Indian Wells Climate Action Plan

May 2013

2013 Climate Action Plan: Leadership in Energy Efficiency

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I. Executive Summary

The City of Indian Wells is proud to have completed this report, the "2013 Climate Action Plan: Leadership in Energy Efficiency." It falls within a broader Sustainability Planning context supported by Southern California Edison (SCE) and its ratepayers in a program called "Green for Life."

With this Plan, Indian Wells is joining an increasing number of California local governments committed to addressing climate change at the local level. It is taking action now to reduce greenhouse gas emissions within its own operations and within the overall community.

This Climate Action Plan (CAP) will take advantage of common-sense approaches and cutting-edge policies to reduce energy use and waste, create local jobs, improve air quality, preserve our local landscape and history, and in other ways benefit the City for years to come.

The Climate Action Plan is a framework for the development and implementation of policies and programs that will reduce the City's emissions. It addresses the major sources of emissions in seven spheres of daily life:

1. Where We Live (Residential)
2. Where We Work (Business)
3. How We Build (Building)
4. How We Get Around (Transportation)
5. How We Govern (Municipal)
6. Where We Visit and Play (Hospitality/Recreation)
7. How We Teach and Learn (Education)

For each sphere, the Plan suggests a number of programs or policies that can be implemented by Indian Wells to meet its goals. These are linked with the City's Greenhouse Gas Inventory. A portfolio of 37 measures has been selected for potential implementation over eight years. Some of the measures are already planned or even in process, and are included because of their anticipated impact. Each recommendation carries information about how the measure would impact the community and approximately what it will cost the City.

This Climate Action Plan is the root of a comprehensive suite of sustainability services including the City's 2013 Greenhouse Gas Inventory (GHG Inventory),[1] its 2013 Energy Action Plan,[2] a Voluntary Green Building Program,[3] a municipal building Energy Benchmarking Policy[4] and a

[1] City of Indian Wells 2013 Greenhouse Gas Inventory, prepared by EcoMotion for the City of Indian Wells and the Coachella Valley Association of Governments, May 2013.

[2] City of Indian Wells 2013 Energy Action Plan, prepared by EcoMotion for the City of Indian Wells and the Coachella Valley Association of Governments, May 2013.

[3] City of Indian Wells Voluntary Green Building Program, Prepared by Terra Nova and Interactive Design for CVAG, June 2012. Please see Appendix.

municipal building Retro-Commissioning Policy.[5] Together, they support this Plan and help position the City for cost-effective energy efficiency savings and carbon dioxide reductions.

Energy Efficiency

The subtitle "Leadership in Energy Efficiency" defines the Plan. Energy efficiency provides rich opportunities for Indian Wells and taking steps to improve efficiency will lead to jobs – for example, jobs for weather-proofing houses, providing energy audits, installing new technologies or upgraded equipment. Programs that keep electricity costs low attract and keep businesses. This type of economic development is always a City priority.

This Plan achieves the win-win-win solution of creating jobs and cost savings, while reducing greenhouse gas emissions.

Many efficiency measures are simple and cost-effective: Homes that are not properly sealed in desert summers increase the need for cooling and can be drafty in the winter. They can be upgraded with dramatic results, as can aging appliances.

Behavioral change to conserve and maximize the value of energy is nearly free and can also result in significant levels of dollar and energy savings, often at peak periods. Measures such as these are planned by Indian Wells, building on a track record of community-wide energy efficiency implementation.

Climate Action Targets

Based on the City's Greenhouse Gas Inventory, if Indian Wells were to continue with "Business-As-Usual," its carbon footprint will expand as a result of population growth and increasing use of energy for comfort and convenience. With a growth rate predicted to exceed 14% between 2010 and 2020,[6] the projection for City emissions to 2020 is as follows:

[4] City of Indian Wells Benchmarking Policy, Prepared by Terra Nova and BSE Engineering for CVAG, May 2013. Please see Energy Action Plan Appendix.

[5] City of Indian Wells Retro-Commissioning Policy, Prepared by Terra Nova and BSE Engineering for CVAG, May 2013. Please see Energy Action Plan Appendix.

[6] Riverside County Population Projections 2010, Center for Demographic Research, Riverside County Transportation and Land-Use Management Agency.

Figure 1: Indian Wells Emissions Projections to 2020

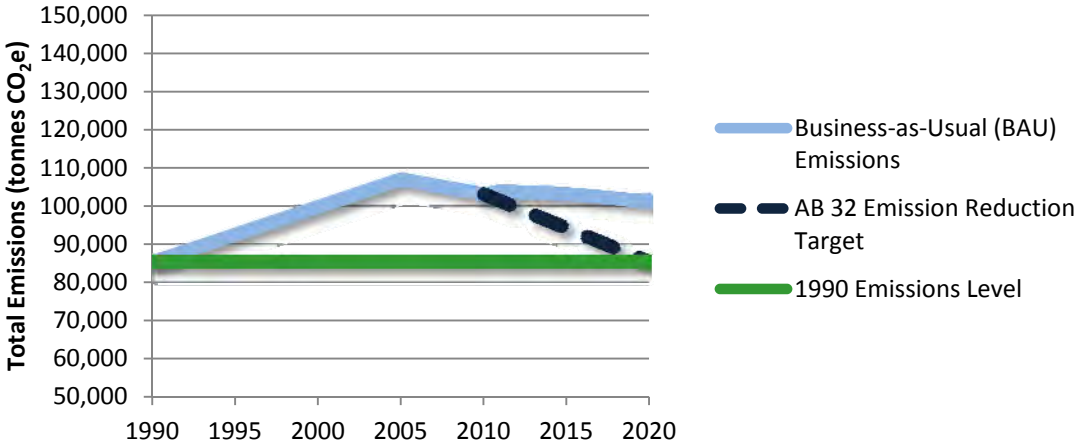


Table 1 above summarizes the position of Indian Wells based on available data from 1990, 2005, and 2010. The light blue line shows the Business-as-Usual trajectory the City will follow given projected population growth and implementation of state and federal emission reduction programs. The City will experience a drop in emissions, but not enough to reach the AB 32 target. The darker green line shows the 1990 emission levels based on backcasted estimates. The dashed line represents the path Indian Wells must follow to achieve 1990 emissions reduction goals.

The emissions reductions goals are summarized below. The standard measurement for emissions is metric tons of carbon dioxide, or "tonnes" of CO_2. In the inventory process, other greenhouse gases are converted to their equivalent to carbon dioxide, or "CO_2e."

To achieve the AB 32 target by 2020,
Indian Wells will have to cut GHG emissions by 15.9%, or 16,088 tonnes.

For Indian Wells to reduce its emissions to the statewide target of 1990 levels by 2020, it will have to reduce emissions by 16,088 tonnes, a 15.9% reduction from the 2020 projection.

Table 1: Indian Wells Emissions Projections to 2020

Scenario	Total Emissions (Tonnes CO_2e)	Tonnes over 1990	% Reduction Needed
1990 Emissions Level	85,311	-	-
2010 Baseline	103,040	17,729	17.2%
2020 Business-as-Usual	101,399	16,088	15.9%

The Climate Action Plan describes the steps the City and its residents can take to reach these targets by applying policies, programs, and initiatives.

Summary of Costs and Benefits

Measures presented in this Plan represent a total cost to the City of approximately $1.1 million over eight years, leveraging savings of more than $7.8 million per year in the City and creating approximately 84 full-time equivalent jobs.[7]

Investing $1.1 million in eight years will leverage over $8.4 million in community savings, while creating 84 full-time jobs.

The measures presented would result in a reduction in greenhouse gas emissions of 17,335 tonnes, more than the required amount of 16,088 tonnes to reach 1990 levels. The surplus in programmatic activity allows future Councils discretion in program selection and implementation.

Acknowledgements

The City of Indian Wells appreciates Southern California Edison's guidance on developing win-win energy efficiency strategies to save money and protect the environment. Through the Green for Life program administered by the Coachella Valley Association of Governments, the City has been given tools and resources to prepare for the future.

Southern California Edison has supported the research and development of energy efficiency measures within this Plan. This has been especially important and responsible for the vast majority of the savings. The City views climate action in a broad context that integrates energy efficiency with waste diversion, water use, and transportation.

Given the integrated planning context desired and the SCE Strategic Plan funding requirements, the Coachella Valley Association of Governments has arranged for supplemental funds from Riverside County for the research and development of the balance of the Plan's non-energy elements. The City is grateful for this special support to make the Plan most useful in implementation.

[7] Jobs are conservatively estimated based on an annual full-time equivalent job created for every $100,000 of first-year energy savings.

II. Climate Action Planning

This City of Indian Wells 2013 Climate Action Plan is a guide for action. It takes knowledge gained from the Greenhouse Gas Inventory and the community, sets emissions reduction goals, and applies policies, programs, and initiatives to reach them. Sets of measures detailed later in the Plan will save energy and money, while creating jobs and cutting carbon.

Purpose and Compliance

In 2006 California passed the Global Warming Solutions Act (Assembly Bill 32), which gave a new impetus to measuring and reducing energy use and emissions. The goal California set with AB 32 is to reduce emissions to 1990 levels by the year 2020. Governor Arnold Schwarzenegger's Executive Order S-3-05 set an even more aggressive goal—80% below 1990 levels by 2050—and identified local governments as key partners in reaching these goals.[8]

Thanks to aggressive statewide efforts, California's emissions have remained relatively stable over the past 15 years. According to the Energy Information Administration of the U.S. Department of Energy, only Vermont, New York, Idaho, and Rhode Island have smaller per capita footprints than California.

The California Air Resources Board (CARB) has been instructed to implement AB 32. Its Climate Change Scoping Plan was approved in 2008 and readopted in 2011 and outlines the state's plan to achieve GHG reductions required in AB 32.[9] In the Scoping Plan, CARB encourages local governments to adopt a reduction goal for municipal operations emissions and move towards establishing similar goals for community wide emissions that parallel the state's commitment to reduce GHGs.

While no directives have been issued on AB 32 implementation for local governments at this time, activity in the realm of emissions measuring and reduction is ramping up:

- On January 1, 2012, California's long-awaited Cap-and-Trade regulation became effective. Part of the state's plan to meet AB 32 targets, this plan assigns 85% of all major emitters a "cap" on emissions, and forces them to either reduce emissions to meet the cap or to buy (or "trade" for) offsets to meet their target.

- On June 4, 2012, separate emissions reductions targets (8% below 2005 levels) for the Southern California region (which includes Indian Wells) were approved as part of Senate Bill 375 legislation. SB 375, originally passed in 2008, seeks to limit emissions through transportation and land use planning. The California Air Resources Board and the South Coast Air Quality Management District have taken the lead on implementing action to meet SB 375 goals. The Southern California Association of Governments has

[8] For a more complete discussion of AB 32 and other regulatory issues, please see the City of Indian Wells 2013 Greenhouse Gas Inventory.

[9] "Climate Change Scoping Plan: A Framework for Change," California Air Resources Board, Pursuant to AB 32: The California Global Warming Solutions Act, December 2008.

prepared a Sustainable Communities Strategy consistent with SB 375 for the region including CVAG's area.

- The California Attorney General continues to monitor and actively challenge greenhouse gas inventories or other aspects of environmental impact plans that are not deemed adequate. For example, a recent case occurred in January, 2012, when the adequacy of the Environmental Impact Report certified by the San Diego Association of Governments was challenged for its 2050 Regional Transportation Plan.

In an effort to stay ahead of impending regulations, this Climate Action Plan defines the City of Indian Wells' goal of complying, at a minimum, with statewide mandates to reduce emissions. California Environmental Quality Act (CEQA) compliance will be completed by CVAG with assistance of Indian Wells staff as part of the consideration of this Climate Action Plan.

At the same time, through thoughtful and well-planned actions, Indian Wells intends to:

- Increase energy efficiency in local government operations and in community activities
- Create new jobs associated with smart energy management
- Save money now being spent for energy and establish a revolving fund whereby funds derived from municipal energy savings will be available for municipal and community programs to further reduce greenhouse gas emissions
- Maintain or increase the comfortable desert lifestyle of residents and visitors alike
- Bring the Coachella Valley Association of Governments' jurisdictions together for effective regional climate planning

External Factors

Factors outside of the City's control will influence emissions, often to its benefit. For example, electricity production is getting cleaner, thanks to the state's Renewable Portfolio Standard (RPS), requiring that utility energy portfolios include ever higher percentages of "renewable energy."[10] The state also regulates the efficiency levels of new building, with ever-more-stringent standards incorporated into each three-year cycle of building standards -- Title 24 -- updates.

