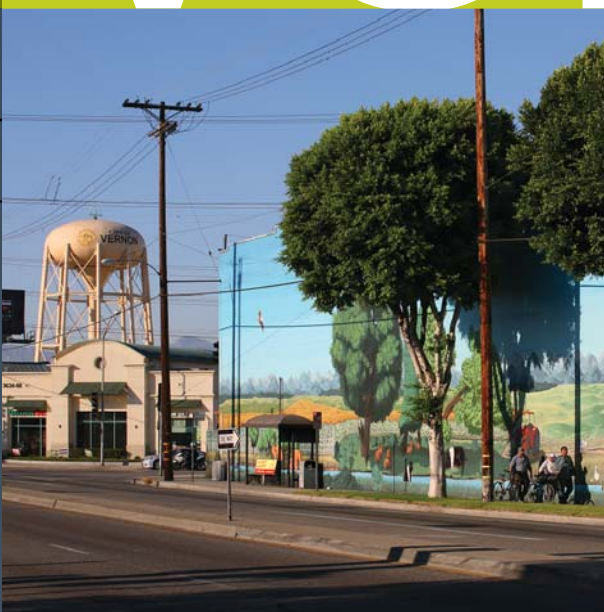


City of Vernon
vernon
sustainability action plan



PREPARED BY
CITY OF VERNON
HEALTH AND ENVIRONMENTAL CONTROL DEPARTMENT
WINTER 2011



Health and Environmental Control Department

Exclusively Industrial

Winter 2011

The City of Vernon is very pleased to present its first Sustainability Action Plan. For generations, the City of Vernon has supported environmental stewardship and innovation. This Plan is a continuation of Vernon's long-standing commitment to implement cleaner, greener, and more sustainable policies. We have traditionally encouraged Vernon businesses to adopt aggressive waste diversion and recycling strategies. In addition, we have incorporated these strategies into our own municipal operations. Vernon has also consistently been an early adopter of energy efficiency and resource conservation policies and practices. These actions have included innovative approaches to local energy generation and consumption, the purchase of early versions of electric hybrid vehicles for City employee transportation, and the provision of sustainability technical assistance to Vernon businesses.

Today, we must step forward to a greater level to help solve the climate and energy crises and enhance the protection of our environment. It is vital that we take steps now to preserve and protect our environment, economy and community for future generations. We feel confident that we can address concerns about water scarcity, energy costs, environmental degradation, climate change and economic challenges by using our local ingenuity, entrepreneurship, and creative talents.

While local government is uniquely positioned to lead on this issue, a sustainable future will require investment, innovation and efficiency improvement at every level of government as well as the commitment and participation of the public. In addition, because of the industrial composition of Vernon, we are asking our business community to work with the City to make positive changes and to ensure that sustainability is embedded into our behavior and culture. We will achieve our greatest success in these areas by working together.

While the challenges ahead are great, we can control our own destiny by taking action now to ensure a livable and prosperous community for today, and for future generations. We should also encourage change by finding ways to reward good behavior and lead by example. I encourage you to read this Plan and spread the word.

Respectfully,

Lewis J. Pozzebon
Director / Health Officer



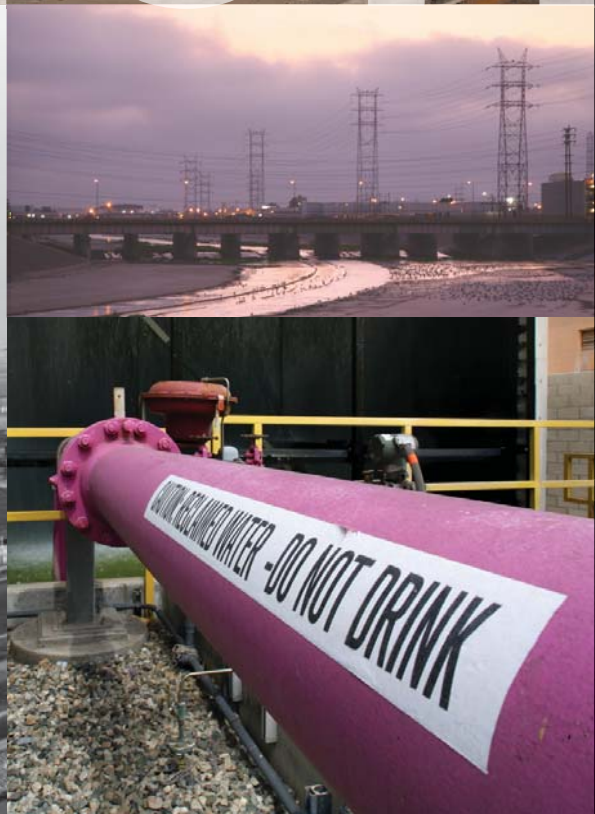


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A transportation hub



Malburg Generating Station (MGS)



Diesel generators at the Vernon Power Plant built in the 1930s



Testing water pumps to maintain maximum efficiency



Did you know?...every year, the City tests every one of its well and booster pump motors to ensure that they are operating efficiently.

