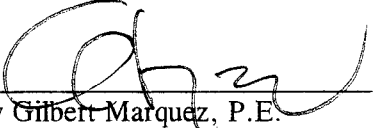


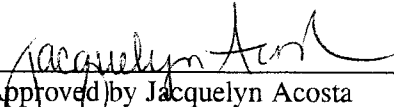


City of Carson Report to Mayor and City Council

November 19, 2013
New Business Discussion

SUBJECT: APPROVAL OF THE CITY OF CARSON'S "ENERGY ACTION PLAN" PER THE REQUIREMENTS OF SOUTHERN CALIFORNIA EDISON'S "ENERGY LEADERS PARTNERSHIP PROGRAM"

Submitted by  Gilbert Marquez, P.E.
Acting Director of Public Works/City Engineer

Approved by  Jacquelyn Acosta
Acting City Manager

I. SUMMARY

The Energy Action Plan (EAP) (Exhibit No. 1) was completed per the requirements set forth within Southern California Edison's (SCE) Energy Leader Partnership (ELP) Program. It demonstrates the City's commitment to pursue energy efficiency and reduce Green House Gas (GHG) emissions. The purpose of this EAP is to identify the City of Carson's long-term vision and commitment to achieve energy efficiency in the community and in municipal operations. The basis for Carson'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. This EAP shows the benefits that the City will realize from increased energy efficiency in government operations, and provides a foundation for more comprehensive community-wide efficiency strategies.

II. RECOMMENDATION

TAKE the following actions:

1. APPROVE the Energy Action Plan as a living document.
2. DIRECT City staff to proceed with implementation.

III. ALTERNATIVES

1. DO NOT APPROVE the Energy Action Plan.
2. TAKE another action the City Council deems appropriate.

IV. BACKGROUND

Southern California Edison's (SCE) ELP Program is a framework that offers enhanced rebates and incentives to cities that achieve measurable energy savings, reduce peak-time electricity demand, and plan for energy efficiency. Through the ELP Program, SCE provides support to local governments 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. In addition, the program strives to expand the policies and the energy management capacity at local governments to maintain a long term sustainability focus. In the South Bay, the South Bay Council of Governments (SBCCOG) is leading the implementation of the ELP Program with SCE.

The ELP Program comprises four focus areas: (1) municipal retrofits, (2) demand response, (3) strategic plan support, and (4) energy efficiency program coordination. The ELP Program has four incentive tiers for participating cities: (1) Valued Partner, (2) Silver, (3) Gold, and (4) Platinum. All cities participating in the ELP Program begin as a Valued Partner. To advance to the next incentive tier, each participating city must achieve the predetermined energy savings and requirements for city facilities and community-wide consumers (Exhibit No. 2).

The benefits to local governments increase as they ascend from level to level. The City of Carson is currently identified as a Silver level partner and to move to the Gold tier, the City needs to satisfy the following three requirements:

- **Complete Energy Action Plan (EAP)**
- Additional municipal savings from energy efficiency projects
- One community outreach event

The attached EAP is a stand-alone *living* document that meets multiple objectives of the City and Southern California Edison. It was created in partnership with the SBCCOG and SCE and it identifies municipal and community-wide strategies to achieve the City's longer-term electricity efficiency goals. 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 greenhouse gas emissions; establish reduction targets for energy efficiency; identify goals, policies, and actions to achieve energy reductions; and provide a framework implementing the identified goals, policies, and actions.

The draft EAP was provided to the Environmental Commission (EC) for review on November 6, 2013. The EC will be reviewing the EAP at their meeting on December 4, 2013. Since this document is expected to change over time, the EC will refine, as needed, this document through future amendments, to assure that the City is able to implement best practices. Any changes proposed by the EC will be forwarded to the City Council for approval. The City Council's approval of this EAP will satisfy one of the remaining requirements and move the City

closer to being recognized as a Gold level partner. It will also allow the City to receive greater rebates and incentives.

V. FISCAL IMPACT

The EAP does not commit the City to spend money, but it does recommend that the City consider using energy bill savings and incentives to fund municipal retrofits and staff time to help with implementation and to carry out its policies as funding becomes available. Staff will rely on capital asset replacement funds allocated to each department for replacement of equipment and staff will also work with the SBCCOG and other regional partners to identify additional funding sources and grant opportunities.

