electricity baseline as reported below is 8,418,123 kWh. A 25% reduction from this baseline establishes a target energy use of 6,313,592 kWh by 2025.

	Energy Reductions (kWh)	Potential Cost Savings ($)	Target Year
2010 Baseline	8,418,123	$ 1,094,356	N/A
10%	841,812	$ 109,436	2015
20%	1,683,625	$ 218,871	2020
25%	2,104,531	$ 273,589	2025

5.1 Framework for Goal Development

5.1.1 Stakeholder Involvement

The EAP process included internal stakeholder engagement from inception to completion of the Energy Action Plan. Monthly meetings were held with internal stakeholders; City staff and the Public Services Manager to discuss goals, target years, and to lay out the foundation of the implementation plan and schedule.

6. Norwalk Facilities

Below is a description of the services provided by each of the City's categorized "highest energy use" facilities. Several energy conservation measures were identified within these facilities and as well as others not categorized in the highest usage table. Other facilities were targeted for their potential to contribute to the overall reduction goals chosen by the City.

6.1 Facilities

6.1.1 Norwalk Transportation/Public Services Building

The City of Norwalk Public Services Department is housed in the Transportation/Public Services Building which is responsible for maintaining publicly owned properties and rights-of-way. In addition the facility is located next to the Norwalk Transit Center and also houses a Maintenance Bay and the Transit Parking Lot. A walk through of this facility was completed in January 2015 and several energy conservation measures were identified.

6.1.2 Norwalk Arts & Sports Complex

The City of Norwalk Arts & Complex facility is one of the most comprehensive and affordable fitness centers in the region. Membership entitles patrons the use of a weight room, a basketball gymnasium, four indoor racquetball/handball courts, and a Ping-Pong table. A walk through of this facility was completed in January 2015 and several energy conservation measures were identified.

6.1.3 Norwalk City Hall

The City of Norwalk City Hall houses the Administration Department are the Management Services and Community Information Divisions. Management Services and Community Information are responsible for a variety of assignments such as, legislative tracking, waste management, providing the community with accurate information through the production of the Norwalk Now, Business Watch newsletters, and press releases, and coordination of special events, etc. Administration also heads the Successor Agency to the Norwalk Redevelopment Agency, Business Development and coordinates the grant activities of the City. A walk through of this facility was completed in January 2015 and several energy conservation measures were identified.

6.1.4 Norwalk Aquatic Pavilion

The City of Norwalk Aquatic Pavilion is a state-of-the-art facility providing the community with opportunities for fun and learning. The Aquatic facility offers residents of the community a place for swimming and family fun.

6.1.5 Norwalk Senior Center

The Norwalk Senior Center is a beautiful and spacious facility geared specifically for the enjoyment and leisure of the mature adult population, 50 years and above. Recreational, social, educational and health related programs and services are offered.

6.2 Highest Users per Facility

2010 Highest Energy Usage Per Facility			
Facility	Address	Energy (kWh)	Annual Cost ($)
Transportation/Public Services Building	12650 Imperial Highway	927,752	$ 103,301.31
Norwalk Arts & Sports Complex	13000 Clarkdale Avenue	603,429	$ 91,134.30
City Hall	12700 Norwalk Boulevard	599,095	$ 94,167.93
Aquatic Pavilion	12203 Sproul Street	320,104	$ 40,352.10
Senior Center	14040 San Antonio Drive	303,716	$ 54,073.04

7. City of Norwalk Action Steps

7.1 Implementation Strategy

The City of Norwalk is presently a Silver Partner with the Energy Partnership. To attain a higher level status, the City is required to "initiate", "complete", and "implement" an Energy Action Plan (EAP). This is key criteria for Gold, and Platinum levels, respectively. While items one and two are complete, the third item, "implementation", requires additional effort. This section highlights the City's plan for EAP implementation. A strategy for successful implementation of this EAP was developed by the City and is outlined in preceding sections. The table defines clear and measurable goals that the City will pursue as it moves forward through the implementation phase. Action steps are also identified to direct the City's efforts in accomplishing each goal.

To attain Platinum level status in the program, the City is required to implement this EAP. In order to implement this EAP, the City will:

- Adoption of the EAP by City Council
- Include reference to energy efficiency in the City's strategic plan
- Continue to review funding sources and project feasibility
- Adopt one of the policies described in the Norwalk Strategic Plan Program section of this EAP
- Document completion of projects in the EAP and in future revisions to the EAP.

7.1.1 Plan of Action and Schedule

In January of 2015 the City completed site visit walk-throughs of the following facilities Alondra Library, Aquatic Pavilion, Arts & Sports Complex, City Hall, Cultural Arts Building, Senior Center, Social Services Center, Sproul Recreation Center and the Teen Center with the sole purpose of identifying energy conservation measures to help the City reach its reduction target goals. Separately the City also completed a photometric study of their Park Lighting with a component geared to identify additional lighting energy conservation measures to reduce usage. The Parks included in this study were Gerdes, Glazier, Ramona, Zimmerman, Hermosillo, Holifield, New River, Norwalk, Sara Mendez and Viste Verde.