I INTRODUCTION

heritage of efficiency

Efficiency has always been the essence of Vernon. The City was founded on the idea that an 'industrial city' would thrive adjacent to major railroad lines. Since its beginning, Vernon's main goal has been to provide a place where businesses could compete and prosper by providing locally administered direct and efficient municipal services to industrial customers.

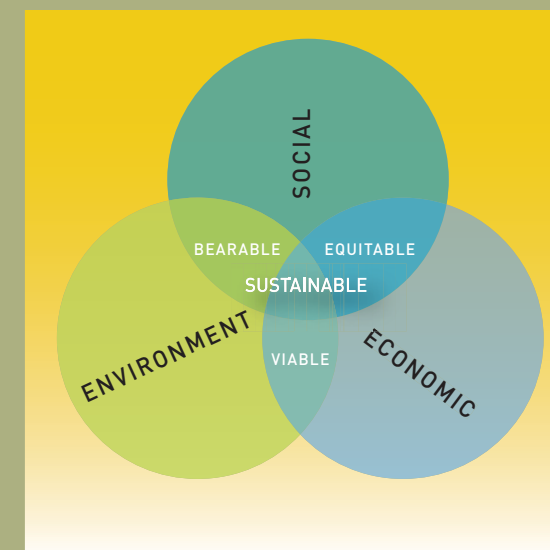
In the 1930s, this quest for efficiency led Vernon to build a power plant and establish its own electric utility. As a result, energy-intensive firms such as Alcoa, Bethlehem Steel, Farmer John and Owens-Illinois flocked to the City. Today, Vernon businesses continue to enjoy utility rates for electricity that are significantly lower than their peers in neighboring cities, and water rates that are among the lowest in Southern California. More recently, the City has installed fiber optic cable to enable its businesses to access the internet at higher speeds for lower rates. This ongoing evolution of efficiency is Vernon's trademark.

History of Environmental Protection and Resource Conservation

In addition to this heritage of efficiency, Vernon has a long history of what is today known as 'environmental sustainability.' The term 'environmental sustainability' simply means:

Practices that meet the needs of today's society while conserving vital natural resources for the benefit of future generations.

Environmentally sustainable practices have to be not only environmentally sound, but also make economic sense and also address social and community impacts. A true "sustainable" infrastructure will maintain itself when all three factors, environment, economics, and community/social coexist in balance.



As an industrial city, Vernon may not evoke the traditional idyllic images of 'sustainability' such as alabaster windmills perched atop rolling green hills. Nonetheless, Vernon has long been a place where the protection of the environment and the conservation of natural resources have quietly been integral components of its success.

Vernon's history of environmental stewardship is reflected in the City's longtime emphasis on environmental health, as well as its long-standing water and energy conservation programs. Moreover, the widespread diversion and re-use of recyclable materials among Vernon businesses is further evidence of Vernon's history of sustainable operating practices.



Health and Environmental Control Department staff: (l to r) David LeDuff, Liz Zepeda, Leonard Grossberg, Linda Smith, Linda Johnson, Lewis Pozzebon, Jerrick Torres, Lyndon Ong Yiu (not pictured, Marisol Trujillo)

Emphasis on Environmental Health

One of the characteristics that makes Vernon unique is that it is one of only a handful of cities in California with its own environmental health department. Established in 1907, the original goal of the Vernon Health & Environmental Control Department was to correct unsanitary conditions and promote industrial hygiene. Today, the department's mission is to protect the environment, and safeguard the health and well-being of Vernon's residents, workers, visitors, and neighboring communities.

In pursuit of its mission, the Vernon Health & Environmental Control Department oversees several long-established and intensive programs to assist Vernon businesses to conserve resources, minimize waste, and protect the environment. These programs include hazardous materials management, storage tank monitoring, water quality testing, waste reduction and recycling, and storm water pollution prevention. This emphasis on tightly focused environmental controls is one of Vernon's hallmarks, and a reflection of its history of sustainability.

Water and Energy Conservation

This history is also reflected in the City's conservation practices. Since 1991, when the City adopted its first water conservation program, the City's Community Services Department has implemented several water saving measures. These have included: providing businesses with water audits and leak detection service; requiring new buildings to install water-saving fixtures; and imposing limits on landscape watering. In recent years, the City has installed 10,000 feet of pipe to deliver reclaimed water to the Malburg Generating Station.

In a similar way, the City's Light & Power Department offers grants and discounted electric rates to Vernon businesses that install energy-efficient equipment. The goal of this program is to promote long-term energy efficiency. The Light & Power Department provides customers with financial incentives to apply state-of-the-art technologies and install energy saving devices that might otherwise be cost-prohibitive.