In 2008, the California Public Utilities Commission adopted California's first "Long Term Energy Efficiency Strategic Plan" through 2020. It offers strategies to achieve greater levels of efficiency across all electric and natural gas use, including working toward goals for all new construction. The goal for all new residential construction is to be zero net energy by 2020, and for all new commercial construction to follow by 2030.

[10] The Renewable Portfolio Standard (RPS) defines the percentage of renewables that California's investor-owned utilities have to achieve by specific dates. Utilities achieved a 20% RPS by 2010 and are now directed to reach 33% with eligible renewable generation resources by 2020.

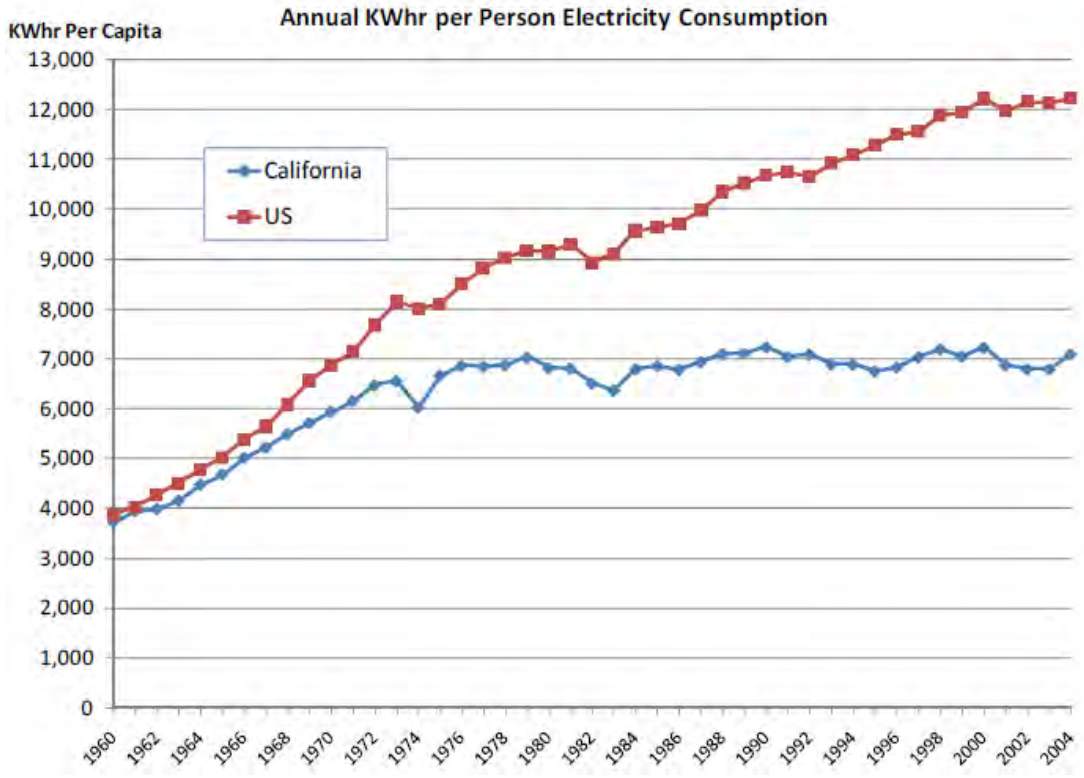
California's Low-Carbon Fuel Standard requires that the mix of fuel sold in the California market meets declining targets for greenhouse gas emissions – a reduction of at least 10 percent in carbon intensity by 2020.

These factors mean that business-as-usual will be less carbon intensive. The factors are emissions benefits to local jurisdictions, while imposing no direct costs.

California Leadership in Energy Efficiency

California is the nation's leader for energy efficiency and conservation. Its impressive track record began in 1974 with the formation of the California Energy Commission (CEC). Since then, and as depicted in the following CEC graphic (**Error! Reference source not found.**) although population has increased, per capita energy use in California has stayed relatively stable, while energy use per capita in the United States has increased 50%.[11] California's efforts have had a profoundly positive effect in terms of driving down greenhouse gas emissions and have saved Californians billions of dollars in energy costs.

Figure 2: U.S. vs. California Electricity Consumption



Concerns about GHG concentrations increasing to intolerable levels have been growing for decades. By the turn of the century, the Intergovernmental Panel on Climate Change (IPCC) of the United Nations had forged a broad consensus that man's activity on earth ("anthropogenic" activity) is having an effect, and that climate patterns will change, and sea levels will rise.

[11] Integrated Energy Policy Report, Figure 2, California Energy Commission, 2007.

California's Emissions 2009

California emitted 452.97 million tonnes of GHG emissions in 2009, approximately 12.2 tonnes per capita.[12] Of this, the largest emitters were transportation (172 million tonnes), electric power (104), residential and commercial fuel use (43), industry (81), agriculture—livestock, fertilizers, and general fuel use (32), and waste streams and landfills (7.3). Emissions were 5.8% lower in 2009 than 2008. Based on 2009 data, the state is 25 million tonnes from its 427 million tonne 1990 footprint goal.

Utility Leadership

Located within the Coachella Valley, and as a member of the Coachella Valley Association of Governments, Indian Wells has benefitted from the support of local utilities. Southern California Edison, Southern California Gas, Imperial Irrigation District, and the Coachella Valley Water District provide programs and services that have helped their customers save resources and money.

Reference to the savings impact of Indian Wells' serving utilities and their programs can be found throughout the Greenhouse Gas Inventory and this Climate Action Plan.

The Planning Process

This Climate Action Plan fits within an umbrella of sustainability promoted by the Green for Life program. The program includes a number of tools to help local governments become more efficient, create savings, promote economic development and jobs, and stem the flow of dollars out of their communities. The process is necessarily integrated, involving all forms of energy, water, and materials from "cradle to grave," source to disposal.

This Climate Action Plan addresses the greenhouse gas impact of our lives in seven spheres of activity related to our daily lives.

[12] State of California Greenhouse Gas Emissions Inventory, California Air Resources Board, April 2012. This edition of the inventory covers the years 2000–2009.

The spheres address:

1.  Where We Live (Residential)
2.  Where We Work (Business)
3.  How We Build (Building)
4.  How We Get Around (Transportation)
5.  How We Govern (Municipal)
6.  Where We Visit and Play (Hospitality/Recreation)
7.  How We Teach and Learn (Education)

For each sphere, the Plan suggests a number of policies, programs, and initiatives that can be implemented by Indian Wells to meet its reduction goals. The initiatives are also color-coded, and linked with the Greenhouse Gas Inventory to track progress by sector, also known as "focus areas," as presented in the legend:

Commercial Buildings
Residential Buildings
Solid Waste
Transportation
Government Initiatives
Special Focus Area
Water/Wastewater
Renewable Energy
Cross-Cutting Initiatives

Each recommendation carries information about how the measure would impact the community and what it may cost. This Plan indicates which measures are scheduled for immediate implementation, and which will be implemented in years to come. Phase I measures are considered short-term and will be implemented within the next two years, 2013–2014. Phase II measures follow in 2015–2017. Phase III covers the 2018–2020 timeframe.

Calculating Potential Savings

Estimating the savings results of different energy actions or savings programs is an imprecise but instructive exercise. The measures recommended in this report were approached with these questions in mind:

- Has the measure been successfully implemented elsewhere?

  Directed research uncovers details on hundreds of programs that have been sponsored by utilities around the country and around the world. Closer to home, years of experience with both the design and the implementation of programs for Southern California Edison and Southern California Gas provides a strong basis for predicting the likely uptake of a given program in the Coachella and Palo Verde valleys as well as other desert regions. Both external and internal resources were used in predicting costs and results of the measures included in the CAP.

- What special tools for measuring program results are available from the utilities?

  The Statewide Energy Efficiency Collaborative (SEEC) provides support to cities and counties to help reduce greenhouse gas emissions and save energy. The partnership, consisting of non-profits and California's four investor-owned utilities, provides tools at no cost to users. SEEC's Community GHG Forecast Assistant is a spreadsheet designed to perform business-as-usual forecasts, including the effects of statewide and federally implemented programs such as fuel economy standards and the Renewable Portfolio Standard. Indian Wells' 2010 greenhouse gas emissions were entered into the spreadsheet, then using growth rates projected by Riverside County Center for Demographic Research, "Business-As-Usual" emissions were estimated—with and without the impacts of state and federal programs.

- How does Local Governments for Sustainability (ICLEI) help quantify these reduction measures?

  The GHG Inventory was completed using the Clean Air and Climate Protection (CACP) Software, the industry standard as developed by Local Governments for Sustainability, or ICLEI. (The group was formed under the name International Council for Local Environmental Initiatives, and has retained the acronym.) ICLEI's Climate and Air Pollution Planning Assistant (CAPPA) helps local governments identify and quantify potential energy- and carbon-reduction measures. CAPPA provides more than 100 strategies for reducing emissions and energy. Each strategy estimates savings through a set of assumptions that can be easily adjusted by the user. In the case of Indian Wells, assumptions were adjusted to reflect the climate and electricity profile of the City.

- How can the results of "community outreach programs" be measured?

  Many utility savings programs have been measured for their effectiveness, both from the point of view of the utility and of the consumer. The results of any given program must

consider a number of factors, for instance how many people would have made the change anyway ("free ridership"). Uptake in the recommended programs and measures for this CAP was estimated based on experience and calculations; actual savings will be tracked.

III. 2013 Greenhouse Gas Inventory Results

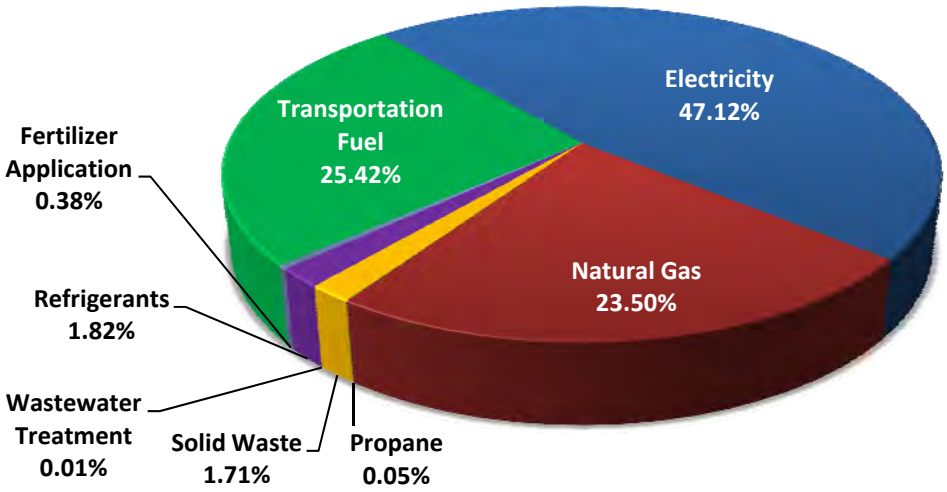
Indian Wells has completed the first formal step on the path to sustainability by developing the City of Indian Wells 2013 Greenhouse Gas Inventory. This inventory provides a detailed and clear analysis of the City's 2010 "carbon footprint," showing the sources and sectors of emissions, highlighting opportunities for emissions reductions that make sense for Indian Wells.

The inventory is complemented by the "Briefing on Climate Action Planning for Elected Officials in the CVAG Region" prepared by EcoMotion for CVAG and its member cities and tribes.[13] It compiles the results of fourteen greenhouse gas inventories prepared thus far in the Coachella and Palo Verde valleys, determining gross and net emissions and opportunities for regional climate protection.

Highlights of the 2013 Indian Wells Greenhouse Gas Inventory include:

- In 2010, Indian Wells emitted 103,040 metric tons (or tonnes) of greenhouse gases.
- To meet AB 32 targets, by 2020 the City needs to reduce its annual emissions by 16,088 tonnes.
- In 2010, the largest percentage of emissions—over 47% -- came from the electricity used to power the City's homes, businesses, resorts, fountains, street lights, etc.
- Indian Wells had a per capita value of 20.8 tonnes annually in 2010, the highest in the CVAG Region.

Figure 3: Indian Wells 2010 Community Emissions by Source



[13] Briefing on Climate Action Planning for Elected Officials in the CVAG Region. Prepared by EcoMotion for the Coachella Valley Association of Governments, May 2013.