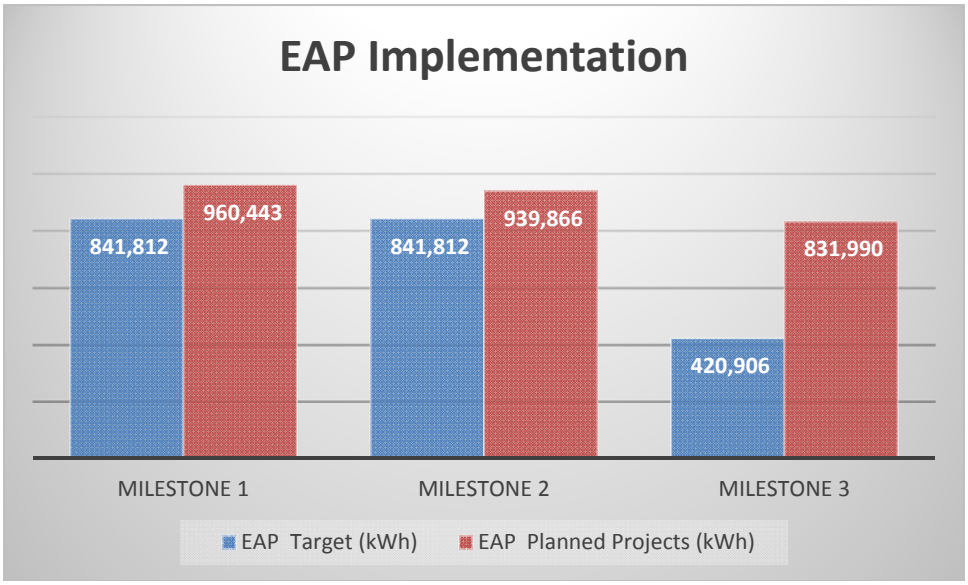
All projects identified at these facilities and parks have been included in the implementation schedule. Below is the implementation plan intended to be broken based on projects already in progress during the start of the creation of this Plan. Also, the schedule reflects when City funding will be available.

Recent/Planned Projects 2015 Completion of Milestone 1			
Item	Project Description	Measure	Total kWh
ECM- 1	Parking Structure 177 Fixtures	Lighting	102,492
ECM- 2	Parking Structure 22 Fixtures	Lighting	12,912
ECM- 3	Garage Bay Lighting	Lighting	60,313
ECM- 4	Parking Structure 10 Fixtures	Lighting	11,169
ECM- 5	Safety Lights	Lighting	292,000
ECM- 6	Aquatic Pavilion	VFD	61,889
ECM- 7	HVAC Package Units Upgrade Phase 1	HVAC	249,910
ECM- 8	HVAC Package Units Upgrade Phase 2	HVAC	125,000
ECM- 9	Alondra Library	Lighting	3,293
ECM- 10	Senior Center	Lighting	2,436
ECM- 11	Transit	Lighting	16,720
ECM- 12	City Hall/Concourse Lighting	Lighting	4,212
ECM- 13	Norwalk Arts & Complex Center	Lighting	5,000
ECM- 14	Parking Structure	Lighting	13,097
Total Estimated kWh			960,443

Planned Projects 2016 - 2020 Completion of Milestone 2			
Item	Project Description	Measure	Total kWh
ECM- 15	HVAC Package Units Upgrade Phase 3	HVAC	125,000
ECM- 16	Hermosillo Park	Lighting	36,662
ECM- 17	Holifield Park	Lighting	390,328
ECM- 18	New River Park	Lighting	3,157
ECM- 19	Norwalk Park	Lighting	98,601
ECM- 20	Sara Mendez	Lighting	11,656
ECM- 21	Vista Verde Park	Lighting	21,976
ECM- 22	Gerdes Park	Lighting	21,222
ECM- 23	Glazier Park	Lighting	4,928
ECM- 24	Ramona Park	Lighting	10,012
ECM- 25	Zimmerman Park	Lighting	216,324
Total Estimated kWh			939,866

Planned Projects 2021 - 2025 Completion of Milestone 3			
Item	Project Description	Measure	Total kWh
ECM -26	Alondra Library *	HVAC, Ltg, Other	4,388
ECM -27	Aquatic Pavilion	HVAC, Ltg, Other	50,360
ECM -28	City Hall	HVAC, Ltg, Other	267,397
ECM -29	Cultural Arts Center	HVAC, Ltg, Other	20,762
ECM -30	Arts & Sports Complex	HVAC, Ltg, Other	168,306
ECM -31	Senior Center	HVAC, Ltg, Other	84,303
ECM -32	Social Services	HVAC, Ltg, Other	18,740
ECM -33	Sproul Recreation	HVAC, Ltg, Other	3,324
ECM -34	Teen Center	HVAC, Ltg, Other	4,984
ECM -35	Transportation/Public Services Bldg.	HVAC, Ltg, Other	209,426
Total Estimated kWh			831,990

The above noted projects position the City to meet their desired target reduction goals by the year 2025. Using the policies and software tools obtained during the implementation of the Norwalk Strategic Plan Strategies Program the City will carefully monitor the progress made towards the outlined goals in this Plan. Based on the projects identified, the City expects to hit each milestone on target.



