DANA POINT

ENERGY EFFICIENCY AND CONSERVATION PLAN

DECEMBER 2011

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The purpose of the Dana Point Energy Efficiency and Conservation Plan is to identify goals and measures that can be utilized to reduce energy consumption and promote the conservation of natural resources in Dana Point. With recent State legislation focused on significant reductions of water use, energy use, and greenhouse gas emissions, this plan provides an array of information and options that will help local residents, business owners, and City employees reduce energy consumption.

There are six main goals on which the plan focuses:

- Reduce energy use, and hence reduce greenhouse gas emissions
- Promote sustainable land use and redevelopment
- Encourage sustainable construction
- Promote efficient transportation
- Continue current efforts to conserve and efficiently use water; and
- Encourage public education and outreach in the community concerning energy reduction and sustainable behaviors.

To achieve these goals, the program herein includes a variety of measures for City operations and the community that range from energy and water efficiency to transportation and purchasing. Additionally, general recommendations for consideration have been included to suggest broader actions that the City may undertake to prepare for implementation of legislation at the state and national levels.

Local governments play an important role in the reduction of California's greenhouse gas emissions. They have broad influence and can monitor and reduce greenhouse gas emissions through local ordinances, planning, permitting, outreach and education. In many cases, greenhouse gas emissions may be managed best at the local level. Following this energy plan will help establish reduction goals at the local level that will comply with State Law and reduce energy expenditures. As part of this plan an updated greenhouse gas inventory will also provide the City with a comprehensive understanding of its own emissions and set the stage for measures to reduce those emissions.

INTRODUCTION

Purpose

The Dana Point Energy Efficiency and Conservation Plan provides goals, measures, and recommendations for the City, its residents, and businesses to reduce overall energy consumption and increase natural resource conservation in conformance with statewide legislation and executive orders.

Legislative Background

Significant legislation provide the framework for the State of California's program to enhance energy efficiency and conservation in an attempt to avert statewide crises resulting from increasing energy use, limited water supply, and other environmental pressures.

Executive Order S-03-05

In 2005, Governor Arnold Schwarzenegger signed Executive Order S-03-05, which called for California to reduce its greenhouse gas emissions to 2000 levels by 2010; to 1990 levels by 2020; and to reduce emissions by 80% below 1990 levels by 2050. No specific implementation strategies were suggested at the time of signing, but it led to the passage of the Global Warming Solutions Act of 2006.

Global Warming Solutions Act of 2006 (Assembly Bill 32)

Passed and signed in 2006, AB 32 makes the California Air Resources Board (CARB) responsible for monitoring and reducing greenhouse gas emissions. The bill created binding statewide limits of greenhouse gas emissions and provided enforcing mechanisms for Executive Order S-03-05. AB32 regulates the six Kyoto Protocol gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF_6). The CARB is required to reduce greenhouse gas emissions to 1990 levels by 2020 using market mechanisms and mandatory caps that will become legally enforceable in 2012. Local governments will play a significant role in achieving California's goals of greenhouse gas reductions because local governments have broad influence over activities that produce direct and indirect greenhouse gas emissions. Most implementation and monitoring actions are performed at the local level as well. Local governments will be subject to mandatory reporting if the local government owns and/or operates a facility that is considered a large emitter of greenhouse gases.

Assembly Bill 811

Assembly Bill 811 (AB811) was signed into law in 2008. It allows willing property owners to enter contractual agreements that would finance renewable energy generation installations that are permanently fixed to the property owner's property. It also gives property owners access to low-interest loans that are paid back through property taxes. Local governments can establish their own property assessed clean energy (PACE) programs or join the statewide California FIRST program, both of which provide financing for those interested in establishing renewable energy generation on their property. The County of Orange has established a PACE program, OC Sunergy, but no startup time has been established for the program. Currently California financial groups

are in litigation with the State of California and the PACE programs have been slow to move forward.

Water Conservation in Landscaping Act of 2006 (Assembly Bill 1881)

Passed and signed in 2006, AB 1881 requires cities and counties to adopt a Model Water Efficient Landscape Ordinance (MWELO) or create their own local water efficient landscape ordinance that is at least as effective at conserving water as the Department of Water Resources' updated MWELO by January 1, 2010. Provisions in the local ordinances are to include minimizing irrigation over-spray and runoff and requiring landscapers to use appropriate irrigation technology that solves common irrigation problems. The legislation mostly affects new construction and landscape developers and only applies to single-family residences that have landscape installed by developers with gardens larger than 2,500 sq. ft. Existing landscaping and irrigation systems will not be forced to retrofit under AB 1881 unless undergoing renovation.

Dana Point City Environmental Policy ("Green Policy")

On March 25, 2008, the City of Dana Point adopted a Green Policy to protect and preserve the environment by establishing practices that reduce waste through reduction and recycling, purchasing products that have minimal environmental impact, and favoring environmentally preferable products available at a reasonable price.