Emissions Reductions Goals

Figure 4: Indian Wells Emissions Projections to 2020

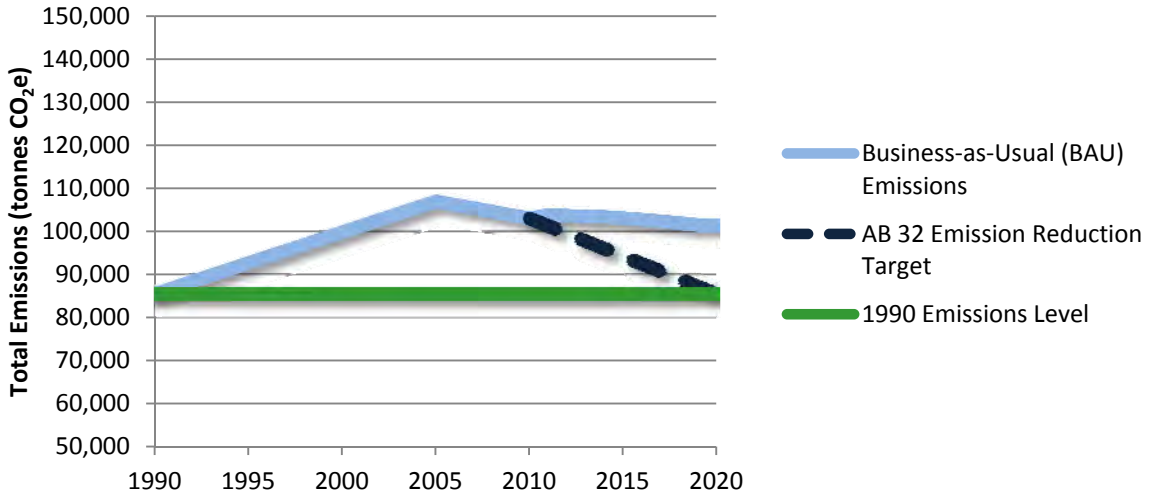


Figure 4 above summarizes the position of Indian Wells based on available data from 1990, 2005, and 2010. The light blue line shows the Business-as-Usual trajectory the City will follow given projected population growth and implementation of state and federal emission reduction programs. The darker green line shows the 1990 emission levels based on 2010 back-casted estimates. The dashed line represents the path Indian Wells must follow to achieve 1990 emissions reduction goals.

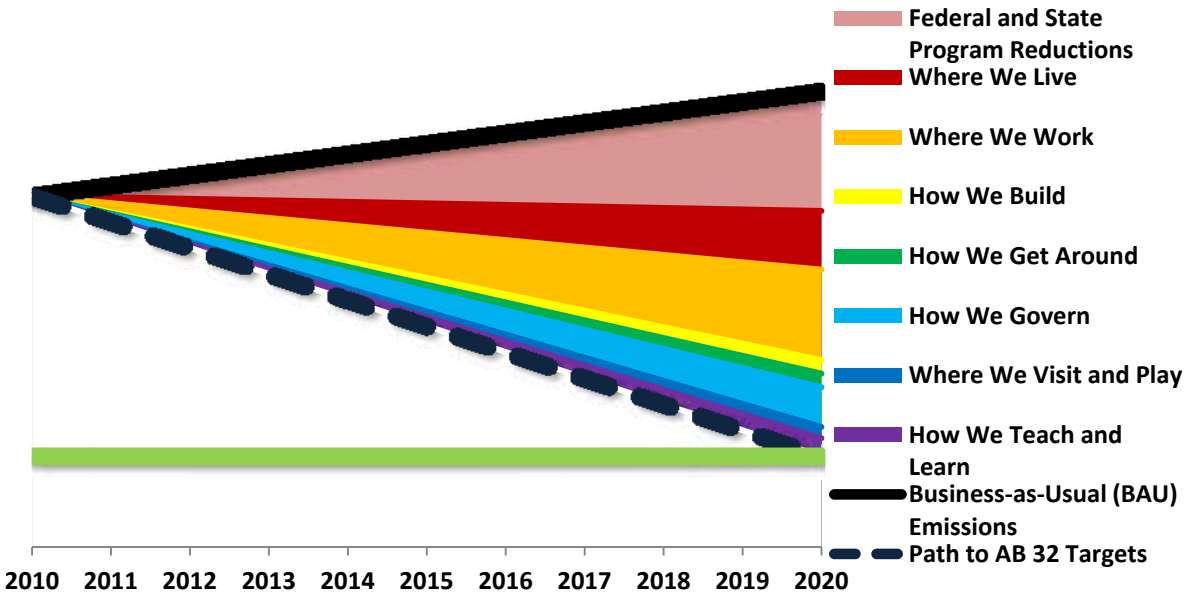
Table 2: Indian Wells Emissions Projections to 2020

Scenario	Total Emissions (Tonnes CO_2e)	Tonnes over 1990	% Reduction Needed
1990 Emissions Level	85,311	-	-
2010 Baseline	103,040	17,729	17.2%
2020 Business-as-Usual	101,399	16,088	15.9%

Portfolio of Savings Measures

Informed by the Greenhouse Gas Inventory, and with goals set, the Plan presents a menu of savings measures to drop emissions, as graphically represented in Figure 5.

Figure 5: Emissions Reduction Wedges



The wedges conceptually depict broad areas/spheres of savings measures. In the absence of federal and state programs, the emissions would be much greater. The impact of state and federal programs will reduce emissions from current levels, but not enough to reach the 1990 levels. This Climate Action Plan presents specific measures for each of three phases of implementation to reach the AB 32 goal.

IV. Greenhouse Gas Reduction Opportunities

Hundreds of opportunities for greenhouse gas reductions have been examined by Indian Wells, CVAG, and EcoMotion. They cover seven spheres of daily activity, and numerous types of initiatives within each sphere.

A portfolio of 39 measures is presented that represent 17,336 tonnes of annual CO_2e savings, more than the required 16,088 tonnes to reach compliance with AB 32 levels.

They have been selected from suggestions and recommendations coming from interviews with City officials and staff, from the public, and from best practices gleaned from around the country.

Each of the measures presented in this draft has been chosen based on its suitability to the local climate, cost to the City, and its efficacy, and "do-ability" in the current economic climate. Measures are color-coded to link specific measures to the focus areas within the City's Greenhouse Gas Inventory.

Table 3: Climate Action Measure Totals by Sphere

Sphere	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Estimated Implementation Cost to City	Annual Savings
Live	6,120	30	$68,000	$3,000,011
Work	3,648	16	$29,000	$1,585,831
Build	502	2	$83,500	$244,148
Mobility	2,931	17	$60,000	$1,728,594
Govern	2,457	9	$836,358	$920,100
Recreate	1,588	9	$9,000	$902,185
Learn	90	0	$15,000	$42,854
Totals:	**17,336**	**84**	**$1,100,858**	**$8,423,723**

Assumptions for costs and for savings were developed as follows:

- Costs were assumed to be those that the local government could bear (as opposed to the individual or business that might also participate in the program or take the action). In many cases, costs for measures involve only estimated level of effort for the appropriate staff person. Given stretched staff time already, the assumption is that the service would need to be subcontracted. If the City prefers to use staff time, absolute costs may be lower or possibly non-existent.
- As described earlier, savings figures (in tonnes CO_2e) were calculated using different ICLEI GHG and CAP inventory planning tools (the CACP calculator[14] and the CAPPA[15]

[14] CACP – Clean Air and Climate Protection software, by Local Governments for Sustainability USA (ICLEI), is a greenhouse gas accounting package specifically designed to support climate action planning.

tool). Data from other communities' experience with similar programs was also used to help set uptake parameters.

- Many assumptions were formulated based on the local government's 2010 population and number of residential units. In Indian Wells, the population figure used was 4,968 and the household units figure was 5,137[16].

Notes on Tables:

For each sphere of activity, a table summarizes suitable emissions mitigation measures. Later in the text, tables are presented that list measures for each phase of activity. Comprehensive tables ranked by the cost-effectiveness of all measures (with detailed assumptions), and that rank initiatives' cost to the city (as well as kWh savings) can be found in the Appendix.

Where We Live (Residential)

- Household energy conservation and efficiency
- Household water conservation and efficiency
- Waste management and recycling
- Renewable energy systems
- Community education

Indian Wells has a track record of promoting residential programs, from high efficiency pool pumps and appliances to water conservation projects. Since homes account for a large percentage of electricity use in the community, there is still considerable opportunity for efficiency gains and GHG reductions.

Indian Wells intends to base much of its climate action on raising awareness, educating its residents and visitors. The City will promote simple steps for permanent and part-time homeowners—encouraging them to replace light bulbs, to exchange old, inefficient appliances for new Energy Star varieties, and to undertake sustainable and energy-efficient remodeling projects.

The Voluntary Green Building Program offers valuable remodeling suggestions, including water conservation programs, which result in energy savings associated with water pumping and delivery, along with water savings itself. The City and its staff will continue to assist home and business owners with suggestions for greening their buildings, including making emergency repairs.

The City will also support more sophisticated steps including insulation and major heating, ventilation and air conditioning (HVAC) upgrades that make financial sense for local government, businesses and for residents. Air conditioning is the biggest electricity use in

[15] CAPPA -- Climate and Air Pollution Planning Assistant, an ICLEI decision support tool designed to help U.S. local governments explore, identify, and analyze potential climate and air pollution emissions reduction opportunities.
[16] U.S. 2010 Census Data

homes in the City. Indian Wells will continue to promote retrofits that payback quickly as well as regional Property Assessed Clean Energy (PACE) financing.

Through a PACE program, financing is provided for energy upgrades and repaid via a property tax assessment. CVAG is leading the regional PACE initiative with participation by its member jurisdictions; it is anticipated that such a program will be operable by late 2013.

Household appliances and systems have advanced considerably; new systems use less natural gas and electricity while providing superior comfort and more control. Indian Wells will reinforce these messages, that residents and business can indeed embrace energy efficiency to save energy and money while reducing emissions.

Table 4: Savings Measures for "Where We Live"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
LIVE - 1	**Residential Buildings**	Residential PACE: Partner and aggressively promote Residential PACE Program to reach 25% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems	I	4,100	21.5	$2,147,882	$4,000
LIVE - 2	**Residential Buildings**	Pool Pumps: Promote high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve a minimum of 500 units	II	246	1.8	$177,192	$25,000
LIVE - 3	**Residential Buildings**	Peak Demand Reduction: Partner with SCE to provide local promotion of the residential Summer Discount Program to cut peak demand in 10% of the housing stock	I	125	0.9	$89,859	$2,000
LIVE - 4	**Residential Buildings**	On-Bill Finance/Repayment: Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	I	1,068	2.7	$268,782	$2,000
LIVE - 5	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by 5% to 78.8% by 2015 potentially through use of tiered rate structure	I	469	0.5	$50,000	$5,000
LIVE - 6	**Water**	Drought Tolerant Landscaping: Promote and augment CVWD rebates for drought tolerant planting, turf replacement and buy-back	III	112	2.7	$266,296	$30,000
		Residential Buildings	**4**	**5,539**	**26.8**	**$2,683,715**	**$33,000**
		Solid Waste	**1**	**469**	**0.5**	**$50,000**	**$5,000**
		Water	**1**	**112**	**2.7**	**$266,296**	**$30,000**
		Sub-Total	**6**	**6,120**	**30.0**	**$3,000,011**	**$68,000**

Where We Work (Business)

- Workplace energy conservation and efficiency
- Workplace water conservation and efficiency
- Materials management and recycling
- Transportation and telecommuting

The City of Indian Wells is committed to creating healthy office and work environments as an important part of a sustainable lifestyle in the community. Although statistics show that the residents of Indian Wells are primarily retired, there are still many who do work. Additionally, there are a number of people who live outside the City and who commute to their jobs at establishments located within Indian Wells. Thus the focus on "Where We Work" will have multiple benefits.

For Indian Wells, continual business improvement is essential in creating jobs and supporting ongoing regional economic development. Programs that reduce the stress of commuting, for example, add to employee satisfaction, improve productivity, and cut transportation emissions. Studies show that green building upgrades can cut operating costs, lead to decreased illnesses and absenteeism and longer-term tenants and, again, to increased productivity.

The City can have an impact on the way supplies and raw materials are delivered, and on how excess or waste materials are disposed of. Indian Wells has already implemented a pilot restaurant composting program.