7.2 Project Funding

As is the case with most local governments today, adequate resources and availability of funding plays a critical role in the implementation of projects. In the last couple years, the economic recession has made it particularly difficult to approve energy conservation projects, regardless of how attractive payback periods are. The

following are various project funding mechanisms that the City should investigate and utilize (wherever applicable).

Federal Government and State Grants

California's Executive Offices are responsible for most of the energy efficiency grants that are issued by their respective regions; a database of these can be found at http://www.ca.gov/Grants. Additional grants for substantial sums of money are typically distributed by the Federal Government; a full directory of available energy efficiency grants can be found at http://www.grants.gov. These grants are split between competitive grants, in which applicants compete with a number of other applicants for a limited pool of money, and formula grants, in which money is allocated according to a particular set of requirements that an applicant must meet.

Energy efficiency grants have become more common in recent years along with increased concerns about climate change and energy independence. The U.S. Department of Energy's Energy Efficiency and Conservation Block Grant Program (EECBG), provided over $3.2 billion in 2009 for a variety of energy efficiency programs such as auditing and retrofitting residences and businesses to make them more energy efficient; the implementation of various energy conservation campaigns; and the deployment of energy efficient street lights and traffic signals. According to the U.S. Department of Energy, Energy Efficiency and Renewable Energy, Weatherization and Intergovernmental Program, the City of Norwalk benefited from one of these grants it was allocated an EECBG for $935,700.00 on September 14, 2009.

For information on Federal Government energy efficiency funding initiatives, visit the Federal Government website: http://www.eere.energy.gov.

Utility Rebates and Incentives: Southern California Edison/Gas Energy Efficiency Programs

The City of Norwalk should continue to leverage the many rebate and incentive programs made available through local utilities, including SCE and Southern California Gas (SCG). These programs provide a crucial economic boost for energy projects, including retrofit, new construction, and retro-commissioning (RCx)/ monitoring-based commissioning (MBCx) projects. Program and incentive specifics can be found by contacting the City's local SCE & SCG representatives.

On-Bill Financing (OBF)

On-Bill Financing is an IOU mechanism that enables cities to finance energy efficiency projects with loans that are repaid through their utility bill. Both SCE and SCG offer On-Bill Financing Programs in conjunction with their energy-efficiency rebate and incentive programs. Key Features include:

- 0% interest loans
- No fees on loan costs
- Convenient loan repayment through your monthly SCE/SCG bill
- For more information, visit: sce.com/on-bill-financing and socalgas.com/rebates/zero-interest

The Energy Network (TEN) - Energy Project Lease Financing Program

Energy Project Lease Financing addresses many of the common challenges public agencies face when financing energy projects. The program offers low interest rates, and a simple application process to quickly get funding from private lenders. Financing is not contingent on whether the project qualifies for utility rebates and incentives, and can be combined with utility or public financing.

Energy Project Lease Financing offers several benefits:

- No up-front capital required
- No maximum borrowing limit
- Competitive interest rates
- Terms of up to 15 years, allowing projects to be cash flow positive
- Simple, quick process with little paperwork
- No cross collateralization with other agencies
- Unlimited funding available through private lenders
- Semi-annual payments

To find out more about the advantages of Energy Project Lease Financing visit:
action.theenergynetwork.com/financing

California Energy Commission's Energy Efficiency Financing Program

The California Energy Commission's (CEC) Energy Efficiency Financing Program provides financing for cities, counties, public care institutions, public hospitals, public schools and colleges, and special districts through low-interest loans for the installation of energy-saving measures.

Loans for energy projects can fund 100% of the project within a 17 year (maximum) simple payback. The loan must be repaid from energy cost savings or other legally available funds within a maximum term of 20 years (including principal and interest). The repayment schedule is based on the estimated annual energy cost savings from the aggregated project(s), using energy costs and operating schedules at the time of loan approval. Simple payback is calculated by dividing the dollar amount of the loan by the anticipated annual energy cost savings.

The interest rate is 1% and is fixed for the term of the loan.
For more information, see visit: energy.ca.gov/efficiency/financing

Power Purchase Agreements (PPAs)

A Power Purchase Agreement (PPA) is a mechanism for an end-use customer to purchase clean energy from a power producer for on-site projects. In the case of solar photovoltaic electricity, a city can opt to purchase solar energy from a system installed on-site through a PPA at a negotiated rate instead of purchasing, installing, and maintaining the operations of solar photovoltaic panels themselves. While the solar panels may be installed on city premises, the city will not own the system. However, ownership of any renewable energy certificates (RECs) and carbon offset credits generated will need to be negotiated as part of the PPA. A major advantage of a PPA is that no up-front investment or ongoing maintenance costs are required from the city while the solar PV energy is often guaranteed by the PV provider. However, the risk of the negotiated electricity rate is usually placed on the buyer.