Reclaimed water used in the cooling system of the Malburg Generating Station



Energy efficient lighting in City facilities



Did you know...due to retrofitting inefficient power equipment and installing low-energy lighting, Vernon businesses save about 2.5 million kilowatt hours of electricity each year, enough energy to power 400 homes for a year?



Did you know?...that Vernon has installed screens on stormwater catch basins in the City to capture runoff debris before it runs into the LA River?



Stormwater catch basin screen

Rendering: The Epitome of Sustainability

Rendering is one of the most environmentally sustainable industrial processes in existence today, and Vernon is home to several rendering companies. Rendering is essentially the recycling of waste animal byproducts into valuable commodities for many different industries.

The rendering firms in Vernon receive used cooking oils and animal by-products from sources within Vernon and from throughout Southern California, these sources include meat processors, restaurants, and super-market butcher shops. Through a variety of processes, these animal byproducts are heated (or 'cooked') and reduced into useful materials such as bone meal, lard and tallow. These endproducts are used as raw materials to produce a variety of products such as animal feed, fertilizers and soaps.

The rendering facilities in Vernon convert millions of pounds of waste food and animal by-products each week into key agricultural feed components for poultry, pork and aquaculture producers, both here in the United States and also in Asia, Europe, and South America.

If these waste animal byproducts were land-filled rather than rendered, not only would they shorten the life of landfills, but they would quickly decompose into methane, a potent greenhouse gas. Therefore, by returning waste materials to the economic mainstream as useful products, the rendering process extends the life of landfills, and reduces the emission of heat-trapping greenhouse gases into the atmosphere. As a result, the rendering companies in Vernon play a key role in the City's sustainability infrastructure.



End product from rendering process is raw material for new products

re-use of recyclable

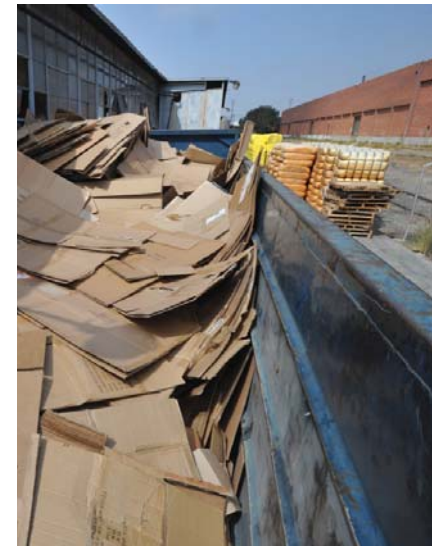
re-use of recyclable materials



Recycled plastic bottles used as filler for pillows at Hollander Home Fashions



Recycled cardboard and plastic recovered at the Puente Hills material recovery facility