Table 5: Savings Measures for "Where We Work"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK - 1	**Commercial Buildings**	Commercial Energy Audits: Promote energy audits for 500,000 square feet of commercial buildings and confirm replacement/upgrade schedule	II	365	1.3	$127,329	$6,000
WORK - 2	**Commercial Buildings**	Commercial PACE Program: Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	II	2,564	10.9	$1,087,344	$5,000
WORK - 3	**Commercial Buildings**	Commercial On-Bill Financing/Repayment: Encourage On-Bill Financing/Repayment through SCE and SCG with green messaging and teamwork in the community	III	425	1.5	$151,869	$2,000
WORK - 4	**Commercial Buildings**	Peak Demand Reduction: Collaborate with SCE and encourage 100 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	193	1.0	$96,900	$2,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK - 5	**Government Initiatives**	Water Efficient Landscaping Ordinance: Build on and exceed current Water Efficient Landscaping Ordinance in the commercial sector by 20% by 2020	II	39	1.1	$106,105	$10,000
WORK - 6	**Solid Waste**	Food Waste Composting at Restaurants: Increase restaurant composting program for food waste to reach all restaurants that serve more than 100 meals a day	II	5	0.0	$4,958	$2,000
WORK - 7	**Transportation**	Car-Pooling and Mass Transit: Promote "Shared Vehicle at Work" programs to increase carpooling and mass transit by 20% with a "guaranteed-ride home"	I	57	0.1	$11,326	$2,000

Commercial Buildings	**4**	**3,547**	**15**	**$1,463,442**	**$15,000**
Government Initiatives	**1**	**39**	**1**	**$106,105**	**$10,000**
Solid Waste	**1**	**5**	**0**	**$4,958**	**$2,000**
Transportation	**1**	**57**	**0**	**$11,326**	**$2,000**
Sub-Total	**7**	**3,648**	**15.9**	**$1,585,831**	**$29,000**

How We Build (Building)

- Green building materials
- Codes and standards
- Land use policy
- Lighting, HVAC systems, etc.
- Renewable energy system integration

Given the extreme desert conditions, “How We Build” is of great importance to Indian Wells and this Climate Action Plan.

While California has the nation’s leading building standards—thanks to Title 24—there are still ways for Indian Wells to make buildings healthier and more sustainable. The Green for Life Voluntary Green Building Program serves as a catalyst in the process of creating win-win-win solutions between costs, health, and security. It prepares Valley builders and buyers for the benefits of green and highly efficient building.

Starting in 2010, new development in Indian Wells slowed, and it continues to remain below historical levels. Based on Riverside County projections, however, Indian Wells must plan for anticipate growth of 14% over the next 10 years. Whether this is realized or not, the City has the opportunity now to set new neighborhood development requirements and higher standards for buildings as part of the Green for Life Voluntary Green Building Program, in preparation for new statewide standards scheduled to take effect in 2014.

The biggest opportunities for building energy efficiency lie with existing buildings. As with residential buildings, commercial and city buildings can benefit from efficiency upgrades and

better energy management. They may also be able to contribute renewable sources of electricity by way of solar or wind installations, thereby reducing emissions from carbon-based sources.

The City will continue to collaborate with local utilities and county or state programs to help offset the costs of building upgrades and to promote on-bill financing and repayment. It will also support the development of a regional PACE program for residential and commercial retrofits.

Naturally, measures for "How We Build" focus on essential efficiency and conservation actions that include dealing with the site itself, the building envelope as well as building systems, and landscaping.

Indian Wells is a participant in the Coachella Valley Multiple Species Habitat Conservation Plan which conserves open space and habitat, while effectively focusing development in less sensitive areas, thus limiting sprawl and reducing vehicle miles traveled (SB 375 requires vehicle miles traveled reductions). This visionary plan is another example that how and where we build can promote GHG emissions reductions.

Table 6: Savings Measures for "How We Build"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
BUILD - 1	**Government Initiatives**	Green Building Program: Adopt the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	274	1.4	$135,008	$2,500
BUILD - 2	**Residential Buildings**	Shade Trees: Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	III	35	0.1	$12,240	$56,000
BUILD - 3	**Residential Buildings**	Affordable Housing: Promote additional construction of energy-efficient affordable housing with private-sector partners	III	193	1.0	$96,900	$25,000

Government Initiatives	**1**	**274**	**1.4**	**$135,008**	**$2,500**
Residential Buildings	**2**	**228**	**1.1**	**$109,140**	**$81,000**
Sub-Total	**3**	**502**	**2.4**	**$244,148**	**$83,500**

How We Get Around (Transportation)

- Alternative fuels (EVs, hybrids, etc.)
- Trip reduction, optimization
- Biking and walking
- Buses and shuttles
- Transportation infrastructure
- Efficient driving habits through training and ordinances

In Indian Wells, transportation and "How We Get Around" represent the second largest source of emissions, behind electricity. "How We Get Around" shapes the community, and has a major footprint.

Thanks to state and regional manufacturing standards and technologies, tailpipe emissions are largely invisible. But because of the Coachella Valley's location to the east of Los Angeles, prevailing winds drive pollution into it on a daily basis. Air quality and local and regional pollution remain a key issue in the Coachella Valley.

Transportation covers a wide swath of opportunity. It tackles fundamental issues such as the driving patterns associated with land use, the efficiency of vehicles, as well as the use of alternative fuels and alternative methods of getting around.

The City of Indian Wells has already made a number of changes in the way it manages its roadways and fleet. Now the City will promote "golf cars" by selling used golf carts at a discount to residents for short trips within the City.

CVAG is planning a regional transportation alternative called CV Link that will have significant health and wellness benefits. The CV Link would extend along the Whitewater River and connect all nine Coachella Valley cities with a trail system for walkers, bikes, and neighborhood electric vehicles.

Such a system will create opportunities for recreational activities while reducing vehicle reliance and harmful emissions. Indian Wells will work with regional planners to carefully consider and map out local access points to the proposed trail system as well as potential charging station locations for plug-in electric and neighborhood electric vehicles.

Table 7: Savings Measures for "How We Get Around"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
MOBILITY – 1	**Transportation**	Electric Vehicles: Promote the lease and purchase of 250 electric vehicles in the community with recognition and preferential parking for participants	III	1,194	4.4	$444,164	$40,000
MOBILITY – 2	**Transportation**	"Golf Cars:" Provide special financing, leasing and bulk purchase of Golf Cars to the community to increase the community fleet by 250 new cars	III	597	2.2	$222,082	$5,000
MOBILITY - 3	**Transportation**	Bike, Walking, NEV "Parkway:" Support Parkway 1e11 as a Valley amenity and means to alternative forms of transportation and to promote health in Indian Wells	I	25	0.0	$4,620	$5,000
MOBILITY - 4	**Transportation**	Bus Route Maximization: Collaborate with Sun Line officials to reform routes to promote smaller buses with more routes and frequencies to increase ridership by 1,500 riders	II	834	9.5	$953,260	$5,000
MOBILITY - 5	**Transportation**	Van Pools: Partner and recognize all Indian Well's major employers with over 50 employees for van pools	II	281	1.0	$104,468	$5,000
		Transportation	**5**	**2,931**	**17.3**	**$1,728,594**	**$60,000**
		Sub-Total	**5**	**2,931**	**17.3**	**$1,728,594**	**$60,000**

How We Govern (Municipal)

- Energy management
- Policies, codes, and ordinances
- Economic development
- Regional collaboration

The City of Indian Wells' operations are responsible for only 2.7% of total community emissions. Nevertheless, the City recognizes its disproportionately important role as a leader within the community.

Cities can control the programs and policies they set for their own employees. City facilities can often be used as test beds for new technologies and pilot programs. Through leadership, Indian Wells intends to continue to set an example for the community and throughout the Coachella Valley.

In conjunction with this Climate Action Plan, an Energy Action Plan for the City of Indian Wells has been developed. It provides detailed steps for the City to reduce energy use and corresponding emissions in government operations.

City leadership can be seen in many areas, from land use policies that encourage or even dictate transportation requirements, to purchasing and maintenance policies, to regional collaborations and financing programs.

The following policies are measures that are directly under the City's control to engage savings and to reduce emissions. For instance, the City can implement a "Solar Ready" ordinance that would require all new construction to be prepared for solar, including pre-wiring while roof joists and walls are exposed.

List of Potential Ordinances to Affect Sustainability

- ✓ Expedite plan checking for green and efficient new construction/major remodels
  - o Residential, Commercial
- ✓ Waive permit fees for green and energy-efficient new construction/major remodels
  - o Residential, Commercial
- ✓ Pass more restrictive water conservation ordinance
  - o Residential, Commercial
- ✓ Mandate landscaper certification
- ✓ Food waste composting ordinance for restaurants
- ✓ Mandatory Green Building Program
- ✓ Anti-Idling ordinance for commercial vehicles
- ✓ Mandate that all municipal buildings are LEED Silver or better
- ✓ Solar Ready ordinance for new construction
  - o Residential, Commercial

Through outreach and education, the City can involve the community and recognize the accomplishments of individuals, neighborhoods and groups.

Table 8: Savings Measures for "How We Govern"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
GOVERN - 1	**Cross-Cutting Initiatives**	Sustainability Committee: Form and facilitate a "blue ribbon committee" for sustainability issues and management	I	500	0.5	$50,000	$2,000
GOVERN - 2	**Government Initiatives**	Desert Cities Energy Partnership: Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	510	2.5	$248,073	$2,000
GOVERN - 3	**Government Initiatives**	Municipal Facility Efficiency Upgrades...Payback Threshold Policy: Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	9	0.0	$4,087	$10,183
GOVERN - 4	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete 100% of remaining Energy Action Plan measures developed in EAP (2015-2020)	III	91	0.4	$39,811	$800,175

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
GOVERN - 5	**Government Initiatives**	Efficient and Green New Construction: Establish policy that 100% of new municipal buildings and major remodels adhere to Voluntary Green Building Program standards and are minimum LEED Silver or equivalent	I	91	0.3	$29,145	$2,000
GOVERN - 6	**Government Initiatives**	Utility Manager Software: Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	91	0.4	$36,749	$5,000
GOVERN - 7	**Government Initiatives**	Benchmarking: Abide by the Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	36	0.2	$15,026	$5,000
GOVERN - 8	**Government Initiatives**	Retro Commissioning: Abide by the Retro-Commissioning (RCx) policy and guidelines for qualifying municipal buildings	I	36	0.2	$15,026	$1,000
GOVERN - 9	**Government Initiatives**	Public/Private Partnerships: Explore private-public partnerships for renewable energy installations and energy-efficiency upgrades on municipal facilities (performance-based contracts and power purchase agreements).	II	688	2.5	$252,945	$2,000
GOVERN - 10	**Renewable Energy**	Solar Ready Ordinance: Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	II	379	2.2	$217,666	$5,000
GOVERN - 11	**Water**	Water Feature Efficiency: Update water feature ordinance to maintain amenities while increasing water and energy efficiency through time of use and seasonal timers	I	26	0.1	$11,572	$2,000

Cross-Cutting Initiatives	**1**	**500**	**0.5**	**$50,000**	**$2,000**
Government Initiatives	**8**	**1,552**	**6.4**	**$640,862**	**$827,358**
Renewable Energy	**1**	**379**	**2.2**	**$217,666**	**$5,000**
Water	**1**	**26**	**0.1**	**$11,572**	**$2,000**
Sub-Total	**11**	**2,457**	**9.2**	**$920,100**	**$836,358**

Where We Visit and Play (Hospitality/Recreation)

- Spa resorts, hotels, and restaurants
- Golf courses and parks
- Desert-appropriate landscaping
- Water efficiency
- Enhanced visitor transportation

The City of Indian Wells takes great pride in the quality of life in its City. It's a great place to visit and a great place to live. City leaders are focused on more of the same, if not better! No one wants sustainability to negatively impact the quality of life in Indian Wells.

This Climate Action Plan highlights ways that Indian Wells can at once enhance the visitor experience and lifestyle while becoming ever more sustainable. Gorgeous desert landscaping exemplifies this, as does elegant passive solar design that keeps buildings shaded and cool.

The goal of this Plan is to promote efficiency, cut costs, and reduce emissions in spas, golf courses, resorts and restaurants without impacting the visitor experience. A supporting objective will be to educate visitors to value a more sustainable desert experience.