Efficiency Services Agreements (ESA's)

An Efficiency Services Agreement (ESA) is a pay-for-performance financing solution that allows building owners to implement energy efficiency projects without any upfront capital expenditure. Under this power purchase agreement (PPA)-like structure for energy efficiency, an ESA provider pays for all development and construction costs. After a project is operational, the building owner uses a portion of the cost savings associated with reduced energy consumption to make periodic service payments over the ESA term. ESA payments vary by billing period according to the actual amount of achieved savings.
For each project, the ESA provider enters into the ESA directly with the building owner and pays a third-party contractor (for example, an ESCO) to engineer, implement and maintain the energy efficiency project. Key features of an ESA generally include:

- ESA provider funds 100% of all design, engineering, and construction costs
- Projects can include a broad range of energy efficiency technologies and measures
- ESA provider owns and is responsible for ongoing maintenance services for all equipment, with customer buyout options available
- After the ESA term expires, the customer has the option to purchase the equipment at fair market value
- ESA payments are an operating expense similar in nature to a regular utility bill, although each owner is responsible for conducting their own accounting review

Energy Performance Contracts (EPCs)

Energy Performance Contracts (EPCs) are structured so that energy efficiency projects can be installed with little or no up-front costs to the customer. A portion of the revenue from energy savings goes directly to an Energy Service Company (ESCO), who finances and constructs the project. ESCOs can take on the debt associated with the projects done through the EPC, allowing Districts to keep the debt off of their books.

Green Revolving Fund (GRF)

A Green Revolving Fund (GRF) is an internal fund that provides the financing to parties within an organization or institution to implement energy efficiency, renewable energy, and other sustainability projects that generate cost savings. These savings are tracked and used to replenish the fund for the next round of green investments, thus establishing a sustainable funding cycle while cutting operating costs and reducing environmental impact. Capital for a GRF may be obtained from a variety of funding sources, including grants, government funding, utility rebates and incentives, and from annual operating budgets. The implementation of GRF's has been hugely successful within the college, university, and other nonprofit institutional settings. The GRF approach has begun to expand to new sectors, including healthcare institutions, municipalities, private companies, and governments. Should the City of Norwalk have interest in exploring the possibility of funding sustainability projects through the GRF model, there is a wealth of resources available online. A particularly informative document is a report titled "Green Revolving Funds: A Guide to Implementation & Management," which can be found by following this link:

http://greenbillion.org/wp-content/uploads/2013/08/GRF_Full_Implementation_Guide.pdf

City Funding

The City of Norwalk has a history of promoting sustainability and energy conservation. Specifically as it pertains to municipal facilities, the City has taken a proactive role in implementing energy reduction measures whenever possible and as funding permits. In the pursuit of its energy saving goals, the City will continue to self-fund where possible but will also seek assistance and leverage available resources. Such as grants from the federal government, incentives from utility companies, and assistance from energy partnerships. It will also actively reviewing all other funding mechanisms outlined in this Plan.

8. Energy Management/Monitoring Plan

8.1 Strategic Plan Deliverables

On September 4, 2012, the Norwalk City Council approved participation in Southern California Edison's Energy Leader Partnership Program designed 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. The City applied for and received funding via the Partnership to implement the City of Norwalk's Strategic Plan Strategies Program, which enables the City to establish policies and programs that support energy reduction in municipal facilities and operations. The Strategic Plan Program includes a number of components, an energy benchmarking policy, procurement of a utility manager software program, development of an energy action plan and the implementation of a retro-commissioning (RCx) policy. All the policies and activities accomplished through the program will aid the City in reducing energy usage. Both the policies and identified energy conservation measures together will considerably support the City in reaching its goals.

8.1.1 Energy Benchmarking

Under the City of Norwalk's Strategic Plan Strategies Program, the City developed and implemented an Energy Benchmarking Policy that establishes guidelines for benchmarking municipal building energy consumption and integrating benchmarking data into City operations. The data and results developed through the use of benchmarking City facilities will be used to improve City operations and to integrate future energy reduction measures for implementation. Benchmarking municipal building stock will allow the City of Norwalk to establish an energy usage baseline and identify the best opportunities for improvement, track performance over time, and document energy savings results. The City will initially use ENERGY STAR's Portfolio Manager, an interactive resource management tool to measure, track and assess energy, as the main benchmarking tool to establish benchmarks for City facilities. City data has be entered into the Portfolio Manager Web-based application, and the Portfolio Manager tool will be used to develop and update energy performance, and compare that performance to the tool's national database.

The policy ensures the following:

- At minimum, the following buildings are benchmarked in U.S. Environmental Protection Agency's ENERGY STAR Portfolio Manager: Alondra Library, Aquatics Pavilion, Arts & Sports Complex Center, City Hall, Cultural Arts Center, Gerdes Park, Hermosillo Park, Holifield Park, Sara Mendez Park, Vista Verde Park, Senior Center, Social Services Center, Sproul Recreation Center, Teen Center, and the Transportation/Public Services Facility.