VI. EXHIBITS

1. Energy Action Plan – October 2013. (pgs. 4-11)
2. Energy Leader Partnership Model 2013 – 2014. (pg. 12)

Prepared by: Reata Kulcsar, Senior Engineering Technician

G:\ENGINEERING DIVISION\Agenda1\2013\11-19-13 CC Approve Energy Action Plan

TO:Rev10-14-2013

Reviewed by:

City Clerk	City Treasurer
Administrative Services	Public Works
Community Development	Community Services

Action taken by City Council

Date _____ Action _____



City of Carson Energy Action Plan

October 2013

EXHIBIT NO. 01



Long Term Vision

The City of Carson is committed to reducing its energy consumption and greenhouse gas (GHG) emissions in both its municipal operations and throughout the community. The following plan was developed to help the City in this effort by establishing a baseline, forecasting possible targets, and identifying strategies that reduce GHG emissions from electricity and natural gas. Electricity and natural gas consumption are the focus of this plan because they are responsible for approximately 87% of the City's community-wide emissions. Concurrently, Carson is developing a Climate Action Plan of which this report will be a major component. It is anticipated that the strategies in this report will be enhanced in the final Climate Action Plan providing a more robust approach to reducing electricity and natural gas consumption.

Goals and Objectives

The City's goal is to implement cost-effective energy efficiency measures to lower energy costs for its residents and businesses and reduce municipal and community GHG emissions from electricity and natural gas sources for the City. Carson is working towards its goal by implementing both large and small scale energy-efficiency projects. The City has made significant upgrades to lighting at the Corporate Yard, and incremental improvements to community pools. Additionally, improvements at several parks are in the planning stages.

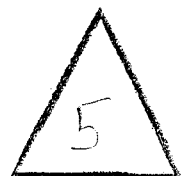
Carson will outline its energy reduction strategies and objectives for 2020 in its forthcoming Climate Action Plan. The Energy Action Plan has two near-term goals: (1) reducing electricity consumption below 2006 levels, consistent with the tiers of the Energy Leader Partnership (ELP) Program; and (2) reducing natural gas energy consumption wherever energy savings can be identified through energy audits.

Municipal Baseline Energy Use

According to the ELP Program Tier Level report for the City of Carson, the 2006 municipal baseline energy use was 7,151,279 kilowatt hour (kWh). Through energy efficiency projects, the City has reduced its municipal energy consumption by 530,938 kWh, or 7.4% below its 2006 baseline, as of October 1, 2013.

Highest Municipal Users

The three municipal facilities in Carson with the largest energy consumption, based on 2011 annual data, are the Community Center (1,373,068 kWh), City Hall (1,109,061 kWh), and the Corporate Yard (593,994 kWh).



*Table 1: Carson's Highest Municipal Facility Users
2011 Annual Energy Consumption and Cost*

Facility Name	Energy Consumption (kWh)	Annual Cost
Community Center	1,373,068	\$188,515
City Hall	1,109,061	\$136,367
Corporate Yard	593,994	\$87,763

Community Baseline Energy Use (2005)¹

Community-wide GHG emissions for the City of Carson in 2005 were 3,629,290 metric tons of CO₂e. (Note: Community emissions include the municipal emissions.) Electricity (420,452 MtCO₂e) and natural gas (2,713,694 MtCO₂e) make up 87% of total GHG emissions. These numbers demonstrate that energy efficiency is a significant part of GHG mitigation strategies for the City.

Table 2 Carson Community GHG Emissions Over Time – Sources of Emissions (MtCO₂e)

Source	1990	Share of 1990 Source	2005	Share of 2005 Source	2007	Share of 2007 Source
Natural Gas	2,330,412	71%	2,713,694	75%	2,803,818	76%
Electricity	385,768 ¹	12%	420,452	12%	386,673	11%
Gasoline	432,910	13%	411,648	11%	399,941	11%
Solid Waste	111,934	3%	48,593	1%	51,886	1%
Diesel	26,076	1%	29,664	1%	29,350	1%
Biogas	--	--	114	0.0%	114	0.0%
LPG/Propane/Butane	5,136	0.2%	4,051	0.1%	2,271	0.1%
Diesel/Fuel Oil	5,560	0.2%	1,044	0%	972	0%
CNG	16	0%	30	0%	32	0%
Total	3,297,282	100%	3,629,290	100%	3,674,127	100%