Table 9: Savings Measures for "Where We Visit and Play"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
RECREATE - 1	**Commercial Buildings**	Comprehensive Pool Efficiency: Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating for 1,000 pools	I	493	3.5	$354,384	$4,000
RECREATE - 2	**Commercial Buildings**	Resort Management: Revise management contracts for resorts to include efficiency as a performance metric	III	10	0.5	$54,630	$2,000
RECREATE - 3	**Transportation**	Neighborhood Electric Vehicles: Design and promote Neighborhood Electric Vehicle program to achieve minimum of 400 NEVs for Valley residents and visitors	II	955	3.6	$355,600	$1,000
RECREATE - 4	**Water**	Irrigation System Controls: Promote the installation of irrigation control sensors at parks and golf courses	I	102	1.3	$127,140	$1,000
RECREATE - 5	**Water**	Drought-Tolerant Landscaping: Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	I	28	0.1	$10,431	$1,000
		Commercial Buildings	**2**	**503**	**4.1**	**$409,014**	**$6,000**
		Transportation	**1**	**955**	**3.6**	**$355,600**	**$1,000**
		Water	**2**	**130**	**1.4**	**$137,571**	**$2,000**
		Sub-Total	**5**	**1,588**	**9.0**	**$902,185**	**$9,000**

How We Teach and Learn (Education)

- Student education
- Community centers and youth programs
- Workforce development
- Demonstration projects and community outreach

Indian Wells recognizes that today's students are tomorrow's consumers. How we educate our youth has a profound impact on the sustainability of Indian Wells, the region, state, and even the planet.

Indian Wells also recognizes its unique location at the center of solar, wind, and geothermal potential. The Coachella Valley already has a strong foundation in green certifications. The City will continue to support workforce development from a young age or through retraining the existing workforce, but particularly the continuum of education, starting in elementary schools with California teaching standards, augmented in local high schools thanks to the programs

sponsored by the Coachella Valley Economic Partnership, and continuing at local institutions of higher learning: College of the Desert, California State University San Bernardino, and University of California Riverside Palm Desert.

Training also takes place in homes and businesses throughout the community, as residents become aware of new opportunities and often, new incentives. The City understands its role in raising awareness and understanding of the benefits of sustainability.

While emission reductions resulting from educational programs are inherently difficult to measure and laced with assumptions and scientific estimates, there is no doubt that ingrained, community-wide efforts can be more substantial and longer-lived than any short-term outside incentive program. Indian Wells values education and will continue to educate its residents of all ages about ways to "go green" for its multiple benefits.

The Jurisdictions within the Coachella Valley Association of Governments have affirmed an emphasis on educational efforts in four specific areas: high-tech training for alternative energy, medical training, fine arts including film, and logistics. "How We Teach and Learn" measures in the Climate Action Plan support and augment training for the alternative energy-training sector, and expand energy awareness in all areas of the community.

Table 10: Savings Measures for "How We Teach and Learn"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
LEARN - 1	**Cross-Cutting Initiatives**	Green Building Lectures and Continuing Education: Provide lectures, seminars and training on green building based on Voluntary Green Building Program guide and training materials emphasizing desert conditions and opportunities	I	88	0.4	$42,854	$5,000
LEARN - 2	**Cross-Cutting Initiatives**	Workforce Development: Promote workforce development in partnership with College of the Desert, UCR, and CSUSB to achieve 500 "green careers" by 2020	II	2	0.0		$10,000
		Cross-Cutting Initiatives	**2**	**90**	**0.4**	**$42,854**	**$15,000**
		Sub-Total	**2**	**90**	**0.4**	**$42,854**	**$15,000**

V. Implementation

Timeline

This 2013 Climate Action Plan presents a course of action for the next eight years. Naturally measures will shift in implementation priority.

- Phase I activities will be completed in calendar years 2013 and 2014.
- Phase II activities will be implemented in the years 2015, 2016, and 2017.
- Phase III activities will take place in 2018, 2019, and 2020.

Through a robust set of least-cost Phase I activities, the City can reduce its footprint by 8,321 tonnes annually by leveraging a variety of resources and partnerships.

The 39 measures and 3 phases represent a challenging, but plausible and cost-effective scenario for emissions reductions.

The following table presents a potential scenario for eight-year implementation, leveraging large community benefits in the process.

Summary of Measures by Phase

Phase	# Measures	Emissions Reduced (Tonnes CO_2e)	Estimated Implementation Cost to City	Community Savings
I	20	8,321	$64,683	$3,748,864
II	11	6,358	$76,000	$3,386,867
III	8	2,657	$960,175	$1,287,992
Totals:	**39**	**17,336**	**$1,100,858**	**$8,423,723**

The Summary of Measures by Greenhouse Gas Sector table below shows that the biggest emissions reductions will come from buildings and transportation, followed by government initiatives.

Summary of Measures by Sector

GHG Sector Focus Area Linkage	# Measures	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
Commercial Buildings	6	4,050	19	$1,872,456	$21,000
Cross-Cutting Initiatives	3	590	1	$92,854	$17,000
Government Initiatives	10	1,865	9	$881,975	$839,858
Renewable Energy	1	379	2	$217,666	$5,000
Residential Buildings	6	5,767	28	$2,792,855	$114,000
Solid Waste	2	474	1	$54,958	$7,000
Transportation	7	3,943	21	$2,095,520	$63,000
Water	4	268	4	$415,439	$34,000
GRAND TOTAL OF EMISSION MEASURES	**39**	**17,336**	**84**	**$8,423,723**	**$1,100,858**

Phase I Activities

The following table presents recommended savings measures for Phase I implementation. Twenty (20) savings measures are included to achieve an emissions reduction of 8,321 tonnes at a gross cost to the City of $64,683. These activities primarily rely on ordinances, public education, utility programs, regional financing, and public/private partnerships to achieve the goals. Another opportunity is the reinvestment of savings from energy efficiency upgrades to be used for additional measures to increase Phase I emissions reductions.

The 20 Phase I activities will achieve
8,321 tonnes of emissions reductions, 52% of the target.

Phase I savings measures will leverage community benefit, creating annual community bill savings of an estimated $3.7 million, and creating approximately 37 jobs in the community expressed as annual full-time equivalent positions.

Table 11: Phase I Measures

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK – 4	**Commercial Buildings**	Peak Demand Reduction: Collaborate with SCE and encourage 100 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	193	1.0	$96,900	$2,000
RECREATE – 1	**Commercial Buildings**	Comprehensive Pool Efficiency: Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating for 1,000 pools	I	493	3.5	$354,384	$4,000
GOVERN – 1	**Cross-Cutting Initiatives**	Sustainability Committee: Form and facilitate a "blue ribbon committee" for sustainability issues and management	I	500	0.5	$50,000	$2,000
LEARN – 1	**Cross-Cutting Initiatives**	Green Building Lectures and Continuing Education: Provide lectures, seminars and training on green building based on Voluntary Green Building Program guide and training materials emphasizing desert conditions and opportunities	I	88	0.4	$42,854	$5,000
BUILD – 1	**Government Initiatives**	Green Building Program: Adopt the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	274	1.4	$135,008	$2,500
GOVERN – 2	**Government Initiatives**	Desert Cities Energy Partnership: Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	510	2.5	$248,073	$2,000
GOVERN – 3	**Government Initiatives**	Municipal Facility Efficiency Upgrades...Payback Threshold Policy: Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	9	0.0	$4,087	$10,183
GOVERN – 5	**Government Initiatives**	Efficient and Green New Construction: Establish policy that 100% of new municipal buildings and major remodels adhere to Voluntary Green Building Program standards and are minimum LEED Silver or equivalent	I	91	0.3	$29,145	$2,000
GOVERN – 6	**Government Initiatives**	Utility Manager Software: Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	91	0.4	$36,749	$5,000
GOVERN – 7	**Government Initiatives**	Benchmarking: Abide by the Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	36	0.2	$15,026	$5,000
GOVERN – 8	**Government Initiatives**	Retro Commissioning: Abide by the Retro-Commissioning (RCx) policy and guidelines for qualifying municipal buildings	I	36	0.2	$15,026	$1,000
LIVE – 1	**Residential Buildings**	Residential PACE: Partner and aggressively promote Residential PACE Program to reach 25% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems	I	4,100	21.5	$2,147,882	$4,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
LIVE – 3	**Residential Buildings**	Peak Demand Reduction: Partner with SCE to provide local promotion of the residential Summer Discount Program to cut peak demand in 10% of the housing stock	I	125	0.9	$89,859	$2,000
LIVE – 4	**Residential Buildings**	On-Bill Finance/Repayment: Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	I	1,068	2.7	$268,782	$2,000
LIVE – 5	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by 5% to 78.8% by 2015 potentially through use of tiered rate structure	I	469	0.5	$50,000	$5,000
WORK – 7	**Transportation**	Car-Pooling and Mass Transit: Promote "Shared Vehicle at Work" programs to increase carpooling and mass transit by 20% with a "guaranteed-ride home"	I	57	0.1	$11,326	$2,000
MOBILITY – 3	**Transportation**	Bike, Walking, NEV "Parkway:" Support CV Link as a Valley amenity and means to alternative forms of transportation and to promote health in Indian Wells	I	25	0.0	$4,620	$5,000
GOVERN – 11	**Water**	Water Feature Efficiency: Update water feature ordinance to maintain amenities while increasing water and energy efficiency through time of use and seasonal timers	I	26	0.1	$11,572	$2,000
RECREATE – 4	**Water**	Irrigation System Controls: Promote the installation of irrigation control sensors at parks and golf courses	I	102	1.3	$127,140	$1,000
RECREATE – 5	**Water**	Drought-Tolerant Landscaping: Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	I	28	0.1	$10,431	$1,000

Commercial Buildings	**2**	**686**	**5**	**$451,284**	**$6,000**
Cross-Cutting Initiatives	**2**	**588**	**1**	**$92,854**	**$7,000**
Government Initiatives	**7**	**1,047**	**5**	**$483,114**	**$27,683**
Residential Buildings	**3**	**5,293**	**25**	**$2,506,523**	**$8,000**
Solid Waste	**1**	**469**	**1**	**$50,000**	**$5,000**
Transportation	**2**	**82**	**0**	**$15,946**	**$7,000**
Water	**3**	**156**	**1**	**$149,143**	**$4,000**

Sub-Total of Phase I Measures	**20**	**8,321**	**37**	**$3,748,864**	**$64,683**

Phase II and III Activities

The next two phases of savings will expand the base of measures implemented in Phase I. PACE financing is seen as key to major building upgrades. As real estate development picks up, the green building program will also steer infrastructure upgrades towards sustainability. Advances in mobility and auto efficiency will drive down transportation-related emissions.

These measures and phases will be refined in years to come based on measuring and tracking the process with emissions reductions. Ultimately, Phase II and Phase III savings measures will be based on economic conditions, additional regulation, advances in technology and financing. The City of Indian Wells will also track advances in the California Executive Order that calls for an emissions reduction of 80% from 1990 levels by 2050.