- City of Norwalk facilities that are city-owned buildings or buildings in which the city regularly pays all or part of the annual energy bills as specified by the Public Services Department.
- Benchmarking data is factored into prioritization of municipal building energy efficiency improvement projects. The City will implement energy conservation measures (ECMs) where practical. The ECMs that are implemented will be monitored and tracked for energy usage reductions. This will be accomplished by estimating or measuring energy use before and after the implementation of the ECM.
- Benchmarking data will be used to assess building performance to meet the median energy performance ENERGY STAR score of 50. And continue to seek opportunities to improve building performance and strive for top energy performance status of scores above 75.

8.1.2 Utility Manager Program

As part of the City of Norwalk's Strategic Plan Program efforts, the City of Norwalk also procured and install a Utility Manager System to manager its energy consumption and utilize for future energy planning purposes. EnergyCAP is fully functional and operational and will serve as a tool to monitor and review historical comparisons of facility energy use and costs, whereas ENERGY STAR Portfolio Manager was used to benchmark Norwalk facilities against similar facilities in similar climate zones, and allow the City to compare energy performance across all of its facilities. EnergyCAP allows the City more functionality in monitoring data via patterns of consumption.

The City will monitor progress in meeting its relative energy reduction targets periodically. The City is eager to elevate within the Partnership and will work to define, monitor and report on measurable indicators of success, including program participation rates. A number of tools and practices exist that enable the City to track and report progress toward achieving the targets such as the recently acquired EnergyCAP software. Future planning efforts should focus on the following actions, which have been identified as having a high potential to increase the City's annual energy reductions. Implementation of actions such as these, in conjunction with increasing outreach, education, and support by City staff, will improve the City's ability to reach its energy reduction target.

8.1.3 Commissioning/Retro-Commissioning

Under the City of Norwalk's Strategic Plan Strategies Program, the City also developed and will adopt a Commissioning/Retro-Commissioning Policy that establishes guidelines and procedures for Cx and RCx that the City of Norwalk will implement. Both Cx and RCx will enable the City to maintain the highest energy performance possible throughout the life of its facilities and energy systems. As a result of this policy, the City of Norwalk will reduce electricity costs, extend equipment life, improve indoor air quality, lower overall maintenance costs, and improve staff comfort and productivity. The City will utilize in-house maintenance and operations staff to complete the procedures corresponding with this policy. If the City should choice too, outside contractors may also be utilized to complete procedures.

The Commissioning (Cx)/Retro-Commissioning (RCx) Policy is limited to City-owned buildings or for buildings which the City regularly pays all or part of the annual energy bills as specified by the Public Services Department. In addition the policy is limited to facilities pre-qualified by the City noted in the eligible list noted below. The building systems under this Policy include:

- Central Plant

- Distribution Pumping and Valves
- Domestic Water Systems
- Airside
- Building Management Systems
- Lighting

8.2 Education and Training

Energy awareness and outreach programs are essential to achieve the City-wide energy reduction goals outlined as requirements for Partnership program. The City has to lead by example before it asks its citizens for cooperation in achieving any goals. Such actions include ensuring that new City facilities are built to the highest energy performance and green building standards, providing education and training to municipal staff and users, changing operations and maintenance practices, and opportunities for use of renewable energy resources. The following outlines a few guidelines that can be implemented to help achieve the energy savings goal for City-wide energy use.

Staff Training

In order to implement this plan as eventually adopted by the City Council in whole or in part, the City will provide staff resources to ensure that policies and programs are implemented according to the schedule outlined. To support successful implementation of the EAP, Norwalk is committed to seeking and providing City staff the opportunity to take advantage of available training. Recently, facility maintenance staff completed the Building Operating Certification Training Program offered through the Gateway Cities EL Partnership Program. The City will continue to participate in training as they become available.

Community Outreach Groups

By leveraging Energy Partnership resources and other funding opportunities, the City can organize outreach groups consisting of representatives from City, SCE, and SCG. Outreach staff will be responsible for developing energy awareness materials and programs that educate the community about energy use in a simple manner. Residents should be aware of their impact on the environment and alternative energy efficiency options to reduce energy consumption. All the material and programs should be explained in a simple language and take into account seasonal changes. City may partner with the local utilities and organizations to educate the community by various media types including newspapers, radio, and television. Also, information can be distributed via utility bill inserts, community/HOA meetings, and special events.

Since joining the Partnership program the City has invited and hosted SCE and SCG at several community events throughout the year to bring energy awareness to residents.