California Green Building Standards Code (CALGreen)

Part 11 of the California Building Standards Code, known as CALGreen (California Green Building Standards Code), establishes mandatory green building regulations and became effective on January 1, 2011. Green building measures addressed in CALGreen include: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.

Additional Background Information

The City of Dana Point and its residents, businesses, and visitors use a significant amount of electricity. The electricity required to meet Dana Point's demand comes from a variety of power plants, many of which use fossil fuels as the primary energy source. While burning fossil fuels provides Dana Point citizens with electricity, it also adds a significant amount of greenhouse gases to the atmosphere—specifically carbon dioxide. Currently, natural absorbers of carbon dioxide are not able to take in all of the carbon dioxide being emitted into the atmosphere, increasing the greenhouse effect. As the population grows and electricity sources are stretched to meet the increased electricity demands, greenhouse gas emissions will increase and energy prices will rise. Becoming more energy efficient will allow Dana Point to reduce its energy-related expenses and save money in the long-term. Increasing energy efficiency will also reduce the City's greenhouse gas emissions, which assists the state of California in achieving its reduction goals of greenhouse gas emissions set forth by AB32.

Local governments such as Dana Point play an important role in reducing statewide greenhouse gas emissions. Because of this, the California ARB encourages local governments to participate in calculating emissions and setting caps for emissions for their cities to reduce community-wide emissions by 15% below current levels by 2020. Currently this is a voluntary program under

CARB and AB32, however CEQA now requires climate change impacts be addressed in environmental impact analyses. Currently when a city updates its General Plan, the city will be required to address climate change in the plan, create a GHG inventory, develop a reduction plan, and meet other associated CEQA compliance pieces (i.e. threshold of significance, compliance measures, etc.). By developing a GHG inventory the City will be in compliance with the AB32 2012 timeline and set the framework for eventual CEQA compliance.

The CARB has created a toolkit for local governments to use that includes cost saving actions, financial resources, carbon footprint calculators, and tips on creating an Action Plan. In addition, CARB provides directions on how to perform a greenhouse gas inventory for local governments in the Local Government Operations Protocol (LGOP). The CARB staff partnered with the Climate Action Reserve, Climate Action Registry, and Local Governments for Sustainability (ICLEI) to develop the LGOP to assist local governments in creating an inventory of greenhouse gas emissions that result from government buildings and facilities, fleet vehicles, water treatment facilities, and government programs. In response to increasing concerns about energy and climate, many local governments in California and in other states have established plans that implement energy efficiency, water use efficiency, waste management, and development standards.

Because this plan focuses on energy efficiency, it is important to understand the relationship between water, waste, development, and transportation with energy. Water conservation and efficiency are important in reducing total water use, but also in reducing energy consumption. Nearly 50% of Orange County water is imported, coming from sources such as the Colorado River and Northern California. Locally, South Coast Water District imports 90% of its potable water. Energy is required in the transport, storage, wastewater collection, and treatment of the imported water. As a result, energy and greenhouse gases are emitted with every gallon of water used.

Similarly, appropriate waste management can help to reduce energy consumption and increase energy efficiency. Landfills are the second largest source of human-related methane emissions in the United States, which contribute significantly to the greenhouse effect. Though technologies currently exist to capture the emitting methane and convert it to usable energy, the focus should be on reducing the amount of waste that ends up in landfills to begin with. By disposing of products properly—specifically items like refrigerators and air conditioning systems that emit significant amounts of greenhouse gases when disposed of improperly—those emissions would be diverted to recycling facilities. Also, using and buying recycled products generally requires less energy to produce than do products coming from raw materials.

Developing or redeveloping properties is very energy intensive with the use of fuel-driven construction equipment and disposal of construction materials. With added development and removal of natural habitat, less vegetation is available to take in excess carbon dioxide, which in turn is amassed in the atmosphere. Urban development also leads to increased temperatures in developed areas (known as the urban heat island), which decreases air quality and may cause urban dwellers to use more energy to keep cool. Green building practices have become an important part of construction to help reduce greenhouse gas emissions, electricity consumption, and water use.

Much of the energy required for motorized transportation comes from non-renewable sources, which release a significant amount of greenhouse gases. These transportation-related emissions comprise a large portion of each municipality's overall greenhouse gas emissions profile. Consequently, changing transportation practices shows promise in making an impact on greenhouse gas emissions. Walking and bicycling are excellent alternatives that would reduce vehicle traffic and greenhouse gases, and at the same time fulfill Dana Point's desire to be a pedestrian- and bicycle-friendly city. This can increase the local quality of living and raise property values. By developing plans to promote alternative transportation within the community, vehicle use and its negative effects will decrease.

Within the available resources, the City of Dana Point is committed to sustainably manage the City's resources and provide a healthy and economically sound community for its residents and businesses.

GOALS

The following goals cover both measures that City operations can undertake and measures the citizens of Dana Point can accomplish within the community. These goals include six important aspects of enhanced energy efficiency and conservation in Dana Point.