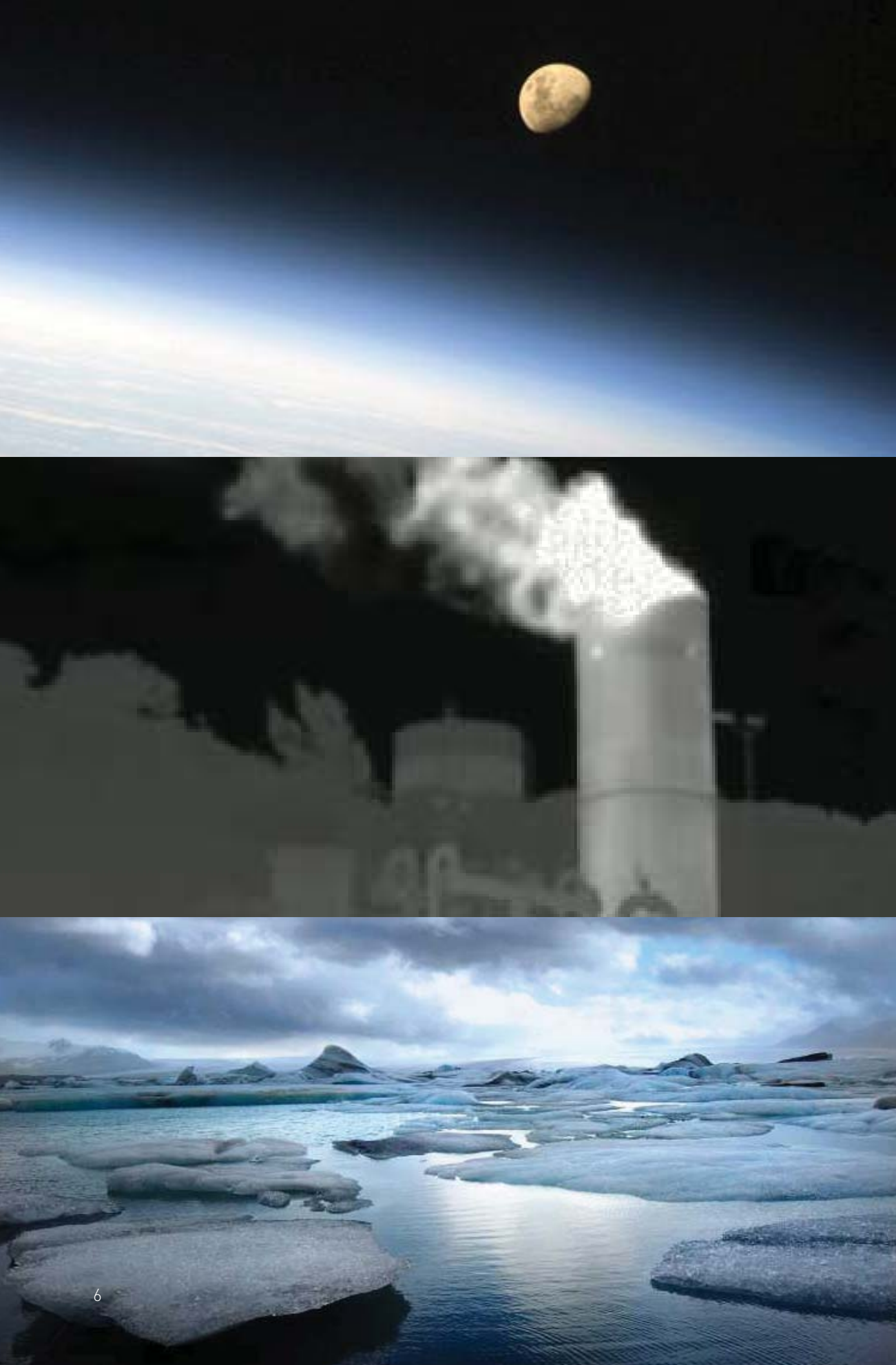


Recycled cardboard

Re-use of Recyclable Materials

Long before the State began requiring cities to implement waste reduction and recycling programs, dozens of businesses in Vernon were already processing waste materials and returning them to the economic mainstream in the form of useful products. For decades, Vernon has been home to major rendering, glass-recycling and paper-recycling companies. Moreover, every week in Vernon, several food processing plants ship hundreds of tons of what would otherwise be discarded food scraps to farms where it is used as animal feed. Additionally, there are a large number of firms in Vernon that recycle everything from plastic milk containers to lead batteries to discarded clothing. Although these recycling businesses may not evoke the traditional idyllic image of sustainability, they truly represent its essence. And they have long been a central thread in the fabric of Vernon.

This conservation of resources has reduced the emission of greenhouse gas. Every kilowatt hour of electricity conserved by Vernon businesses reduces the need to combust fossil fuels, thereby reducing the amount of greenhouse gas that would have otherwise been released into the atmosphere. Every gallon of water saved reduces the need to generate the energy needed to pump the water, and every ton of waste recycled saves the energy that would have been needed to produce virgin materials. This reduction in greenhouse gas emissions by Vernon businesses is an essential component of 'sustainability,' and has served to benefit future generations by offsetting the impact of global climate change.



The Challenge of Global Climate Change

The earth's climate has alternated several times over its life span from periods of warmth to ice ages. When the Industrial Revolution began in the 18th century, humans started contributing to changes in the earth's climate at an ever increasing rate. In the last 200 years, the consumption of fossil fuels (oil and gas), the burning of solid waste, deforestation and other activities have created significant increases in concentrations of heat-trapping greenhouse gases in our atmosphere.

Greenhouse gases get their name because they trap heat in, like the glass of a greenhouse, preventing it from escaping into space, similar to an agricultural greenhouse. The greenhouse gases in our atmosphere are necessary; they keep the earth's surface warm, allowing for life. The concentrations of greenhouse gases, however, are continuing to increase in the earth's atmosphere and, consequently, the earth's temperature has continued to increase.

According to the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA), the average surface temperature of the earth has increased approximately 1.2° to 1.4°F since 1910. The eight hottest years on record (since 1850) have been since 1998, with the hottest year being 2005. A significant amount of the increased heat over the past few decades can be attributed to a rise in greenhouse gas emissions from human activities.

Climate models estimate the earth's average surface temperature could rise by 3.2° to 7.2°F above 1990 levels by the end of this century if the greenhouse gases in our atmosphere continue to increase. Scientists understand that human activities are changing the greenhouse gas composition of the atmosphere, which is changing the earth's climate. Scientific observations of climate change to the earth include: shrinking glaciers, rising sea levels, permafrost thawing, increased growing seasons, trees blooming earlier, and a change in the range and distribution of plants and animals.

One of the great threats to California from global warming is the potential reduction in the Sierra snowpack. The Sierra snowpack accounts for approximately half the surface water stored in the State. Higher temperatures would diminish snowfall and cause the snow that does fall to melt earlier. This would reduce the amount of water stored in the Sierra snowpack. Some scientists project that the effects of global warming could lead to a reduction in the Sierra snowpack by as much as 30 to 70 per cent. As a result, global warming may cause a reduction in the supply of an already scarce resource for future generations of Californians.