Table 12: Phase II Measures

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK - 1	**Commercial Buildings**	Commercial Energy Audits: Promote energy audits for 500,000 square feet of commercial buildings and confirm replacement/upgrade schedule	II	365	1.3	$127,329	$6,000
WORK - 2	**Commercial Buildings**	Commercial PACE Program: Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	II	2,564	10.9	$1,087,344	$5,000
LEARN - 2	**Cross-Cutting Initiatives**	Workforce Development: Promote workforce development in partnership with College of the Desert, UCR, and CSUSB to achieve 500 "green careers" by 2020	II	2	0.0		$10,000
WORK - 5	**Government Initiatives**	Water Efficient Landscaping Ordinance: Build on and exceed current Water Efficient Landscaping Ordinance in the commercial sector by 20% by 2020	II	39	1.1	$106,105	$10,000
GOVERN - 9	**Government Initiatives**	Public/Private Partnerships: Explore private-public partnerships for renewable energy installations and energy-efficiency upgrades on municipal facilities (performance-based contracts and power purchase agreements).	II	688	2.5	$252,945	$2,000
GOVERN - 10	**Renewable Energy**	Solar Ready Ordinance: Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	II	379	2.2	$217,666	$5,000
LIVE - 2	**Residential Buildings**	Pool Pumps: Promote high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve a minimum of 500 units	II	246	1.8	$177,192	$25,000
WORK - 6	**Solid Waste**	Food Waste Composting at Restaurants: Increase restaurant composting program for food waste to reach all restaurants that serve more than 100 meals a day	II	5	0.0	$4,958	$2,000
MOBILITY - 4	**Transportation**	Bus Route Maximization: Collaborate with Sun Line officials to reform routes to promote smaller buses with more routes and frequencies to increase ridership by 1,500 riders	II	834	9.5	$953,260	$5,000
MOBILITY - 5	**Transportation**	Van Pools: Partner and recognize all Indian Well's major employers with over 50 employees for van pools	II	281	1.0	$104,468	$5,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
RECREATE - 3	**Transportation**	Neighborhood Electric Vehicles: Design and promote Neighborhood Electric Vehicle program to achieve minimum of 400 NEVs for Valley residents and visitors	II	955	3.6	$355,600	$1,000

Commercial Buildings	**2**	**2,929**	**12**	**$1,214,673**	**$11,000**
Cross-Cutting Initiatives	**1**	**2**	**0**	**$0**	**$10,000**
Government Initiatives	**2**	**727**	**4**	**$359,050**	**$12,000**
Renewable Energy	**1**	**379**	**2**	**$217,666**	**$5,000**
Residential Buildings	**1**	**246**	**2**	**$177,192**	**$25,000**
Solid Waste	**1**	**5**	**0**	**$4,958**	**$2,000**
Transportation	**3**	**2,070**	**14**	**$1,413,328**	**$11,000**

Sub-Total of Phase II Measures	**11**	**6,358**	**34**	**$3,386,867**	**$76,000**

Table 13: Phase III Measures

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK - 3	**Commercial Buildings**	Commercial On-Bill Financing/Repayment: Encourage On-Bill Financing/Repayment through SCE and SCG with green messaging and teamwork in the community	III	425	1.5	$151,869	$2,000
RECREATE - 2	**Commercial Buildings**	Resort Management: Revise management contracts for resorts to include efficiency as a performance metric	III	10	0.5	$54,630	$2,000
GOVERN - 4	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete 100% of remaining Energy Action Plan measures developed in EAP (2015-2020)	III	91	0.4	$39,811	$800,175
BUILD - 2	**Residential Buildings**	Shade Trees: Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	III	35	0.1	$12,240	$56,000
BUILD - 3	**Residential Buildings**	Affordable Housing: Promote additional construction of energy-efficient affordable housing with private-sector partners	III	193	1.0	$96,900	$25,000
MOBILITY - 1	**Transportation**	Electric Vehicles: Promote the lease and purchase of 250 electric vehicles in the community with recognition and preferential parking for participants	III	1,194	4.4	$444,164	$40,000
MOBILITY - 2	**Transportation**	"Golf Cars:" Provide special financing, leasing and bulk purchase of Golf Cars to the community to increase the community fleet by 250 new cars	III	597	2.2	$222,082	$5,000
LIVE - 6	**Water**	Drought Tolerant Landscaping: Promote and augment CVWD rebates for drought tolerant planting, turf replacement and buy-back	III	112	2.7	$266,296	$30,000

Commercial Buildings	**2**	**435**	**2.1**	**$206,499**	**$4,000**
Government Initiatives	**1**	**91**	**0.4**	**$39,811**	**$800,175**
Residential Buildings	**2**	**228**	**1.1**	**$109,140**	**$81,000**
Transportation	**2**	**1,791**	**6.7**	**$666,246**	**$45,000**
Water	**1**	**112**	**2.7**	**$266,296**	**$30,000**

Sub-Total of Phase III Measures	**8**	**2,657**	**12.9**	**$1,287,992**	**$960,175**

VI. Tracking Results and Measuring Progress

The practice of reducing greenhouse gas emissions is new to most California cities and tribes. While many of the policies, programs, and initiatives are familiar – they address electric efficiency, water use, our mobility, etc. – they are presented in this Climate Action Plan in a new way and with a new focus. Many assumptions are made, making the practice of measuring actual results all the more important to direct mid-course programmatic changes as need be.

The City of Indian Wells will diligently track climate action results to verify reductions and to gauge the savings measures' impacts toward the goals set. Progress reports will be provided quarterly to the Council by a designated staff member, with an annual report of greater depth flagging overall progress, key accomplishments and lessons, as well as challenges to successful implementation.

Each year, the Planning Department, with the support of staff and consultants as need be, will review the progress toward the City's climate protection goals. The potential for interns to assist in this process is being evaluated. Metrics that will be tracked for both municipal operations and community-wide include resource savings, economic savings, job creation, and carbon reductions:

Resource Savings

- Kilowatt-hour savings
- Therms of natural gas savings
- Gasoline and other transportation fuel savings
- Water savings
- Recycling diversion rate

Economic Savings

- Electricity bill savings
- Natural gas bill savings
- Water efficiency savings
- Other resource savings

Job Creation

- Types of jobs
- Number of jobs
- Economic development value

Greenhouse Gas Savings

- Source of emissions reductions
- Tonnes of emissions reductions
- Cost per tonne of avoided emissions
- Percentage of reduction goal achieved in each period

Economic values will be considered and analyzed to track discrepancies with the Plan, and to update the Plan accordingly. Which programs are successful? Which areas need additional support? What new opportunities are on the horizon? A working draft will be maintained with quarterly updates; every two years the Climate Action Plan will be updated and reissued.

Finally, the City of Indian Wells will make the Climate Action Plan easily accessible to its members and stakeholders. The City will provide mechanisms for comments from citizens and staff using on-line survey tools and hard copy input sheets. Every two years, Indian Wells will plan and provide a community forum for interested stakeholders to keep them apprised of the work the City is doing and the progress that is being made and to solicit updated input for prioritization of actions.

Appendix A: Glossary of Terms and Abbreviations

This glossary contains definitions for terms and abbreviations used in this 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: See California Assembly Bill 32, the *Global Warming Solutions Act of 2006.*

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.

Anthropogenic: Refers to greenhouse gas emissions or reductions that are a direct result of human activities.

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.

Atmosphere: The blanket of air surrounding the earth that supports life. The atmosphere absorbs energy from the sun and retains heat. It also recycles water and other chemicals and protects the earth from high-energy radiation and the frigid vacuum of space.

Baseline Emissions: The amount of greenhouse gas emissions released in a designated year against which future changes in emissions levels are measured. For Green for Life jurisdictions, the baseline year is 2010, selected at the year for which the best data were available.

Business as Usual (BAU): What to expect in the normal course of events.

Biodiesel: A form of diesel fuel manufactured from vegetable oils (used or new) or animal fats. Biodiesel can be used in its pure form (B100) or blended with petroleum diesel in varying proportions.

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 Dioxide (CO_2): The greenhouse gas whose concentration is being most affected by human activities. CO_2 also serves as the reference to compare all other greenhouse gases (see Carbon Dioxide Equivalencies). The major source of CO_2 emissions is fossil fuel combustion. Significant CO_2 emissions are also produced by forest clearing, biomass burning, and non-energy production processes such as cement production.

Carbon Dioxide Equivalent (CO_2e): A metric used to compare emissions of various greenhouse gases. The greenhouse gas inventory process converts all other gases to their carbon dioxide equivalents by multiplying the mass of the gas by its global warming potential.

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

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 set in place for a city or other jurisdiction to follow in order to control and improve its energy use and emissions.

Coachella Valley Association of Governments (CVAG): The regional planning agency coordinating government services in the Coachella Valley, providing solutions to common issues of the local governments and tribes that are members.

Demand Response: Actions or programs offered by the local utility to induce ratepayers to temporarily reduce or shift 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, 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

burning of natural gas or of transportation fuels) and sectors (such as from industrial or residential buildings).

Emissions Coefficients: The greenhouse gas "impact" that comes from a given utility's fuel mix. Every electric utility, for example, generates power from a "portfolio" of power sources: natural gas plants, nuclear plants, dams, etc. That utility's emissions coefficients are determined by its specific mix. The coefficients change year-to-year.

Energy Conservation: Reducing energy consumption. Energy conservation can be achieved by behavioral change, for instance turning off appliances and idle equipment, slightly raising temperatures, etc. Versus "energy efficiency" that is based on advanced technologies and 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.

California Executive Order S-03-05: on June 1, 2005, Governor Schwarzenegger signed Executive Order S-3-05 which established the climate change emission reduction targets for California: By 2010, reduce emissions to 2000 levels; by 2020, reduce emissions to 1990 levels; and by 2050, reduce emissions to 80 percent below 1990 levels.

Flexible Work Arrangements: Work arrangements that allow employees to deviate from a set schedule or location. This could include options for telecommuting, working a compressed work week, and starting or ending the workday at times other than conventional shift times.

Fuel Efficiency: The distance a vehicle can travel on an amount of fuel. This is most often measured in miles traveled per gallon of fuel. A higher-efficiency vehicle travels farther on a gallon of fuel than similar vehicles.

Fuel Mix: Every electric utility generates power from a "portfolio" of power sources: natural gas plants, nuclear plants, dams, etc. That utility's fuel mix determines its emissions rate per kWh of electricity produced. In California, the Renewable Portfolio Standard regulates the utility fuel mix.

Fugitive Emissions: Miscellaneous emissions released from a given activity, like refrigerants released as a result of leaks, fertilizers from golf courses, etc.

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 Protocol for Community-Scale GHG Emissions (GPC): A tool to assist local governments to develop community-scale inventories, developed by C40 Cities Climate Leadership Group

and ICLEI Local Governments for Sustainability In collaboration with: World Bank, UNEP, UN-HABITAT, World Resources Institute.

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.

Global Warming Potential: A value that is used to compare the abilities of different greenhouse gases to trap heat in the atmosphere. GWPs are based on the heat-absorbing ability of each gas relative to that of carbon dioxide (CO_2), as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years). For example, methane has a global warming potential of 21.

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.

Green Infrastructure: The network of trees, plants, and natural ecosystems in a community. These provide services to a community, such as decreasing rainwater runoff, providing healthy soils, removing air pollutants and greenhouse gases from atmosphere, and providing shade and beautification.

Greenhouse Effect: Carbon dioxide and other atmospheric gases warm the surface of the planet by trapping heat close to the surface of the earth. In a natural state, the greenhouse effect warms the planet, making it habitable by humans. However, human activities have increased the amount of carbon dioxide and other greenhouse gases in the atmosphere. Higher levels of greenhouse gases trap more heat, causing temperatures to rise.

Greenhouse Gas (GHG): A gas, including water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) among others, 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. The United States mainland has three grids: the Eastern Interconnect, the Western Interconnect, and the Texas Interconnect.

International Council for Local Government Initiatives, now known as Local Governments for Sustainability USA (ICLEI): International organization at the forefront of measuring greenhouse gases and developed the first GHG inventories starting in 1990. Today, members come from 70 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.

Intergovernmental Panel on Climate Change (IPCC): The leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts.

Local Government Operations Protocol (LGOP): A standard set of guidelines developed by ICLEI, the World Resources Institute and the California Air Quality Board, aimed at assisting local governments to develop 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-hour (kWh), by contrast, is a measure of how much energy is actually used or generated over a specific period of time.

Kilowatt-hour (kWh): An amount of electricity equivalent to the use of one kilowatt for one hour. A one 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).

Kyoto Protocol: A treaty negotiated in December 1997 at the City of Kyoto, Japan. It committed its signatories to reduce their collective emissions of greenhouse gases by 5.2% compared to the year 1990. Some 37 industrialized countries and the European Community signed the treaty, which provided for a number of flexible mechanisms to reach the reductions goals. The United States did not sign the treaty, and Canada withdrew from the treaty in 2011.

Leadership in Energy and Environmental Design (LEED): 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 measures are specific short and long-term policies, programs, and actions that the jurisdiction 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.

Methane (CH_4): A greenhouse gas that traps 21 times the amount of heat as carbon dioxide. Methane is produced through the decomposition of waste in landfills, animal digestion, decomposition of animal wastes, incomplete fossil fuel combustion, and the production and distribution of natural gas, oil, and coal.

Metric Ton (or tonne): Common international measurement for the quantity of greenhouse gas emissions. A metric ton is equal to 2,205 lbs or 1.1 short tons. It is the common form of ton used in the United States.

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 (N_2O): A powerful greenhouse gas with the ability to trap 310 times the amount of heat as a molecule of CO_2. 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 and thus prices are also lower.

Property Assessed Clean Energy financing (PACE): PACE financing, first enabled in California by AB 811 (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, funded 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.

Senate Bill 375 (SB 375): The *Sustainable Communities and Climate Protection Act*, passed in 2008, was drafted and adopted to reduce vehicle emissions by integrating land use with transportation planning.

Sequestration: The uptake and storage of carbon from the atmosphere. Most commonly refers to trees and plants absorbing carbon dioxide through photosynthesis.