Energy Consumption

To assist California in complying with AB32 and parallel the state's commitment to reduce greenhouse gas emissions, the City of Dana Point is encouraged to reduce greenhouse gas emissions to 1990 levels by 2020. As currently written AB32 and its corresponding scoping document only "encourages" local governments to begin reduction programs and conduct greenhouse gas inventories. Staff anticipates that at some point (maybe as early as 2012) the City will be required to show actions towards meeting the States reduction goal, in preparation of those requirement baseline emissions calculations have been prepared. Baseline calculations are preliminarily established in this document in Appendix 1. Emissions information (broken down by industry) was provided by the California Air Resources Board. 1990 Emissions for Dana Point were calculated by first approximating total emissions for California and dividing the total by the 1990 population of California. This approximates per capita totals from emissions, which is then multiplied by Dana Point's 1990 population, resulting in approximately 457,304 $MTCO_2e$ (metric tons of carbon dioxide equivalents). The same calculations were performed to predict 2004 emissions at 477,818 $MTCO_2e$ (2004 being the most recent set of data provided by ARB). Since 1990, Dana Point has decreased its per capita emissions (-6.78%), but due to population growth has increased its total emissions by approximately 4.5%. Based on these rough calculations the City of Dana Point would therefore have to reduce emissions by at least 4.5% to reach California's emissions reduction requirement of 1990 levels by 2020. Beyond 2020, California will be mandated by Executive Order S-03-05 to reduce emissions 80% below 1990 levels by 2050.

Though the above calculations provide some indication of necessary greenhouse gas reductions from 1990 to 2004, they are not truly representative of today's emissions. In order to create a more up-to-date and accurate baseline of Dana Point emissions, the City will conduct a greenhouse gas inventory using CARB's Local Government Operations Protocol and approximating emissions with electricity, natural gas, and water consumption. Proxies for each utility may be used as necessary. Once a true baseline is calculated, more accurate reduction rates can be established and more formalized actions can be taken to reduce emissions.

Using incentives such as the City's Solar Photovoltaic Energy Fee Reduction Program that reduced permitting fees for photovoltaic systems, the City wants to encourage the use and installation of renewable energy systems to reduce the dependence on non-renewable energy sources and reduce the City's carbon footprint.

Sustainable Land Use and Development

Sustainable growth is the idea that economic growth occurs, but does not compromise the needs of future generations. Sustainable growth has become an important concept in land use and development in recent years. The City of Dana Point has very little room for new growth, but it is important to take into consideration the lessons of sustainable growth to protect our current

resources. The City will focus on sustainable development and re-development—building smarter and more efficiently, and allowing future generations to thrive by ensuring that they have the resources they need. In compliance with AB 1881, water resources will also be conserved by increasing drought tolerant landscaped areas.

Sustainable Construction

Green building practices will help reduce energy by encouraging green construction and architecture. In particular, green building principles include designing buildings to maximize solar lighting through window placement and solar tubes, while keeping indoor temperatures down; installing energy efficient lighting when natural lighting is insufficient; using recycled resources for carpets, flooring, and tiling rather than processed raw materials; and assuring strong seals to reduce heating and cooling costs. California's Title 24 of the California Code of Regulations (known as the California Buildings Standards Code) contains two significant sections that reflect these considerations. As mentioned before, Part 11 (CALGreen) will provide the first mandatory green building regulations in the nation. The second, Part 6 (California Energy Code), contains energy conservation standards for residential and non-residential buildings. The 2008 standards of Part 6 went into effect January 1, 2010. The City will apply these standards through building permit conditions, inspections and approvals.

Efficient Transportation

With pleasant, year-round weather, residents and visitors may often find that bicycling and walking are preferred methods of transportation in Dana Point. The City will continue to encourage the use these methods of transportation. Currently, the City is also working with contractors to redevelop the Town Center area by creating mixed-use buildings and promoting a pedestrian-friendly shopping, dining, and entertainment district as well as better transit options and bike lanes. Similar planning has begun for Doheny Village, which focuses on revitalizing existing development and promoting infill and compact development to reduce vehicle traffic and increase pedestrian and bicycle traffic.

Dana Point is also working with the cities of San Juan Capistrano and San Clemente to develop the Tri-City Trolley (part of OCTA's "Go Local" program), which bring people from the Metrolink trains to points of interest in the three cities and between popular destinations within the cities. As a supplement to the Tri-City Trolley, the City of Dana Point and the Dana Point Harbor have applied for a Harbor Shuttle through the OCTA's Project V program, where the Shuttle would stop at various locations throughout the harbor and in Dana Point.