Table 3 Carson Community GHG Emissions Over Time – Commercial Emissions (MtCO₂e)

Commercial	1990	Share of 1990 Source	2005	Share of 2005 Source	2007	Share of 2007 Source
Natural Gas Total	224,002	100%	260,833	100%	252,637	100%
Commercial	224,002	100%	260,312	100%	252,116	100%
Municipal	--	--	521	0%	521	0%
Electricity Total	84,875	100%	120,082	100%	115,166	100%
Commercial	82,520	97%	117,244	98%	112,573	98%
Municipal	2,355	3%	2,838	2%	2,593	2%
Total	318,877	100%	380,915	100%	367,803	100%

¹ Tables 2-5 are from the City of Carson, Community Greenhouse Gas Emissions Inventory Report, March 2011.

http://southbaycities.org/sites/default/files/documents/inventories/Carson_Community_Inventory.pdf



Table 4 Carson Community GHG Emissions Over Time – Industrial Emissions (MtCO₂e)

Industrial	2000	2005	2005	2007	2007	
	Source	Source	Source	Source	Source	
Natural Gas Total	2,054,096	100%	2,391,943	99%	2,490,728	99%
Industrial	2,054,096	100%	2,378,126	99%	2,472,957	99%
Utilities	--	--	13,817	1%	17,772	1%
Electricity Total	272,599	100%	255,618	100%	227,983	100%
Industrial	272,599	100%	255,618	100%	227,983	100%
Fuel Total	10,696	100%	5,209	100%	3,357	100%
Diesel/Fuel Oil	5,560	52%	1,044	20%	972	29%
LPG, Propane, Butane	5,136	48%	4,051	78%	2,271	68%
Biogas ¹	--	--	114	2%	114	3%

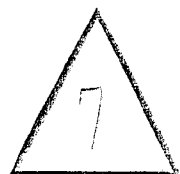
Table 5 Carson Community GHG Emissions Over Time – Residential Emissions (MtCO₂e)

Residential	2000	2005	2005	2007	2007	
	Source	Source	Source	Source	Source	
Natural Gas Total	52,314	100%	60,919	100%	60,452	100%
Multi Family	--	--	6,076	10%	5,835	10%
Single Family	--	--	54,843	90%	54,617	90%
Electricity Total	28,294	100%	44,751	100%	43,523	100%

Municipal and Community GHG Reduction Strategies

The City will set its long term targets and strategies for reducing municipal and community GHG emissions below its baseline (2005) for 2020 in its forthcoming Climate Action Plan. Cities are not required by the state of California to set a GHG emissions reduction target. However, State Assembly Bill 32 Scoping Plan suggests that local governments set a reduction goal of 15% below baseline (2005) levels by 2020.

New and existing measures needed to reduce the City's community-wide emissions can be achieved through future energy efficiency projects that reduce electricity (kWh) and natural gas (therms) consumption. Carson is working with the South Bay Cities Council of Governments (SBCCOG), Southern California Edison (SCE), and the Southern California Gas Company (SCG) to identify potential electricity (kWh) and natural gas (therms) savings when conducting energy assessment audits. The City will further outline in its forthcoming Climate Action Plan what existing and new measures it will implement to meet its GHG emissions reduction target and reduce its electricity (kWh) and natural gas (therms) consumption.



Current Municipal Projects

The City's current energy efficiency projects involve upgrading park lighting, installing Variable-Frequency Drives (VFD) on pool pumps, and upgrading city-owned street lights. Once completed, the combined projects will reduce the City's 2006 electricity consumption (7,151,279 kWh) by approximately 21.7% (1,549,044 kWh).

The City of Carson is currently identified as a Silver level partner within the ELP Program. The City is currently working towards the Gold level. The ELP program provides financial incentives to the City for reduced energy usage.

Once all projects are completed, Carson will work with SCE and SBCCOG to confirm energy (kWh) savings from these projects.