Local governments need to do their part in reducing greenhouse gas emissions by accepting responsibility and mitigating climate change at the local level. They can accomplish this by reducing energy and water consumption in government facilities, reducing fuel consumption of government vehicles and managing waste and recyclables more efficiently. As the effects of climate change become more severe, local government policies will become more important in reducing the impact of global climate change.

glass

endlessly and 100%

recyclable



Molten glass is created at 2,850 degrees Fahrenheit



Molten glass being cut into 'gobs'



Containers are reheated and gradually cooled to relieve stress in the glass



Glass cullet

Owens-Illinois

Owens-Illinois, Inc. (O-I) is the leading glass container manufacturer in North America and the leading global end user of recycled glass containers. Vernon has been home to Owens-Illinois, Inc.'s southern California plant since 1929. The company uses recycled/crushed post-consumer glass (called cullet) in its manufacturing process. As a result, glass recycling is an essential element of the manufacturing chain at its glass plants.

Glass is endlessly and 100% recyclable. Using recycled glass to manufacture new glass containers provides several positive environmental benefits. In addition to avoiding landfill disposal, glass recycling significantly reduces glass packaging's carbon footprint. Every 1 kg (2.2 pounds) of recycled glass used in the manufacturing of new bottles replaces 1.2 Kg (2.6 pounds) of virgin raw materials that would otherwise need to



Owens-Illinois has been in Vernon since 1929

be extracted. Every 10 percent of recycled glass or cullet used in production results in an approximate 5 percent reduction in carbon emissions and energy savings of about 3 percent. Each day, O-I's Vernon plant uses approximately 420 tons of recycled glass from sources in California.

One of O-I's sustainability goals is to increase cullet use globally to 60 percent of the batch by 2017 from a baseline of 36 percent in 2010. The company's sustainability goals not only benefit the environment, but are important to the financial success of the company. O-I and others in the glass industry stand ready to partner with states and municipalities to ensure that recycled glass can be fully utilized. O-I can use more than 90 percent of recycled glass in its furnace batches and now uses as much as 70 percent in some of its North American furnaces. It is paramount that O-I obtain quality post-consumer glass, so it can do its part to improve air quality, reduce the need for virgin raw materials and meet its sustainability goals.



Finished glass containers

To continue its history of resource conservation, and to address the threat of global climate change, the City of Vernon has resolved to develop a sustainability infrastructure. The purpose for this infrastructure is to further reduce the City's carbon footprint, and to continue to drive Vernon's economic growth.

sustainability infrastructure

To develop this infrastructure, the City is committed to provide the leadership and resources to establish a policy framework with the following objectives:

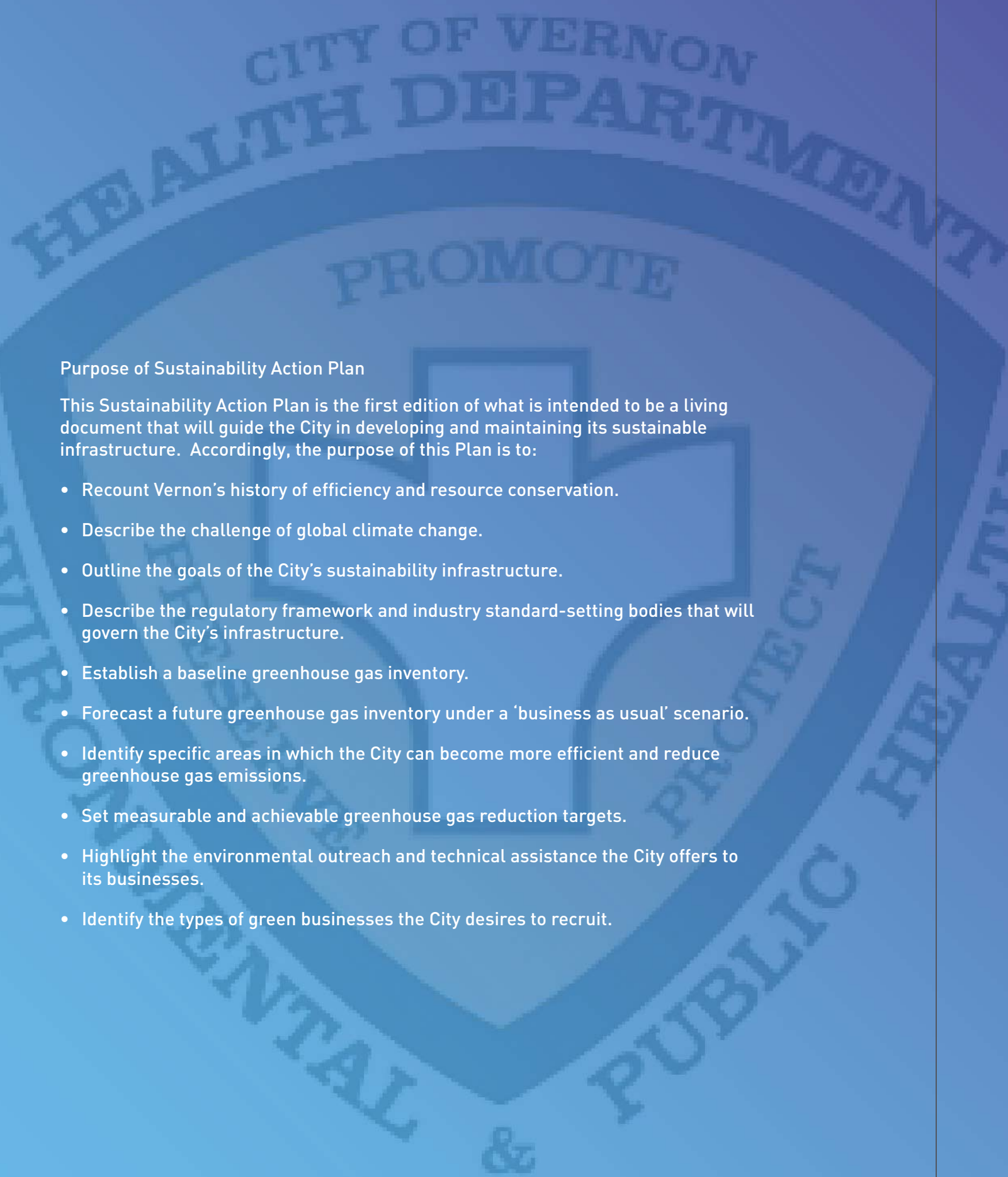
- **Lead by example.** The City itself will continue to implement and maintain sustainable operating methods to further reduce its own carbon footprint. The City will incorporate concepts of sustainability into its planning and governing processes. The City will strive to be an example and an incubator of sustainable practices.
- **Measure emissions.** The City will develop tools and use industry-standard environmental metrics to measure the amount of greenhouse gas emissions over which it has operational control.
- **Set goals.** The City will forecast its amount of future greenhouse gas emissions under a 'business as usual' scenario and then set quantifiable goals to achieve significant reductions in the forecasted amount of greenhouse gas emissions.
- **Provide technical support.** The City will provide management tools and guidance to Vernon businesses to assist them in conserving resources, and reducing their carbon footprint.
- **Share information.** The City will create a continuing forum among its businesses to address sustainability issues, solutions and opportunities. The City will encourage its businesses to serve as environmental mentors to other businesses.
- **Monitor progress.** The City will periodically measure and evaluate its progress. The City will build on its accomplishments, and learn from its mistakes.
- **Recognize success.** The City will designate businesses that meet certain criteria as 'green businesses.' The City may also occasionally identify some Vernon businesses with exemplary sustainable practices for special recognition.
- **Pioneer 'Best Management Practices.'** The City of Vernon will work with its businesses and various universities and environmental groups to develop innovative approaches to resource conservation.
- **Recruit green business.** The City will reach out and encourage green companies (e.g., businesses that operate in an environmentally sustainable manner) to move into the City.



Diesel generators in the Vernon Power Plant



Rail line near old water tower at Pabco Paper



Purpose of Sustainability Action Plan

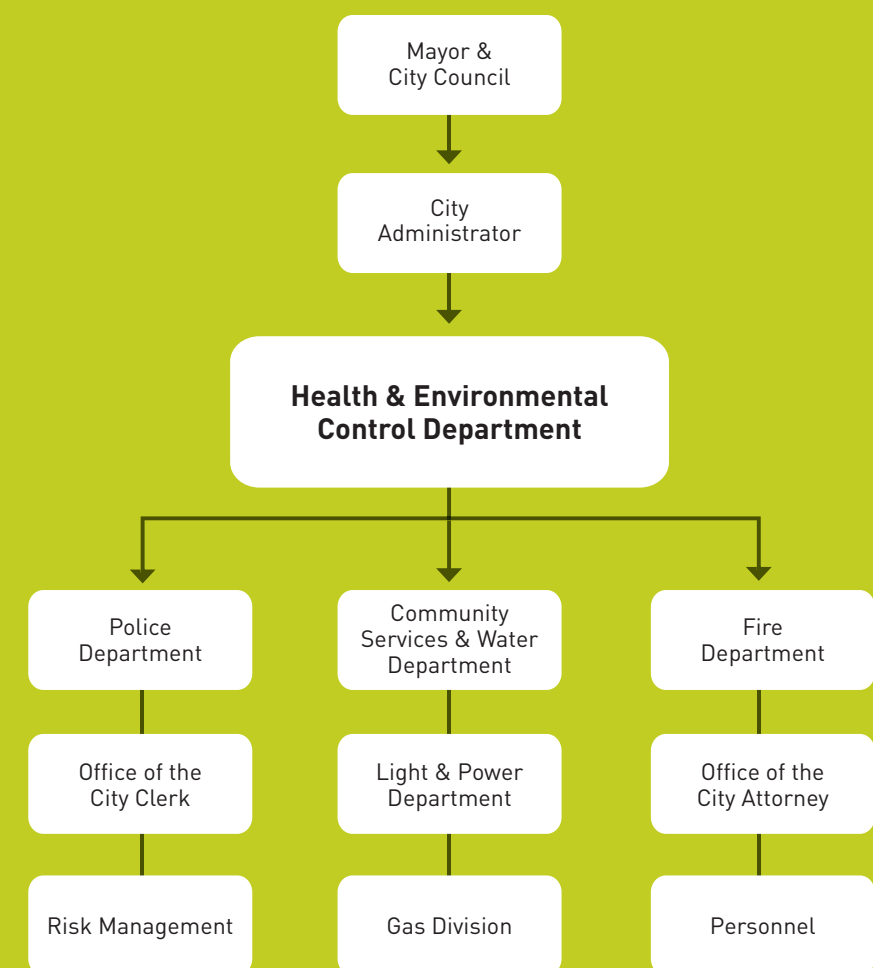
This Sustainability Action Plan is the first edition of what is intended to be a living document that will guide the City in developing and maintaining its sustainable infrastructure. Accordingly, the purpose of this Plan is to:

- Recount Vernon’s history of efficiency and resource conservation.
- Describe the challenge of global climate change.
- Outline the goals of the City’s sustainability infrastructure.
- Describe the regulatory framework and industry standard-setting bodies that will govern the City’s infrastructure.
- Establish a baseline greenhouse gas inventory.
- Forecast a future greenhouse gas inventory under a ‘business as usual’ scenario.
- Identify specific areas in which the City can become more efficient and reduce greenhouse gas emissions.
- Set measurable and achievable greenhouse gas reduction targets.
- Highlight the environmental outreach and technical assistance the City offers to its businesses.
- Identify the types of green businesses the City desires to recruit.

The Role of the Health and Environmental Control Department

The Health & Environmental Control Department will provide leadership in administering the Sustainability Action Plan and maintaining the City’s sustainable infrastructure. It will communicate the City’s sustainability goals, prioritize and direct targeted activities, monitor results, and periodically update the plan. The Health & Environmental Control Department will develop policies and innovative programs, and participate in outreach and education to the City’s businesses. The Health & Environmental Control Department will coordinate with City administration and other departments to appropriate the resources needed to maintain the City’s sustainability infrastructure, and to incorporate sustainable goals, policies, ordinances and performance criteria into the City’s General Plan, budgeting, purchasing, and reporting. The chart below shows the role of the Health & Environmental Control Department in maintaining the City’s environmental infrastructure.

Chart 1 – Sustainability Program Management Organization



california

global warming solutions act

AB 32

2 REGULATORY FRAMEWORK & SUSTAINABILITY ORGANIZATIONS



Landfills are a major source of greenhouse gas emissions. View of the San Gabriel Valley from the Puente Hills landfill in Whittier

Did you know...that each year Vernon businesses divert approximately 60 percent of all the waste generated in the City? In the last ten years, this has prevented over 1.5 million tons of waste from being buried in local landfills.



Did you know...that Vernon has retrofitted all traffic signals in the City with low-energy Light Emitting Diodes (LEDs) resulting in a 10% reduction in energy consumption for its traffic control system?

California Global Warming Solutions Act (AB 32)

Vernon's sustainable infrastructure must be incorporated within the context of the framework of California's environmental regulations and industry standards. In 2006, the State of California passed into law the Global Warming Solutions Act, also known as AB 32. This new law established the State of California as a leader in climate change policy initiatives. A primary component of AB 32 is the State's goal to reduce greenhouse emissions by 15% by the year 2020. (Thereby reaching 1990 greenhouse gas emission levels), and to further reduce greenhouse emissions by 2050 to bring the State 80% below the 1990 levels. By requiring in law a reduction of greenhouse gas emissions, California has set the stage for its transition to a sustainable, clean-energy future.

The AB 32 Scoping Plan

To achieve this goal, AB 32 required the California Air Resources Board (CARB) to develop a Scoping Plan to establish greenhouse gas emission reduction measures for all sectors of the economy. The Scoping Plan was adopted by the CARB in December 2008, and consists of a comprehensive array of eighteen emission reduction measures.

Local governments are viewed as essential partners with the State in implementing the measures in the Scoping Plan and ensuring progress towards the State's greenhouse gas reductions goals. Of the eighteen measures identified in the Scoping Plan, several can be advanced through local government actions. Table 1 on the following page lists the greenhouse gas reduction measures in the Scoping Plan and identifies those that are most applicable to local governments.

Local Government Operations Protocol (LGOP)

In addition to the Scoping Plan, the California Air Resources Board also publishes the Local Government Operations Protocol (LGOP), which is a set of standard guidelines to assist local governments in quantifying and reporting their greenhouse gas emissions. The LGOP sets forth the organizational structure, measurement methodology and emission factors used by local governments to develop their greenhouse gas inventories. A jurisdiction's greenhouse gas inventory serves as the basis for measuring its progress in reducing emissions. The CARB developed the LGOP in partnership with ICLEI- Local Governments for Sustainability.