Water Efficiency and Conservation

As the Metropolitan Water District of Southern California tightens restrictions on water distribution and with the potential of continued drought conditions, it is imperative that Dana Point's residents and businesses understand the importance of conserving water and using it efficiently. Conserving water use will reduce the associated energy costs with transporting water to Southern California, as less energy will be required to transport water those distances. Enforcing AB 1881 and the City's local water ordinance will reduce runoff and ensure that water is being used as efficiently as possible. The City, in concert with South Coast Water District, Moulton Niguel Water District, and San Juan Capistrano Water District, will continue to provide significant water saving measures for residents and businesses including equipment, tips, and

information and support alternative potable water sourcing such as desalination and increased use of recycled water distributed to more locations within the City.

Waste Reduction

As required by the California Integrated Waste Management Act of 1989 (AB 939), every California city must divert at least 50% of its waste away from landfills. Because of this, the City of Dana Point has implemented a number of programs that divert waste from landfills. Food waste comprises approximately 45% of a food establishment's waste load, thus OC Waste and Recycling awarded a $400,000 grant to Dana Point, seven other Orange County cities, and CR&R to fund a Commercial Food Waste Diversion Pilot Program for the duration of one year, starting in April 2010. Each city selected a limited number of food establishments to pilot the program. The food waste is then collected and hauled to a composting facility in Thermal, CA. The St. Regis Monarch Beach, the Ritz-Carlton Laguna Niguel, and Salt Creek Grille are the three pilot businesses in Dana Point. Through July 2010, the three locations had diverted approximately 72.94 tons of food waste. After the one-year pilot program expires, there may be opportunities to establish a permanent commercial food waste program with the potential construction of a new food waste processing facility in Orange County. Dana Point will work with the City's waste management franchise, CR&R, to continue to promote waste reduction strategies throughout the City. The City remains committed to exceeding AB 939 waste diversion goals and require at least 75% of demolition waste to be recycled.

Public Education and Outreach

Ultimately, the successful implementation of the Energy Efficiency and Conservation Plan will depend upon collaboration between the City, local businesses, residents, and visitors. An important aspect of energy efficiency is reaching out to the public; therefore, it is necessary to address an educational component that will encourage the public to reduce energy use in all these areas.

One of the best ways to educate the public is leading by example. By implementing programs and projects at the municipal level as pilot projects, residents and business owners see how efficient and effective energy/greenhouse gas reductions can be. Projects like the City's installation of solar panels at the Nature Interpretive Center and the Community Center exemplify this. For those who prefer to review information, the City will continue to provide proper resources and education about recycling, waste reduction, and carbon footprints. This can be achieved through distributing flyers at events, creating an environmental awareness program library, and working with Capistrano Unified School District to incorporate environmental awareness in the educational curriculum. In addition, educational opportunities also exist at the Nature Interpretive Center to inform the public about the value of energy conservation.

GREENHOUSE GAS INVENTORY

As recommended by the CARB, conducting a greenhouse gas inventory will provide an accurate reading of Dana Point's greenhouse gas emissions, which will make it possible for Dana Point to track reductions according to California's statewide greenhouse gas emissions reduction requirements. The City will use the Local Government Operations Protocol (LGOP) to calculate emissions. The results of the inventory will be recorded, and future inventory data will be compared to baseline data to monitor greenhouse gas reductions.

The LGOP, the product of collaborative efforts between the CARB, Climate Action Registry, Climate Action Reserve, and Local Governments for Sustainability (ICLEI), was based upon the World Resources Institute's *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* and was drawn from an assortment of existing greenhouse gas protocols (see LGOP for details). It divides emissions into three scopes:

- Scope 1: Direct emissions (emissions sources owned or controlled by the facility)
- Scope 2: Indirect emissions (emissions from the use of purchased electricity, steam, heating or cooling)
- Scope 3: Other indirect emissions (emissions not owned or controlled by the facility, but are a consequence of activities at that facility)

Dana Point will report at least Scope 1 and Scope 2 emissions.

MUNICIPAL FACILITIES ENERGY ASSESSMENT

Energy audits are very helpful in determining utility use consumption for facilities. In 2008, the City had an energy audit performed by SDG&E which included the interior lighting for City Hall and the Community Center facilities. Since that audit the City has retrofitted all the lighting in the underground parking at City Hall from 250w HID to 2 bulb 30w T8 fixtures. It is recommended that the City perform an additional energy audit as funds are available (or contract a qualified professional) for all City-managed facilities, including but not limited to: buildings; vehicles and the City fleet; maintained roads, lighting, and green belts; and public open space.

The energy audit process should include two parts:

1. Energy audit that measures and quantifies energy use throughout all City-owned and managed facilities.
2. A cost-benefit analysis of recommended actions to reduce energy use and consumption to ensure that the City uses cost-effective solutions to solve energy inefficiency problems.

ENERGY EFFICIENCY AND CONSERVATION MEASURES: CITY OPERATIONS

The following are recommended measures that will increase energy efficiency and promote conservation of non-renewable resources.

General Measures

The subsequent list of measures addresses the development, management, and monitoring of emissions reduction programs.