Energy Awareness

The City and related partners should work together to share information with the public. Community residents should have easy access to information on what to do to make their homes or businesses more energy efficient and whom to contact for support. This information can be made publicly available through a dedicated “green” web-page on the City’s web site. For example, various links to useful resources can be posted on this same site. These can include the following:

- Energy Upgrade California – Resource for projects, rebates, and State-certified energy efficiency contractors all in one place. (https://energyupgradeca.org/)
- Electric Vehicle Readiness - Southern California Edison's website with information about purchasing a plug-in electric vehicle. (http://www.sce.com/info/electric-car/)
- Flex Your Power - Get quick tips for easy things you can do to save energy, and find rebates for appliances, lighting, heating and cooling, energy audits, and more. (http://www.fypower.org/)
- Cool California - Find rebates and incentive programs for making the home or business more energy efficient. (http://www.coolcalifornia.org/funding-wizard-home)
- Energy Kids On-Line - Fun games and activities for kids and teachers, to help educate kids about the importance of energy efficiency. (http://www.eia.gov/kids/index.cfm)
- Database for Energy Efficient Resources (DEER) - Provides estimates for the energy-savings potential of various energy-efficient technologies. (http://www.deeresources.com/)

As an option, the City can provide a summary of municipal facility energy use including recent energy action steps taken to reduce energy. The City is in the process of implementing a Utility Manager Software Program (EnergyCAP) that can generate various energy reports and track energy data. While this information may be too complex for an average user to understand, a concise easy-to- read summary of annual usage will be helpful. If the City leads by example, it will encourage citizens to reduce their own energy consumption and respective impact on the environment.

9. Conclusion

The City of Norwalk is keen on sustainability and continuing the effort to reduce energy use in all of its facilities. This is evident by the many current energy efficiency measures being undertaken and retrofit project to date and projects in the pipeline. The City is well aware that its facilities will set the example for the citizens within Norwalk. The City is on its way to meeting the energy reduction goal set-forth in this Energy Action Plan. As the City moves forward, it will continue to look for feasible energy reduction opportunities along with funding for the same.

This Energy Action Plan presents goals for municipal electricity energy savings as well as the action steps to achieve these goals. The plan outlines:

- How the City of Norwalk will improve building energy efficiency in City owned buildings
- The actions the City will take to foster future energy efficiency
- The 2010 energy use by City facilities, against which a 10%, 20% and 25% reduction is targeted for 2025
- The methodology by which the City will track and monitor its progress
- A procedure for reporting on accomplishments and adjusting the EAP as needed.

The City recognizes the importance of reducing emissions from energy use, and will continue implementing energy efficiency projects. By presenting the energy savings goals and outlining steps to achieve them, this plan will help the City maximize resources, reduce greenhouse gas emissions, and serve as a model for the community. The City is committed to demonstrating energy leadership while protecting the health and well-being of its citizens.

Appendix A: Glossary of Terms and Abbreviations

This glossary contains definitions for common terms and abbreviations used in the Norwalk Energy Action Plan. The definitions were adapted from a number of sources including the U.S. Environmental Protection Agency, the California Air Quality Board website, Merriam-Webster Online, and Wikipedia.

AB 32: Also California Assembly Bill 32, the Global Warming Solutions Act of 2006. Assembly Bill 32, the California Global Warming Solutions Act of2006. 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 responsible for monitoring and reducing statewide greenhouse gas emissions, with a target to reduce greenhouse gas emissions to 1990 levels by 2020.

Adaptation: The ability of a system to adjust to the potential impacts of climate change or other environmental disturbances. Compare to Mitigation, which means the ability to reduce the amount of emissions caused by an activity.

Alternative Fuels: Substitutes for traditional fossil-fuel-derived liquid motor vehicle fuels like gasoline and diesel. Alternative fuels include biodiesel, hydrogen, electricity, compressed natural gas, methanol, ethanol, and mixtures of alcohol-based fuels with gasoline.

Alternative Fuel Vehicle: A vehicle powered by an alternative fuel as opposed to traditional gasoline or diesel.

American Recovery and Reinvestment Act of 2009 (ARRA): Commonly referred to as the Stimulus or The Recovery Act, was a stimulus package enacted by the 111th United States Congress in February 2009 and signed into law on February 17, 2009, by President Barack Obama. It provided cities with grant funds to implement energy efficient improvement projects.

Assembly Bill 32 (AB 32): The Global Warming Solutions Act of 2006 is the law that set the State of California's 2020 greenhouse gas emissions reduction target of reducing greenhouse gas emissions to 1990 levels. It also directed the California Air Resources Board to develop a Scoping Plan to outline how best to reach the 2020 target.

Baseline Year: The base year for assessment of energy trends against which future progress can be measured for a single calendar year (2010), consistent with legislative guidance and the Assembly Bill 32 Scoping Plan.

BAU, or Business as Usual: What to expect in the normal course of events. A scenario that assumes that no new local actions will be taken to reduce energy usage from current and future businesses operations within the City.

Building Envelope: The physical separation between the interior and the exterior of a building – made up of the walls and insulation, windows and doors, roof, foundation, etc. The envelope serves as the outer shell (sometimes called the skin) of the building, and allows for control of the indoor environment (e.g., heating, cooling, moisture control, air pressure).