Smart Grid: An electricity system that utilizes two-way communication between power suppliers and consumers. This allows for adjustments to a facility's operations to save energy, reduce cost, and increase the reliability of the power supply. A smart grid includes a monitoring system at facilities that can turn off or adjust systems to reduce demand at peak times when power is more expensive. For example, a smart grid could temporarily turn off selected appliances, such as washing machines, or adjust a building temperature by a few degrees to save power.

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.

Solar Thermal: Refers to devices that use the heat from the sun to heat water.

Strategies: Groups of similar emissions reduction measures included in the Climate Action Plan.

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. It is approximately the energy equivalent of burning 100 cubic feet of natural gas. It is equivalent to 100,000 British thermal units (BTU) or 29.3 kilowatt-hours of electrical energy.

Title 24: California Code of Regulations (CCR), Title 24, is also known as the California Building Standards Code. It is a compilation of building criteria that is updated every three years.

Tonne: see Metric Ton.

United Nations World Commission on Environment and Development (WCED): This group published “Our Common Future,” also known as the Brundtland Report, in 1987. It is most famous for focusing on environmental threats as “elements of a single crisis of the whole.” The Brundtland Report also coined an often-quoted definition of sustainability as: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

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.

Waste Characterization Study: An analysis of a facility’s waste not being recycled or composted that involves sorting the garbage produced by type (e.g., paper, food waste, plastic) to determine what is being thrown away.

Waste Diversion: A waste reduction strategy focused on the recycling or composting of materials, diverting for use in new products or materials what would otherwise have been sent to a landfill.

Waste Reduction: Techniques such as source reduction, recycling, or composting that reduce waste generation or prevent waste from being created at all.

Waste Stream: The total flow of solid waste from homes, businesses, institutions and manufacturing plants that is recycled, composted, burned, or disposed of in landfills.

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

Weather: The specific condition of the atmosphere at a particular place and time. It is measured in terms of such factors as wind, temperature, humidity, atmospheric pressure, cloudiness, and precipitation. In most places, weather changes from hour to hour, day to day, and season to season. Climate is the average of weather over time and space. A simple way of remembering the difference is that climate is what you expect (e.g., cold winters) and weather is what happens (e.g., a blizzard).

Appendix B: Savings Measures Analysis by Cost-Effectiveness

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
LIVE - 1	**Residential Buildings**	Residential PACE: Partner and aggressively promote Residential PACE Program to reach 25% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems	I	4,100	21.5	$2,147,882	$4,000	$0.98	25% of housing stock (1,284 homes), 40% kWh savings (8,692,166 kWh), 30% therms savings (284,277 therms) through energy upgrades; 100 homes with 10kw solar PV (200,750 kWh savings), 50 homes with solar DHW (renewable energy system) (saving 11,616 kWh and 5,392 therms/yr)
RECREATE - 3	**Transportation**	Neighborhood Electric Vehicles: Design and promote Neighborhood Electric Vehicle program to achieve minimum of 400 NEVs for Valley residents and visitors	II	955	3.6	$355,600	$1,000	$1.05	400 NEVs assuming 5000 miles each annually, saving 254 gallons gasoline per vehicle resulting in 101,600 saved annually ($3.50/ gal. of gas)
LIVE - 4	**Residential Buildings**	On-Bill Finance/Repayment: Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	I	1,068	2.7	$268,782	$2,000	$1.87	15% of housing stock (861 homes), 40% kWh savings, 30% therms savings
WORK - 2	**Commercial Buildings**	Commercial PACE Program: Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	II	2,564	10.9	$1,087,344	$5,000	$1.95	Efficiency upgrades (1,250,000 sq ft comm. space…30% reduction in elec. 5% reduction in natural gas) savings of 5,842,500 kWh/yr and 21,875 therms Nat Gas/yr (energy upgrades); 500kW PV producing 1,003750 kWh/yr, $126,472….1000 kW capacity wind producing 1,520,000 kWh/yr, $166,288…45 businesses with solar hot water saving 29,040 kWh and 5,991 therms nat. gas/yr $12,107 (renewable energy system)
GOVERN - 9	**Government Initiatives**	Public/Private Partnerships: Explore private-public partnerships for renewable energy installations and energy-efficiency upgrades on municipal facilities (performance-based contracts and power purchase agreements).	II	688	2.5	$252,945	$2,000	$2.91	Assume 1,000 kW of solar PV generating 2,007,500 kWh
GOVERN - 2	**Government Initiatives**	Desert Cities Energy Partnership: Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	510	2.5	$248,073	$2,000	$3.92	DCEP…Data from Energy Leader Partnership annualized data from 2004-2011 …Municipal 21,157 kWh/yr, Community 1,750,792kWh/yr total 1,752,949 kWh

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
GOVERN - 1	**Cross-Cutting Initiatives**	Sustainability Committee: Form and facilitate a "blue ribbon committee" for sustainability issues and management	I	500	0.5	$50,000	$2,000	$4.00	0.5% of citywide emissions over specific programs run
WORK - 3	**Commercial Buildings**	Commercial On-Bill Financing/Repayment: Encourage On-Bill Financing/Repayment through SCE and SCG with green messaging and teamwork in the community	III	425	1.5	$151,869	$2,000	$4.71	Efficiency upgrades to 250,000 sq ft of commercial space…30% reduction in elec. 5% reduction in natural gas resulting in savings of 1,168,500 kWh/yr and 4,637 therms Nat Gas/yr Assume about 50 businesses
MOBILITY - 4	**Transportation**	Bus Route Maximization: Collaborate with Sun Line officials to reform routes to promote smaller buses with more routes and frequencies to increase ridership by 1,500 riders	II	834	9.5	$953,260	$5,000	$6.00	1,500 new daily transit passengers, 9.8 miles avg. trip length, 19.7 mpg vehicle displaced saving 5,365,500 annual vehicle mile reduction, 272,360 gallons of gas saved ($3.50/ gal. of gas)
RECREATE - 1	**Commercial Buildings**	Comprehensive Pool Efficiency: Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating for 1,000 pools	I	493	3.5	$354,384	$4,000	$8.11	Target 1,000 additional pools, 1,712 kWh/yr savings per pump resulting in 1,712,000 kWh/year
MOBILITY - 2	**Transportation**	"Golf Cars:" Provide special financing, leasing and bulk purchase of Golf Cars to the community to increase the community fleet by 250 new cars	III	597	2.2	$222,082	$5,000	$8.38	250 new electric cars, 19.7 mpg vehicle replaced, 5,000 average annual miles per vehicle, $3.50/gal gas, $0.207/kWh saving 63,452 gallons of gas, ($3.50/ gal. of gas)
BUILD - 1	**Government Initiatives**	Green Building Program: Adopt the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	274	1.4	$135,008	$2,500	$9.12	50 new or "gut-rehab" homes at 3,000 square feet average…assume 25% savings off of the typical new construction annual energy usage per sf….resulting in 585,000 kWh and 13,125 therms saved annually
RECREATE - 4	**Water**	Irrigation System Controls: Promote the installation of irrigation control sensors at parks and golf courses	I	102	1.3	$127,140	$1,000	$9.80	26% savings, 300 acres, 652,000 gallons of water used per acre, $0.0025/gallon, 0.0035 kWh/gallon, $50/acre to install sensor saving 50,856,000 gallons of water, 177,996 kWh
WORK - 4	**Commercial Buildings**	Peak Demand Reduction: Collaborate with SCE and encourage 100 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	193	1.0	$96,900	$2,000	$10.36	100 business participating, 8000 kWh/yr reduction 200 therms/yr reduction.
LIVE - 5	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by 5% to 78.8% by 2015 potentially through use of tiered rate structure	I	469	0.5	$50,000	$5,000	$10.66	2010 diversion rate of 73.8% and characterization study (2008) from Cal-Recycle with Consultant calculations then entered into the CACP software. Consultant assumption on savings dollars

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
GOVERN - 10	**Renewable Energy**	Solar Ready Ordinance: Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	II	379	2.2	$217,666	$5,000	$13.19	50 homes with 10kw solar PV (5.5 sun hours a day) resulting in 1,063,750 kWh/$207,776 production annually ,50 homes with solar DHW (avg. 50 gals a day usage) resulting in 23,232 kWh/$4,809 and 4,793 therms/$5,080 savings annually
LIVE - 3	**Residential Buildings**	Peak Demand Reduction: Partner with SCE to provide local promotion of the residential Summer Discount Program to cut peak demand in 10% of the housing stock	I	125	0.9	$89,859	$2,000	$16.00	Assume 10% of homes (513) and save 5% household electricity (846 kWh per home) resulting in 434,100 kWh saved annually
WORK - 1	**Commercial Buildings**	Commercial Energy Audits: Promote energy audits for 500,000 square feet of commercial buildings and confirm replacement/upgrade schedule	II	365	1.3	$127,329	$6,000	$16.44	500,000 sf. community wide (approx. 25 buildings), 15.6 kWh/sf. usage .35 therms/sf. usage, achieve 10% electricity and natural gas savings post-audit, savings of 779,000 kWh, 17,500 therms
MOBILITY - 5	**Transportation**	Van Pools: Partner and recognize all Indian Well's major employers with over 50 employees for van pools	II	281	1.0	$104,468	$5,000	$17.79	500 employees offered carpool/vanpool, 10% reduction in commute vehicle trips, 25 mile avg. one-way length, 19.7 mpg avg. fuel economy…resulting in 588,000 VMT reduction, 29,848 gallons of gas savings annually ($3.50/ gal. of gas)
GOVERN - 5	**Government Initiatives**	Efficient and Green New Construction: Establish policy that 100% of new municipal buildings and major remodels adhere to Voluntary Green Building Program standards and are minimum LEED Silver or equivalent	I	91	0.3	$29,145	$2,000	$21.98	25% electricity and natural gas savings, 50,000 sq. ft., $0.126/kWh, $1.06/therm savings 194,500 kWh, 4,375 therms
GOVERN - 8	**Government Initiatives**	Retro Commissioning: Abide by the Retro-Commissioning (RCx) policy and guidelines for qualifying municipal buildings	I	36	0.2	$15,026	$1,000	$27.78	2% of Municipal Electricity and Natural Gas 108,828 kWh and 932 therms
MOBILITY - 1	**Transportation**	Electric Vehicles: Promote the lease and purchase of 250 electric vehicles in the community with recognition and preferential parking for participants	III	1,194	4.4	$444,164	$40,000	$33.50	250 new electric cars, 19.7 mpg vehicle replaced, 10,000 average annual miles per vehicle, $3.50/gal gas, $0.207/kWh saving 126,904 gallons of gas, ($3.50/ gal. of gas)
WORK - 7	**Transportation**	Car-Pooling and Mass Transit: Promote "Shared Vehicle at Work" programs to increase carpooling and mass transit by 20% with a "guaranteed-ride home"	I	57	0.1	$11,326	$2,000	$35.09	Increase employee use of alternative transportation by 20%, Assumed 100 employees, 32 mile round trip, 3236 gallons gas saved ($3.50/ gal. of gas)

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
RECREATE - 5	**Water**	Drought-Tolerant Landscaping: Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	I	28	0.1	$10,431	$1,000	$35.71	1-9 hole and 10-18 hole golf courses in Indian Wells …assume average of 200,000 gal/day…average of 2% energy savings achieved…saving 82,782 kWh/yr
GOVERN - 6	**Government Initiatives**	Utility Manager Software: Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	91	0.4	$36,749	$5,000	$54.95	5% of Municipal Electricity and Natural Gas 272,071 kWh and 2,330 therms
LEARN - 1	**Cross-Cutting Initiatives**	Green Building Lectures and Continuing Education: Provide lectures, seminars and training on green building based on Voluntary Green Building Program guide and training materials emphasizing desert conditions and opportunities	I	88	0.4	$42,854	$5,000	$56.82	40 new homes added per year…assume 25% savings…resulting in 169,240 kWh and 7,380 therms saved annually
GOVERN - 11	**Water**	Water Feature Efficiency: Update water feature ordinance to maintain amenities while increasing water and energy efficiency through time of use and seasonal timers	I	26	0.1	$11,572	$2,000	$76.92	IW Water pumping is 918,464 kWh will be reduced by 10% saving 91,846 kWh
LIVE - 2	**Residential Buildings**	Pool Pumps: Promote high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve a minimum of 500 units	II	246	1.8	$177,192	$25,000	$101.63	500 pumps 1,712 kWh/yr savings per pump 856,000 kWh/yr, $0.207/kWh
BUILD - 3	**Residential Buildings**	Affordable Housing: Promote additional construction of energy-efficient affordable housing with private-sector partners	III	193	1.0	$96,900	$25,000	$129.53	100 new housing units, 16,000 kWh and 400 therm typical use annually, 25% savings at 400,000 kWh, 10,000 therms
GOVERN - 7	**Government Initiatives**	Benchmarking: Abide by the Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	36	0.2	$15,026	$5,000	$138.89	2% of Municipal Electricity and Natural Gas 108,828 kWh and 932 therms
RECREATE - 2	**Commercial Buildings**	Resort Management: Revise management contracts for resorts to include efficiency as a performance metric	III	10	0.5	$54,630	$2,000	$200.00	Assume savings of 400,000 kWh and 3000 therms
MOBILITY - 3	**Transportation**	Bike, Walking, NEV "Parkway:" Support CV Link as a Valley amenity and means to alternative forms of transportation and to promote health in Indian Wells	I	25	0.0	$4,620	$5,000	$200.00	500 weekly trips switching from cars to walking/biking, avg. distance 2 miles, 19.7 mpg car displaced, saving 1,320 gallons of gas ($3.50/ gal. of gas)