Join Local Governments for Sustainability (ICLEI)

The Local Governments for Sustainability (ICLEI) is an international association of local governments and regional local government organizations who have made a commitment to sustainable development. 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." Joining ICLEI will allow for the organization to calculate a carbon footprint (greenhouse gas inventory) using the Local Government Operations Protocol (LGOP), and also provides opportunities for networking, idea sharing, and consulting though a worldwide network of peers. The varying degrees of membership also provide various benefits, such as free or reduced-cost publications, tools, and conferences. ICLEI promotes a vast network of local governments that strive to reduce greenhouse gas emissions. Membership fees for full membership are based on the type of organization, gross national income per capita, and population of the local government. Associated membership (free of cost) allows organizations to benefit from ICLEI services and publications, including free access to all tools provided by the ICLEI, without having formal membership powers.

Partner with San Diego Gas & Electric (SDG&E)

San Diego Gas & Electric, in concert with the San Diego Association of Governments (SANDAG), has created an Energy Roadmap Initiative through the SANDAG Sustainable Region Program. Typical Roadmap elements include:

- Training opportunities for Dana Point Staff
- Land-use planning and development opportunities, including General Plan amendments
- Clean transportation opportunities
- Education and outreach to local community and businesses
- Emerging technologies
- Smart Meters and the Smart Grid
- Opportunities to invest in Energy Efficiency at our local Municipal Facilities

SDG&E budget for roadmap projects has been significantly altered; however they are interested in working with the City on the above measures.

Specific Measures

Lighting

- Continue replacing all City facility lighting with compact fluorescent bulbs (CFLs) or light-emitting diodes (LEDs)
- Continue retrofitting City buildings with solar tubes, where feasible
- Continue installing motion sensors for City facilities for lighting where appropriate

Temperature

- Use cool roofing materials and/or colors to reduce heating and cooling
- Continue using glazing tinting, where feasible and cost effective, to reduce heat gain

Renewable Energy

- Continue seeking grant funding and evaluate the possibility of solar panel and/or solar thermal panel installation on additional City facilities

Infrastructure

- Incorporate permeable paving and porous concrete surfaces, where feasible
- Landscape using drought-tolerant plants when considering landscape replacement
- Incorporate bioswales into appropriate water drainage areas
- Continued installation of low-flow toilets, showerheads, and faucet aerators in City facilities (public restrooms, park restrooms, and Community Center)
- Investigate creating electric vehicle charging stations through federal and state grants
    - Investigate installing a charging station at the Nature Interpretive Center that uses electricity generated from the NIC's solar panels

Fleet

- Continue making fuel efficiency an important criterion for fleet purchases
- Consider hybrid and/or electric vehicles for local driving (non-special use driving, when appropriate)
- Hybrid/alternative fuel vehicles comprise 30% of the City's 2011 fleet.

Waste and Recycling

- Continue waste diversion practices and programs already in place (see Appendix 2)
- Evaluate taking packing peanuts to the UPS Store or other facility that recycles the peanuts
- Investigate installing a rainwater catchment/recycling system to use rain runoff for landscaping and other non-potable uses

Purchasing

- Add to and improve the "Green Policy" of 2008
    - Continue to purchase recycled content materials and products

ENERGY EFFICIENCY AND CONSERVATION MEASURES: COMMUNITY OUTREACH

Specific Measures

The City will educate and facilitate as many of the following measures as possible and where feasible.

Residential, Commercial, and Industrial Infrastructure

- Promote high efficiency appliances in the home or business
- Recommend high energy efficient lighting options
- Continue to offer battery recycling and establish light bulb recycling (for CFLs) at City Hall and other City-managed facilities
- Encourage energy audits—professional or self-calculated through SDG&E
    - Businesses: http://www2.sdge.com/bsp/audit.cfm and http://www.sdge.com/business/rebatesincentives/programs/energyChallenger.shtml
    - Homes: https://energyaudit-sdge.sempra.com/usermanager/validateAccount.asp
- Encourage natural lighting and ventilation through solar tubes; orient buildings during construction to maximize southern exposure
- Educate community members about the adoption and enforcement of green building measures through California's Green Building Code (CALGreen), which went into effect January 1, 2011
- Continue requiring high diversion of construction wastes away from landfills
- Develop a Sustainable Business Program and a Sustainable Building Program
    - Provide information and incentives to businesses on how to become more sustainable and energy efficient
    - Help obtain grant funding to establish the Sustainable Business Program
        - An individual must run the program (not an official City Program), but that individual can request funding from the City and other local and regional governments and utilities.
        - Write a Memo of Understanding for involved parties to define each party's involvement, terms, and budgeting and/or funding responsibilities.
- Encourage Energy Star rated housing
- Work with the Dana Point Chamber of Commerce to help educate businesses

Transportation

- Collaborate with Dana Hills High School and Capistrano Unified School District to promote and encourage alternative methods of transportation to school to alleviate traffic congestion and improve localized air quality
- Promote additional traffic decongestion projects like the Pacific Coast Highway pedestrian bridge and Town Center circulation plan
- Continue progress on the OCTA "Go Local" Tri-City Shuttles for transportation to City and neighboring hotspots
- Encourage ride-sharing programs through list-serves