List of City Energy Efficiency Projects

Facility	Expected Installation Date	Status	Estimated Savings kWh	Estimated Savings kW	Measures
Carson Park	Q1 2014	On-Bill Financing (OBF)	44,810	0	Retrofit Pump Motor w/ VFD
Scott Park	Q1 2014	On-Bill Financing (OBF)	51,601	.54	Retrofit Pump Motor w/ VFD & Install New Pump
11 Other Parks	Q3 2014	Identifying funding	762,783	0	Exterior / Interior Lighting
Schedule LS-2 Street Lights	Q2 2014	Identifying funding	689,850	0	LED Lighting

Potential Projects

Carson will continue working with SCE and SBCCOG to identify potential energy efficiency projects utilizing technical assistance as needed.

Carson has entered into the Enterprise Energy Management Information System program (EEMIS) with the County of Los Angeles. The Carson system will be fully functional by the fourth quarter of 2013. The City will then have the ability to benchmark baseline and compare like facilities for the purposes of identifying potential cost and energy saving measures. Beginning in 2014, Carson will be able to rely on EEMIS to identify and seek out the most cost-effective and feasible projects to implement.

The City is also currently working with SCG and SBCCOG to identify potential projects to reduce the City's municipal natural gas (therms) consumption. If the future scope of EEMIS will include tracking natural gas consumption, then the City might also rely on this system to help better identify natural gas savings. Once all projects are

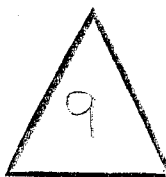


completed, Carson will work with SCG to confirm natural gas (therms) savings from these projects.

Community Programs

The City has implemented policies and programs to reduce electricity and natural gas consumption from residents and businesses. The City has also been working with the SBCCOG to promote some of these, such as the Energy Upgrade California program and other SCE/SCG core residential and commercial programs. The following highlights the City's activities:

- Holding Energy Efficiency program workshops in English and Spanish for City residents and businesses in partnership with the SBCCOG.
- Promoting community energy savings by inviting SBCCOG speakers to present at professional group meetings.
- Leading by example; City Council meetings included utility rebate check presentations, announcing on cable television that homeowners and businesses could save energy and money.
- Providing Energy Efficiency program and Energy Upgrade California information to the greater community in Carson, including hosting website links to the South Bay Environmental Service Center (SBESC) programs where more information can be obtained.
- Promoting SBCCOG "no cost" energy efficiency lighting; retro-commissioning; and Heating, Ventilating and Air Conditioning (HVAC) workings for City business.
- Conducting community events such as Farmers Markets and Juneteenth Celebrations.
- Partnering with SBCCOG and SCE to help conduct a community event to educate the public on demand response (DR).
- Supporting SBESC efforts to inform the small-business community about the utility direct install program, which helps businesses implement energy efficiency measures at no cost.
- Participating in SBCCOG Title 24 Training for City staff.
- Participating in SBCCOG Green Building Ordinance Training for commercial buildings.
- Providing a Green Building Ordinance Training for residential buildings.
- Adopting the CalGreen code.
- Working with SBCCOG and SCG to promote Energy Efficiency kits to residents; these kits include low-flow shower heads and faucet aerators that help reduce natural gas consumption (therms) needed to heat water.



- Supporting SBCCOG and their partner, West Basin Municipal Water District, to promote the Cash for Kitchens program, which includes SCG technician assistance to ensure that commercial kitchens are operating efficiently and utilizing efficient water consuming equipment.

Carson will continue implementing community outreach programs to achieve further reductions in its community electricity and natural gas consumption. The SBCCOG will also continue working with the City to promote Energy Upgrade California and other SCE/SCG core residential and commercial programs. Overall, these municipal projects and community programs will help the City meet its long-term energy and emissions reduction goals for 2020 in the Climate Action Plan. Carson's forthcoming Climate Action Plan will also outline future energy efficiency measures needed to meet targets and how they will be funded and implemented. Carson will also work with the SBCCOG to determine whether Neighborhood Electric Vehicle (NEV) and Local Use Vehicle (LUV) programs would be suitable and feasible for the City, as well as what infrastructure the City might need to prepare for electric vehicle demand by 2020.

Policies

To increase energy efficiency in its facilities' operations, the City will:

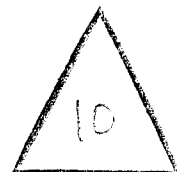
1. Utilize energy efficiency partner programs with SBCCOG, SCE and SCG to continue identifying potential projects where significant municipal energy savings can be made and implement them where cost effective and feasible.
2. Work with SBCCOG, SCE, and SCG to identify audiences and venues where energy efficiency programs can be promoted and educate the community regarding the benefits of energy savings. Aggressively manage the program to help ensure that City receives its energy efficiency program credits through the ELP Program model.
3. Upon system completion, utilize EEMIS for City facilities to ensure that the best data and analysis are made available and to bear on decisions regarding facility operations and maintenance.