California Public Utilities Commission (CPUC): Regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. Its purpose is to

"protect consumers and ensure the provision of safe, reliable utility service and infrastructure at reasonable rates, with a commitment to environmental enhancement and a healthy California economy."

Carbon Footprint: The total set of greenhouse gas emissions caused directly and indirectly by an individual, organization, event, or product. The Greenhouse Gas Inventory measures the carbon footprint of local government operations as well as of the entire community.

CEESP: California Long Term Energy Efficiency Strategic Plan. 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.

Climate: The average weather (usually taken over a 30-year time period) for a particular region and time period. Climate is not the same as weather. It is the average pattern of weather for a particular region. Climatic elements include average annual temperature, humidity, sunshine, wind speed, precipitation, and other measures of atmospheric conditions.

Climate Action Plan: A plan that is in set in place for a city or other jurisdiction to follow in order to control and improve its energy use and emissions CEP or Community Energy Partnership: A partnership aimed at promoting energy efficiency through programs and incentives offered to Brea by Southern California Edison and Southern California Gas.

Demand Response: Actions or programs offered by the local utility to induce ratepayers to temporarily reduce or shift peak electrical consumption when so requested. These requests would typically be in response to either a constrained electrical grid or suddenly increasing electrical prices.

Emissions: Pollution (including noise, heat, and radiation and greenhouse gases) discharged into the atmosphere by individual, residential, commercial, and industrial activities and facilities. A greenhouse inventory measures emissions from a variety of sources (for example: from the 39 burning of natural gas or of transportation fuels) and sectors (such as from industrial or residential buildings).

EAP: Energy Action Plan

Energy Conservation: Reducing energy consumption. Energy conservation can be achieved by simply turning off appliances or equipment, or through advances in efficiency (getting the most productivity from each unit of energy).

Energy Efficiency: Using less energy to provide the same level of service or complete the same task. For example, a more efficient light will use less electricity to provide the same amount of illumination.

General Plan: A long-range policy document to guide land use decisions about physical, economic, and environmental growth. California State law requires counties and cities to have a General Plan which contains seven elements: Land Use; Transportation; Housing; Open Space; Conservation; Safety; and Noise. County general plans cover unincorporated areas.

Global Warming: An increase in the near-surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is most often used to refer to the warming

occurring now or predicted to occur as a result of increased emissions of greenhouse gases due to human activity. Also known as “climate change” given the anticipated variations in heating and cooling, floods and droughts, etc.

Green Building: A structure constructed using materials and building practices that reduce its impact on the environment throughout its entire life (siting, design, construction, operations, and deconstruction). Green buildings are resource efficient, using less energy, water, and other materials.

Greenhouse Gas (GHG): A gas, including water vapor, carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O), which traps heat close to the surface of the Earth, contributing to global warming and climate change.

Greenhouse Gas Inventory (GHG Inventory): The EPA defines a GHG Inventory as follows: “A greenhouse gas inventory is an accounting of greenhouse gases (GHGs) emitted to or removed from the atmosphere over a period of time. Policy makers use inventories to establish a baseline for tracking emission trends, developing mitigation strategies and policies, and assessing progress. An inventory is usually the first step taken by entities that want to reduce their GHG emissions.”

Infrastructure: The basic shared physical structures needed for an urban area to function in an efficient, safe manner. The term typically refers to items such as roads, drinking water systems, sewers, energy systems, and telecommunication systems in a community.

Grid: The transmission and distribution system for electricity made up of a network of synchronized power providers and operated by one or more control centers.

HVAC – Heating, Ventilation, and Air Conditioning

ICLEI, International Council for Local Government Initiatives, now known as Local Governments for Sustainability USA: International organization at the forefront of measuring greenhouse gases. Developed the first inventories starting in 1990. Today, members come from 70 different countries and represent more than 569,885,000 people. ICLEI provides technical consulting, training, and information services to build capacity, share knowledge, and support local government in the implementation of sustainable development at the local level.

LGOP, Local Government Operations Protocol: A standard set of guidelines developed by ICLEI, the World Resources Institute and the California Air Quality Board, aimed at assisting local governments in developing their greenhouse gas inventories.

Kilowatt (kW): A unit of power equal to one thousand watts. The amount of power that a power source has the capacity to generate is typically measured in terms of kW (or, in the case of larger systems, in terms of megawatts (MW). Kilowatt-hours (kWh), by contrast, is a measure of how much energy is actually used or generated over a specific period of time (i.e., one hour).

Kilowatt-hour (kWh): An amount of electricity equivalent to the use of one kilowatt for one hour. A hundred watt light bulb that is on for 10 hours uses one kilowatt-hour of electricity (100 watts x 10 hours = 1,000 watt-hours = 1 kilowatt-hour).

LEED or Leadership in Energy and Environmental Design: A building certification program run under the auspices of the U.S. Green Building Council (USGBC). LEED concentrates its efforts on improving performance across five key areas of environmental and human health: energy efficiency, indoor environmental quality, materials selection, sustainable site development and water savings.