- Investigate establishing electric vehicle charging stations through federal programs in high-use areas in the community
- Explore creating an informational program on various energy friendly modes of transportation suitable for Dana Point
    - Offer bicycle safety courses for Dana Point residents and businesses
    - Install bicycle storage at various locations, such as near the beach or around Town Center to encourage bicycling
- Explore becoming a "Bicycle Friendly City" designation

Land Use

- Encourage mixed-use development projects like Town Center with available transit, pedestrian and bicycle facilities
- Explore publicizing education programs about growing local foods and purchasing local products for local businesses

Renewable Energy

- Maintain lower photovoltaic energy installation fees per Dana Point City Council Resolution No. 10-06-14-01.
- Promote AB811 and help residents obtain the appropriate information about financing renewable energy generation on their properties

Water

- Help residents and businesses obtain information on establishing rainwater catchment systems
- Continue to work with the three water districts that service Dana Point to get water conservation information out to residents, particularly about new requirements and restrictions for landscaping and watering

APPENDIX 1: APPROXIMATE DANA POINT GREENHOUSE GAS EMISSIONS BASELINE

1990 Emissions

Emissions calculated by industry from California Air Resources Board.
http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm

Units:

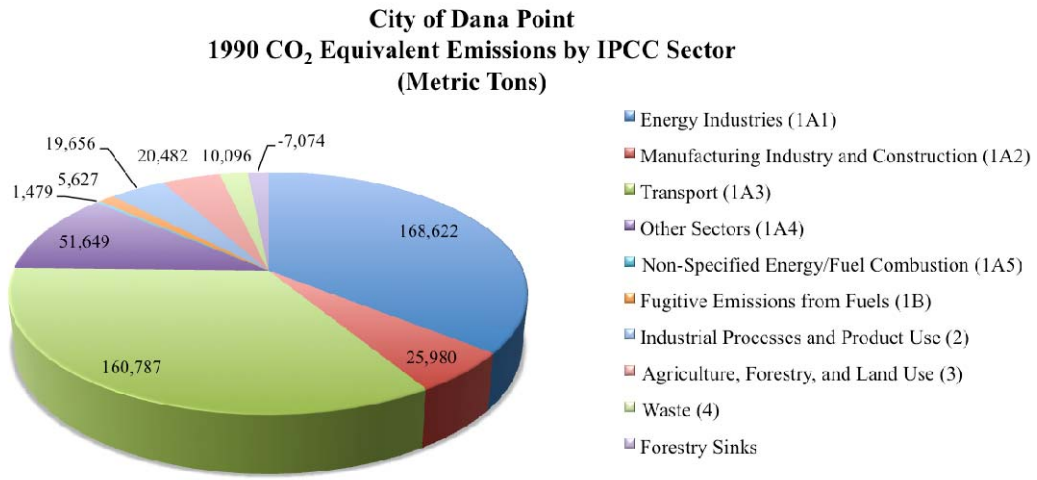
$MMTCO_2e$: Million Metric Tons of Carbon Dioxide equivalents

$MTCO_2e$: Metric Tons of Carbon Dioxide equivalents

1990 Population

California	29,760,021
Dana Point	31,896

Sector	$MMTCO_2e$	$MTCO_2e$	$MTCO_2e$ per capita	Dana Point $MTCO_2e$
Energy Industries (1A1)	157.33	157,330,000	5.29	168,622
Manufacturing Industry and Construction (1A2)	24.24	24,240,000	0.81	25,980
Transport (1A3)	150.02	150,020,000	5.04	160,787
Other Sectors (1A4)	48.19	48,190,000	1.62	51,649
Non-Specified Energy/Fuel Combustion (1A5)	1.38	1,380,000	0.05	1,479
Fugitive Emissions from Fuels (1B)	5.25	5,250,000	0.18	5,627
Industrial Processes and Product Use (2)	18.34	18,340,000	0.62	19,656
Agriculture, Forestry, and Land Use (3)	19.11	19,110,000	0.64	20,482
Waste (4)	9.42	9,420,000	0.32	10,096
TOTAL (pre-sinks)	433.28	433,280,000	**14.56**	**464,378**
Forestry Sinks	-6.60	-6,600,000	-0.22	-7,074
TOTAL	426.68	426,680,000	**14.34**	**457,304**