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
WORK - 5	**Government Initiatives**	Water Efficient Landscaping Ordinance: Build on and exceed current Water Efficient Landscaping Ordinance in the commercial sector by 20% by 2020	II	39	1.1	$106,105	$10,000	$256.41	CAPPA Calc for Water Conservation Ordinance, 250 customers, assuming 3,000 gallons of water used per day, saving 20% from ordinance saves 21,220,930 gallons and 114,593 kWh.
LIVE - 6	**Water**	Drought Tolerant Landscaping: Promote and augment CVWD rebates for drought tolerant planting, turf replacement and buy-back	III	112	2.7	$266,296	$30,000	$267.86	250 homes, .5 acre yard, 4 gal of gasoline used per lawn annually, 19lbs of VOC produced per mower annually, 652,000 gallons of water used per acre, 0.0035 kWh used per gallon of water
WORK - 6	**Solid Waste**	Food Waste Composting at Restaurants: Increase restaurant composting program for food waste to reach all restaurants that serve more than 100 meals a day	II	5	0.0	$4,958	$2,000	$400.00	Leverage restaurant program Route 111...Assume additional 300lbs saved/per cap/yr…assume $1.00 savings per cap/yr
GOVERN - 3	**Government Initiatives**	Municipal Facility Efficiency Upgrades...Payback Threshold Policy: Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	9	0.0	$4,087	$10,183	$1,131.44	Municipal upgrades (detailed in EAP) with a payback of less then 4 years produce an annual kWh savings of 32,433 kWh realizing over 100% of the EAP Energy Efficiency Goal of 24,015 kWh savings required to reach initial reset 20% goal for 2015.
BUILD - 2	**Residential Buildings**	Shade Trees: Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	III	35	0.1	$12,240	$56,000	$1,600.00	250 trees privately planted and 250 trees publicly planted, $0.126/kWh, 204 kWh saved per mature tree annually, $224 to plant each tree (CAPPA defaults) saves 102,000 kWh
LEARN - 2	**Cross-Cutting Initiatives**	Workforce Development: Promote workforce development in partnership with College of the Desert, UCR, and CSUSB to achieve 500 "green careers" by 2020	II	2	0.0		$10,000	$5,000.00	Workforce Development and Riverside County Employment Development Agency
GOVERN - 4	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete 100% of remaining Energy Action Plan measures developed in EAP (2015-2020)	III	91	0.4	$39,811	$800,175	$8,793.13	Implement the remaining 315,960 kWh savings developed in EAP. (2015 -2020) Total EAP savings measures (kWh) = 348,393 kWh

GRAND TOTAL OF EMISSION MEASURES	**39**	**17,336**	**84**	**$8,423,723**	**$1,100,858**
2020 EMISSIONS REDUCTION TARGET		**16,088**			
EMISSIONS LEFT		**-1,248**			

Surplus of emissions reduction measures

Appendix C: Savings Measures Analysis by Least Cost

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	kWh Savings
GOVERN - 8	**Government Initiatives**	Retro Commissioning: Abide by the Retro-Commissioning (RCx) policy and guidelines for qualifying municipal buildings	I	36	0.2	$15,026	$1,000	$27.78	108,828
RECREATE - 3	**Transportation**	Neighborhood Electric Vehicles: Design and promote Neighborhood Electric Vehicle program to achieve minimum of 400 NEVs for Valley residents and visitors	II	955	3.6	$355,600	$1,000	$1.05	-
RECREATE - 4	**Water**	Irrigation System Controls: Promote the installation of irrigation control sensors at parks and golf courses	I	102	1.3	$127,140	$1,000	$9.80	177,996
RECREATE - 5	**Water**	Drought-Tolerant Landscaping: Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	I	28	0.1	$10,431	$1,000	$35.71	82,782
WORK - 3	**Commercial Buildings**	Commercial On-Bill Financing/Repayment: Encourage On-Bill Financing/Repayment through SCE and SCG with green messaging and teamwork in the community	III	425	1.5	$151,869	$2,000	$4.71	1,168,500
WORK - 4	**Commercial Buildings**	Peak Demand Reduction: Collaborate with SCE and encourage 100 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	193	1.0	$96,900	$2,000	$10.36	8,000
RECREATE - 2	**Commercial Buildings**	Resort Management: Revise management contracts for resorts to include efficiency as a performance metric	III	10	0.5	$54,630	$2,000	$200.00	400,000
GOVERN - 1	**Cross-Cutting Initiatives**	Sustainability Committee: Form and facilitate a "blue ribbon committee" for sustainability issues and management	I	500	0.5	$50,000	$2,000	$4.00	-
GOVERN - 9	**Government Initiatives**	Public/Private Partnerships: Explore private-public partnerships for renewable energy installations and energy-efficiency upgrades on municipal facilities (performance-based contracts and power purchase agreements).	II	688	2.5	$252,945	$2,000	$2.91	2,007,500
GOVERN - 2	**Government Initiatives**	Desert Cities Energy Partnership: Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	510	2.5	$248,073	$2,000	$3.92	1,771,949
GOVERN - 5	**Government Initiatives**	Efficient and Green New Construction: Establish policy that 100% of new municipal buildings and major remodels adhere to Voluntary Green Building Program standards and are minimum LEED Silver or equivalent	I	91	0.3	$29,145	$2,000	$21.98	194,500

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	kWh Savings
LIVE - 4	**Residential Buildings**	On-Bill Finance/Repayment: Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	I	1,068	2.7	$268,782	$2,000	$1.87	2,066,400
LIVE - 3	**Residential Buildings**	Peak Demand Reduction: Partner with SCE to provide local promotion of the residential Summer Discount Program to cut peak demand in 10% of the housing stock	I	125	0.9	$89,859	$2,000	$16.00	434,100
WORK - 6	**Solid Waste**	Food Waste Composting at Restaurants: Increase restaurant composting program for food waste to reach all restaurants that serve more than 100 meals a day	II	5	0.0	$4,958	$2,000	$400.00	-
WORK - 7	**Transportation**	Car-Pooling and Mass Transit: Promote "Shared Vehicle at Work" programs to increase carpooling and mass transit by 20% with a "guaranteed-ride home"	I	57	0.1	$11,326	$2,000	$35.09	-
GOVERN - 11	**Water**	Water Feature Efficiency: Update water feature ordinance to maintain amenities while increasing water and energy efficiency through time of use and seasonal timers	I	26	0.1	$11,572	$2,000	$76.92	91,846
BUILD - 1	**Government Initiatives**	Green Building Program: Adopt the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	274	1.4	$135,008	$2,500	$9.12	585,000
RECREATE - 1	**Commercial Buildings**	Comprehensive Pool Efficiency: Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating for 1,000 pools	I	493	3.5	$354,384	$4,000	$8.11	1,712,000
LIVE - 1	**Residential Buildings**	Residential PACE: Partner and aggressively promote Residential PACE Program to reach 25% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems	I	4,100	21.5	$2,147,882	$4,000	$0.98	-
WORK - 2	**Commercial Buildings**	Commercial PACE Program: Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	II	2,564	10.9	$1,087,344	$5,000	$1.95	8,395,290
LEARN - 1	**Cross-Cutting Initiatives**	Green Building Lectures and Continuing Education: Provide lectures, seminars and training on green building based on Voluntary Green Building Program guide and training materials emphasizing desert conditions and opportunities	I	88	0.4	$42,854	$5,000	$56.82	169,240

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	kWh Savings
GOVERN - 6	**Government Initiatives**	Utility Manager Software: Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	91	0.4	$36,749	$5,000	$54.95	272,071
GOVERN - 7	**Government Initiatives**	Benchmarking: Abide by the Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	36	0.2	$15,026	$5,000	$138.89	108,828
GOVERN - 10	**Renewable Energy**	Solar Ready Ordinance: Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	II	379	2.2	$217,666	$5,000	$13.19	1,086,982
LIVE - 5	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by 5% to 78.8% by 2015 potentially through use of tiered rate structure	I	469	0.5	$50,000	$5,000	$10.66	-
MOBILITY - 4	**Transportation**	Bus Route Maximization: Collaborate with Sun Line officials to reform routes to promote smaller buses with more routes and frequencies to increase ridership by 1,500 riders	II	834	9.5	$953,260	$5,000	$6.00	-
MOBILITY - 2	**Transportation**	"Golf Cars:" Provide special financing, leasing and bulk purchase of Golf Cars to the community to increase the community fleet by 250 new cars	III	597	2.2	$222,082	$5,000	$8.38	-
MOBILITY - 5	**Transportation**	Van Pools: Partner and recognize all Indian Well's major employers with over 50 employees for van pools	II	281	1.0	$104,468	$5,000	$17.79	-
MOBILITY - 3	**Transportation**	Bike, Walking, NEV "Parkway:" Support CV Link as a Valley amenity and means to alternative forms of transportation and to promote health in Indian Wells	I	25	0.0	$4,620	$5,000	$200.00	-
WORK - 1	**Commercial Buildings**	Commercial Energy Audits: Promote energy audits for 500,000 square feet of commercial buildings and confirm replacement/upgrade schedule	II	365	1.3	$127,329	$6,000	$16.44	779,000
LEARN - 2	**Cross-Cutting Initiatives**	Workforce Development: Promote workforce development in partnership with College of the Desert, UCR, and CSUSB to achieve 500 "green careers" by 2020	II	2	0.0		$10,000	$5,000.00	-
WORK - 5	**Government Initiatives**	Water Efficient Landscaping Ordinance: Build on and exceed current Water Efficient Landscaping Ordinance in the commercial sector by 20% by 2020	II	39	1.1	$106,105	$10,000	$256.41	114,593
GOVERN - 3	**Government Initiatives**	Municipal Facility Efficiency Upgrades...Payback Threshold Policy: Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	9	0.0	$4,087	$10,183	$1,131.44	32,433

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	kWh Savings
LIVE - 2	**Residential Buildings**	Pool Pumps: Promote high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve a minimum of 500 units	II	246	1.8	$177,192	$25,000	$101.63	856,000
BUILD - 3	**Residential Buildings**	Affordable Housing: Promote additional construction of energy-efficient affordable housing with private-sector partners	III	193	1.0	$96,900	$25,000	$129.53	400,000
LIVE - 6	**Water**	Drought Tolerant Landscaping: Promote and augment CVWD rebates for drought tolerant planting, turf replacement and buy-back	III	112	2.7	$266,296	$30,000	$267.86	-
MOBILITY - 1	**Transportation**	Electric Vehicles: Promote the lease and purchase of 250 electric vehicles in the community with recognition and preferential parking for participants	III	1,194	4.4	$444,164	$40,000	$33.50	-
BUILD - 2	**Residential Buildings**	Shade Trees: Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	III	35	0.1	$12,240	$56,000	$1,600.00	102,000
GOVERN - 4	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete 100% of remaining Energy Action Plan measures developed in EAP (2015-2020)	III	91	0.4	$39,811	$800,175	$8,793.13	315,960
		GRAND TOTAL OF EMISSION MEASURES	**39**	**17,336**	**84**	**$8,423,723**	**$1,100,858**		**23,441,798**
		2020 EMISSIONS REDUCTION TARGET		**16,088**					
		EMISSIONS LEFT		**-1,248**					

Surplus of emissions reduction measures

Appendix D: City of Indian Wells 2013 Greenhouse Gas Inventory
(separate document)