Measures: The primary component of the Climate Action Plan. The "implementation" measures are specific short and long-term policies, programs, and actions that the organization will carry out to reduce its greenhouse gas emissions.

Megawatt (MW): One million watts. A typical power plant generates 500 - 1,000 MW of power.

Mitigation: A human intervention to either reduce the amount of greenhouse gases being emitted into the atmosphere or remove previously emitted gases from the atmosphere. Nitrous Oxide (N2O): A greenhouse gas with the ability to trap 320 times the amount of heat as a molecule of CO2. Major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning.

Off-Peak: The opposite of Peak (see below), that is, the time or hours of the day when demand for electricity is at its lowest.

PACE, or Property Assessed Clean Energy financing: PACE financing, first enabled in California by AB 811 in 2008 and then spreading across the country, makes it possible for financing of energy upgrades to be repaid via a property tax assessment. PACE programs may be set up and administered by local governments or by third parties.

Peak Usage Period or Peak Demand: The time period during which the maximum level of demand for electricity occurs. Peak demand may be measured daily, monthly, seasonally or yearly, but for a utility it is typically the single half hour or hour representing the highest point of customer consumption of electricity on a given day.

Photovoltaic (PV): Refers to the effect of sunlight (photons) generating electricity without mechanical conversion. Typically used in conjunction with the equipment associated with a solar electric system, such as "PV panels" or "PV system."

Renewable Energy/Power: Energy generated from sources that are naturally replenished or not used up in the course of providing power (e.g., wind, solar, biomass, and geothermal). This is in contrast to the burning of fossil fuels, which destroys the fuel source and thereby depletes the overall amount of fuel available.

Renewable Portfolio Standard (RPS): Each electric utility generates power through a "portfolio" of sources: natural gas power plants, nuclear plants, large hydroelectric plants, etc. In California, the make-up of the portfolio is regulated by the Renewable Portfolio Standard. In 2010 the standard was raised to require 33% of all energy be from "renewable sources" by 2020.

SB 375: California Senate Bill 375, passed in 2008, was designed to reduce vehicle emissions by integrating land use with transportation planning.

SCE: Southern California Edison

Smart Meter: An electrical meter that tracks power consumption in real-time, communicates with the local utility company for monitoring and billing purposes, and (if connected to a smart grid) can adjust a building's energy use automatically to reduce demand on the power grid at peak use times.

Solar Panel: A photovoltaic cell that can convert light directly into electricity. Typical solar cells use semiconductors made from silicon.

Sustainability: In a broad sense, the capacity to endure. In ecology, the word describes how biological systems remain diverse and productive over time. For human society, it is the potential for long-term maintenance of well-being, which in turn depends on the well-being of the natural world and the responsible use of natural resources.

Sustainability has multiple facets: environmental, economic, and social.

Therm(s): A unit of measurement of natural gas. A single therm is approximately the energy equivalent of burning 100 cubic feet of natural gas. It is equivalent to 100,000 British thermal units (BTU) or about 29.3 kilowatt-hours of electrical energy.

U.S. Environmental Protection Agency (EPA): The Federal environmental science, research, education, assessment, and regulatory agency. The mission of the Environmental Protection Agency is to protect human health and the environment.

Watt: The standard measure of an amount of energy, usually electricity. For example, a 60 watt light bulb requires 60 watts of electricity to turn on. Energy use is measured in terms of the number of watts used over a period of time (see kilowatt-hour).

Appendix B: ELPP EAP Checklist

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

EAP Requirements for Gold	Page Number and Section Found
A. Establish long term vision and plan for energy efficiency in City/County (In kWh savings or % reduction)	Page 2 - Introduction/Long Term Vision
B. Clearly states the aim and objectives of the plan	Page 9 - Objectives
C. Records the baseline municipal energy usage (kWh)	Page 12 - Baseline Municipal Energy Use
D. Displays the highest users (facilities) that the city should target (kWh)	Page 16 - Highest Energy Per Facility
E. Identifies the City/County reduction goals and milestones to help reach long term target (kWh)	Page 15 – Target Reduction Goals
F. Provides the plan of municipal facility projects that the City/County can complete to assist in achieving their reduction (Provide savings calculated for each project) i. Identify priority of projects ii. Identifies expected funding mechanisms to complete municipal facility energy efficiency projects	Page 17 - Plan of Action/Schedule Page 19 – Project Funding
G. Identifies any policies or procedures the City/County can implement to assist in reducing energy use	Page 22 – Energy Management/Monitoring
H. Identify the actions that will constitute the EAP is considered implemented (a requirement if partner desires to obtain ELP Platinum Level). This identification can be made through various options such as included in the EAP, a staff report, resolution, or the attached Appendix (A) in Section 2. C. to delineate implementation actions that shall include, but are not limited to, municipal retrofit projects, policies, and procedures discussed in the EAP (per criteria F and G).	Page 17 - Implementation