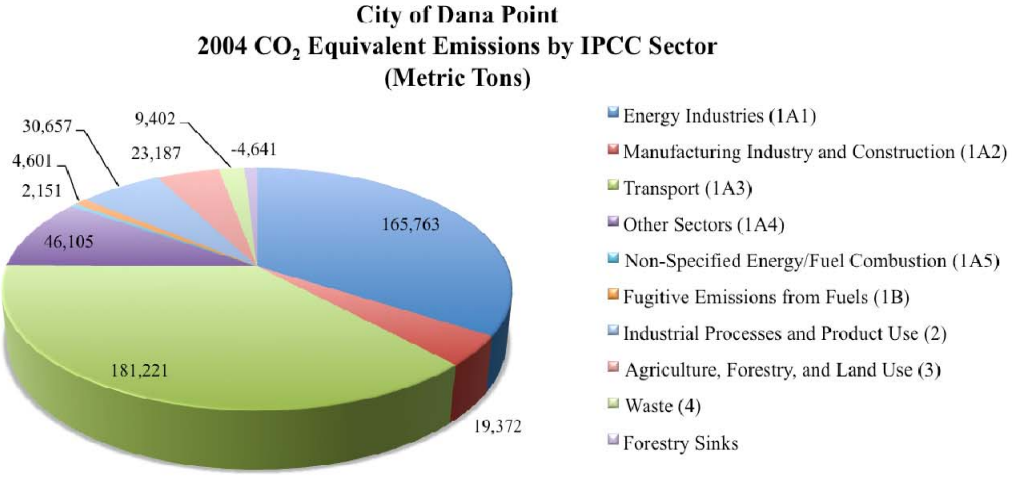
2004 Emissions

Emissions calculated by industry from California Air Resources Board. http://www.arb.ca.gov/cc/inventory/archive/archive.htm.

2004 Population

California	35,893,799
Dana Point	35,750

Sector	MMTCO$_2$e	MTCO$_2$e	MTCO$_2$e per capita	Dana Point MTCO$_2$e
Energy Industries (1A1)	166.43	166,430,000	4.64	165,763
Manufacturing Industry and Construction (1A2)	19.45	19,450,000	0.54	19,372
Transport (1A3)	181.95	181,950,000	5.07	181,221
Other Sectors (1A4)	46.29	46,290,000	1.29	46,105
Non-Specified Energy/Fuel Combustion (1A5)	2.16	2,160,000	0.06	2,151
Fugitive Emissions from Fuels (1B)	4.62	4,620,000	0.13	4,601
Industrial Processes and Product Use (2)	30.78	30,780,000	0.86	30,657
Agriculture, Forestry, and Land Use (3)	23.28	23,280,000	0.65	23,187
Waste (4)	9.44	9,440,000	0.26	9,402
TOTAL (pre-sinks)	484.40	484,400,000	**13.50**	**482,459**
Forestry Sinks	-4.66	-4,660,000	-0.13	-4,641
TOTAL	479.74	479,740,000	**13.37**	**477,818**



1990 Emissions per Capita (MTCO$_2$e)	2004 Emissions per Capita (MTCO$_2$e)
14.34	13.37

Calculating Necessary Reductions

California's greenhouse gas emissions for the year 1990 are set at 427 $MMTCO_2e$. This is the level of greenhouse gas emissions to which California must reduce by 2020. By 2050, California's goal is to reduce emissions from 1990 levels by 80%.

	Quantity	**Units**	**Notes**
1990 Emissions Per Capita	14.34	$MTCO_2e$	
2004 Emissions Per Capita	13.37	$MTCO_2e$	
% Change (Per Capita), 1990 – 2004	-6.78%	-	Per Capita Reduction from 1999-2004
EST. DP 1990 Emissions	457,304	$MTCO_2e$	Population: 31,816
EST. DP 2004 Emissions	477,818	$MTCO_2e$	Population: 35,750
% Change, 1990 – 2004	**4.49%**	-	Total Reduction Needed from 2004 to 2020
Above calculation does not include emissions from 2005-2011			

APPENDIX 2: COMPLETED/IN PROGRESS MEASURES

Completed Measures

- All City Hall and Community Center converted to Fluorescent except in some small architectural lighting areas
- Motion sensors in Police Services and Community Development buildings
- High efficiency T8 in Police Services and Community Development buildings
- All exterior lighting for City facilities on 7-day timers with photocell
- 7 Solar Tubes at City Hall to take advantage of natural light
- 6 Solar Tubes at the Nature Interpretive Center
- 12 Sky lights at Community Center to take advantage of natural light
- 7-day timers on all air conditioners adjusted to efficiency and comfort levels set by ASHRAE
- Solar panels have been installed on the Nature Interpretive Center
    - The panels are a 3.6 kW DC system, 18-200W PV panels that produce an average of 456 kWh of electricity per month.
- Solar panels have been installed on the Community Center
    - The panels are a 15.6 kW DC system of 78 PV panels that produce an average of 1,974 kWh per month
- Waste Diversion from Landfills
    - Construction and demolition waste diversion programs
    - Residential three-cart waste collection system
    - Commercial recycling programs
    - Multi-family recycling programs
    - E-Waste, U-Waste and SHARPS diversion programs
    - E-Waste U-Waste collection events
    - Bulky item and white goods diversion programs
    - Special event recycling programs
    - Beverage container recycling programs
    - Plastic bag recycling programs
- Provide access to or information on low-flow showerheads and toilets, as well as faucet aerators

In Progress Measures

- City Fleet
    - More efficient/alternative vehicles have been purchased for Community Service Officers, Public Works staff: Toyota Prius, Ford Escape; some heavy duty contract service vehicles are compressed natural gas (CNG) vehicles.
- Styrofoam/Plastic Bag Voluntary Reduction
    - Contact and work with local restaurants to provide information and resources to transition from non-renewable products to renewable and reusable products.
- Commercial Food Waste Diversion Pilot Program
    - Three restaurants in Dana Point are diverting food waste for composting through a pilot project with other Orange County cities and CR&R.