Funding

The City continues to work closely with SCE and SCG to obtain incentives and rebates for energy efficiency projects, both large and small. Savings from these various conservation projects may be used to help fund additional projects. The City's current plans for continued energy efficiency upgrades rely on general funds allocated to each department for the replacement of equipment; such as boilers, generators, pumps, small-scale HVAC, and lighting.

Tracking

The City will work closely with the SBCCOG to track its energy efficiency projects and the resulting energy kWh and therm savings. The SBCCOG technical staff will work closely with the City on energy projects to determine whether installations are



successful and targets are being met. In addition, the SBCCOG will work with SCE and SCG and report the City's annual municipal and community energy consumption and program achievements.

Execution of this Energy Action Plan

The City of Carson's Energy Action Plan will be considered implemented when the following actions have been completed:

- 1) The City has completed the projects identified in this Energy Action Plan and/or others yet to be specified as necessary to achieve sufficient municipal energy savings to qualify for the Platinum Tier.
- 2) The City has, as needed, accepted technical support services offered by or through SCE for the identification of additional municipal energy savings projects.
- 3) The City has consistently promoted energy savings in its community, completing the requirements for the Platinum Tier, as specified in the ELP Program model.
- 4) A report has been generated for at least one City facility documenting the annual energy consumption and the conditions of the building shell, lighting, and HVAC systems.
- 5) City staff has identified at least some funding, which may include grant sources, for future energy efficiency projects and programs.
- 6) The City has incorporated this Energy Action Plan into its Climate Action Plan (or other long term policy document) adopted by the City for implementation.

Conclusion

The City will begin implementing the Energy Action Plan in 2013 and identifying, installing, and confirming savings from energy efficiency projects. Beginning in 2014, Carson will reevaluate the effectiveness of the Energy Action Plan and will explore new options for energy savings.



	Carson is currently at the Silver Level		Platinum Level	
Recognition Levels		Silver Level	Gold Level	
	Valued Partner	5% kWh Savings	10% kWh Savings	20% kWh Savings
Offerings	<ul style="list-style-type: none"> Valued Partner Level enhanced incentives Technical Support Strategic Plan Support Co-Branded Marketing & Outreach Support 	<ul style="list-style-type: none"> Silver Level enhanced incentives Technical Support Strategic Plan Support Co-Branded Marketing & Outreach Support 	<ul style="list-style-type: none"> Gold Level enhanced incentives Technical Support Strategic Plan Support Co-Branded Marketing & Outreach Support 	<ul style="list-style-type: none"> Platinum Level enhanced incentives Technical Support Strategic Plan Support Co-Branded Marketing & Outreach Support
Energy Efficiency Criteria	<p>Basic EE Criteria:</p> <ul style="list-style-type: none"> Commitment to Long Term Energy Efficiency Leadership Commitment to Partnership goals including energy savings in municipal facilities 	<p>Basic EE Criteria Plus:</p> <ul style="list-style-type: none"> 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 	<p>Basic EE Criteria Plus:</p> <ul style="list-style-type: none"> 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 	<p>Basic EE Criteria Plus:</p> <ul style="list-style-type: none"> 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	<p>Basic DR Criteria:</p> <ul style="list-style-type: none"> Enroll in California's Statewide Flex Alert and implement an internal educational campaign Complete an Integrated Demand Site Management (IDSM) audit at all eligible facilities greater than 200 kW 	<p>Basic DR Criteria Plus:</p> <ul style="list-style-type: none"> 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 	<p>Basic DR Criteria Plus:</p> <ul style="list-style-type: none"> 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 	<p>Basic DR Criteria Plus:</p> <ul style="list-style-type: none"> Enroll one eligible service account into one of SCE's Automated Demand Response Programs and reduce load with automated controls or conduct a community forum with at least 50% of the program content Demand Response 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

Based on cumulative kWh savings from 2006 (Percentage of total municipal energy use)

Energy Leader Partnership Model

EXHIBIT NO. 2