REFERENCES/BIBLIOGRAPHY

California Air Resources Board Climate Change Program. http://www.arb.ca.gov/cc/cc.htm.

California Building Standards Commission. *California Green Buildings Standard (CAL Green) Code*. (2010, August 12). http://www.bsc.ca.gov/CALGreen/default.htm

California Department of General Services. *Title 24 Overview*. (2009, April 15). Retrieved from http://www.dsa.dgs.ca.gov/Code/title24.htm.

California Department of Water Resources. *Adoption of the Updated Model Water Efficient Landscape Ordinance*. (2009, 8 October). http://www.water.ca.gov/wateruseefficiency/docs/DirectorLetterAdoption.pdf.

California Energy Commission. *California's Energy Efficiency Standards for Residential and Nonresidential Buildings: Title 24, Part 6 of California Code of Regulations*. (2010, January 1). http://www.energy.ca.gov/title24/

California Energy Commission. *Water-Related Energy Use in California*. (2007, February 20). http://www.energy.ca.gov/2007publications/CEC-999-2007-008/CEC-999-2007-008.PDF.

California Environmental Protection Agency Air Resources Board. *Assembly Bill 32: Global Warming Solutions Act*. Retrieved from http://www.arb.ca.gov/cc/ab32/ab32.htm.

California Environmental Protection Agency Air Resources Board. *Climate Change Scoping Plan*. (2008, December). http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf.

California Environmental Protection Agency Air Resources Board. *Local Government Operations Protocol*. (2010, May). http://www.arb.ca.gov/cc/protocols/localgov/pubs/lgo_protocol_v1_1_2010-05-03.pdf.

CaliforniaFIRST. *CaliforniaFIRST Local Government Information.*(2010). http://www.californiafirst.org/government.html.

California State Senate. *Assembly Bill No. 811. Chapter 159*. (2009, July 21). http://info.sen.ca.gov/pub/07-08/bill/asm/ab_0801-0850/ab_811_bill_20080721_chaptered.pdf.

Chance of Rain. *California AB 1881 in Bullet Points*. (2009, May 13). http://chanceofrain.com/2009/05/california-ab-1881-for-dummies/.

City of Laguna Beach Climate Protection Action Plan. (2009, April). http://www.lagunabeachcity.net/civica/filebank/blobdload.asp?BlobID=2332.

City of Menlo Park Climate Change Action Plan. (2009). http://www.menlopark.org/departments/eng/CAP2009Complete.pdf.

City of San Antonio Energy Efficiency Plan. (2003, October). http://www.buildsagreen.org/pdf/sa-ee_plan.pdf.

Cool California. *Local Government Toolkit*. http://www.coolcalifornia.org/local-government.

Governor of the State of California. *Executive Order S-03-05*. (2005, June 1). http://www.dot.ca.gov/hq/energy/ExecOrderS-3-05.htm.

International Bicycle Fund. *Community Bike Programs – Bike Libraries – Bike Sharing: Case Studies*. (2010). http://www.ibike.org/encouragement/freebike/details.htm.

Local Governments for Sustainability (ICLEI). (2008). http://www.iclei.org/index.php?id=about.

Moulton Niguel Water District. *Conservation*. (2010). http://www.mnwd.com/conservation/ricki-the-raindrop.aspx

Municipal Water District of Orange County. *Water Supply Management*. http://www.mwdoc.com/services/water-supply-management.

Orange County Public Works. *Press Releases*. (2009, October 9). http://www.ocpublicworks.com/PR_100909.aspx.

San Diego Gas & Electric. *Energy Roadmaps for Local Governments*. (2009). http://sdge.com/documents/partnerships/EnergyRoadmap.pdf.

San Juan Capistrano. *Water Supply*. (2010, May 28). http://www.sanjuancapistrano.org/Index.aspx?page=1272

South Coast Water District. (2009). http://www.scwd.org/

State of California: Governor's Office of Planning and Research. *Cities and Counties Addressing Climate Change*. (2010, April 5). http://www.opr.ca.gov/ceqa/pdfs/City_and_County_Plans_Addressing_Climate_Change.pdf

U.S. Conference of Mayors Climate Protection Center. U.S. Conference of Mayors Climate Protection Agreement. (2008). http://www.usmayors.org/climateprotection/agreement.htm.