Table 1 – AB 32 Scoping Plan– Emission Reduction Measures

EMISSIONS REDUCTION MEASURE		DESCRIPTION	APPLIES TO LOCAL GOVERNMENT
1	Cap-and-Trade Program	Market-based mechanism to limit emissions.	
2	Light-Duty Vehicle Standards	Align clean-fuel technology programs with long-term climate change goals.	
3	Energy Efficiency	Maximize energy efficiency efforts including new technologies, and new policy and implementation mechanisms.	✓
4	Renewable Portfolio Standard	Achieve 33 percent renewable energy mix statewide.	
5	Low Carbon Fuel Standard	Develop and adopt the Low Carbon Fuel Standard.	
6	Regional Transportation Targets	Develop regional greenhouse gas emissions reduction targets for passenger vehicles.	
7	Vehicle Efficiency Measures	Implement light-duty vehicle efficiency measures.	✓
8	Goods Movement	Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.	
9	Million Solar Roofs Program	Install 3,000 MW of solar-electric capacity under California's existing solar programs.	
10	Medium/Heavy-Duty Vehicles	Adopt medium and heavy-duty vehicle efficiency measures.	
11	Industrial Emissions	Assess large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions.	
12	High Speed Rail	Support implementation of a high speed rail system.	
13	Green Building Strategy	Expand the use of green building practices to reduce the carbon footprint of the City's new and existing inventory of buildings.	✓
14	High Global Warming Potential Gases	Adopt measures to reduce high global warming potential gases.	
15	Recycling and Waste	Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste	✓
16	Sustainable Forests	Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.	
17	Water	Continue efficiency programs and use cleaner energy sources to move and treat water.	✓
18	Agriculture	Encourage investment in manure digesters.	



ICLEI – Local Governments for Sustainability

ICLEI is an international association of local governments committed to advancing deep reductions in greenhouse gas emissions and achieving tangible improvements in local sustainability. ICLEI acts as a resource-sharing network to its member agencies. Local governments typically join ICLEI to access its energy and greenhouse gas accounting software, tools, technical guidance, training, and peer networking. The City of Vernon has been a member of ICLEI since April 2010.

California Product Stewardship Council

The California Product Stewardship Council (CPSC) is a coalition of local governments and other industry organizations that are committed to driving improvements in product design that promote environmental sustainability. The mission of the CPSC is to shift California's product waste management system from one focused on government funded and rate-payer financed waste diversion to one that relies on producer responsibility.

Vernon's participation in ICLEI and the CPSC will help California move toward a more sustainable future within the state's regulatory framework.

3 EMISSIONS INVENTORY & FORECAST

An important benchmark of a city's progress toward becoming more sustainable is its level of greenhouse gas (GHG) emissions. Local governments gain an understanding of their progress by establishing a baseline measurement of greenhouse emissions, projecting future emissions under a 'business as usual' scenario, and establishing greenhouse gas reduction targets based on that projection.

How Carbon Emissions are Measured and Reported

Global Warming Potential and Carbon Equivalents

There are six different greenhouse gases that cause global warming. Each greenhouse gas has a different degree of ability to trap heat in the atmosphere. This heat-trapping ability is known as 'global warming potential' or 'GWP.' The GWP of each type of greenhouse gas is ranked in relation to the heat-trapping ability of one molecule of carbon dioxide (CO₂), which has a GWP equal to 1. For example, one molecule of methane (CH₄) has 23 times the heat-trapping ability of one molecule of carbon dioxide. Therefore, methane has a GWP equal to 23.

measuring + forecasting emissions

Greenhouse gases are measured by weight in terms of metric tons of carbon dioxide equivalents. In measuring the total metric tons of carbon emissions, all the various types of greenhouse gases are converted into an equivalent number of metric tons of carbon dioxide. As a result, the total amount of greenhouse gas emissions reported in a greenhouse gas inventory is expressed in terms of metric tons of carbon dioxide equivalents (or 'CO₂E') that are emitted during one year.

Reported Based on GHG Emission 'Scopes'

Greenhouse gas accounting systems organize emissions into three 'scopes' according to the source of the emissions. These scopes are:

Scope 1 - Direct GHG emissions from sources that are controlled by the City.

Scope 2 - Indirect GHG emissions associated with the City's consumption of purchased or acquired electricity, steam, heating, or cooling.

Scope 3 - Other indirect emissions not covered in Scope 2.

The purpose for organizing emissions into these scopes is to avoid double counting among jurisdictions. For example, the Scope 2 emissions from electricity use reported by a local government may also be reported as Scope 1 emissions from an electric utility that serves a regional area. Chart 2 illustrates the types of emissions associated with each of the three different scopes.

Chart 2 – Greenhouse Gas Inventory Scopes

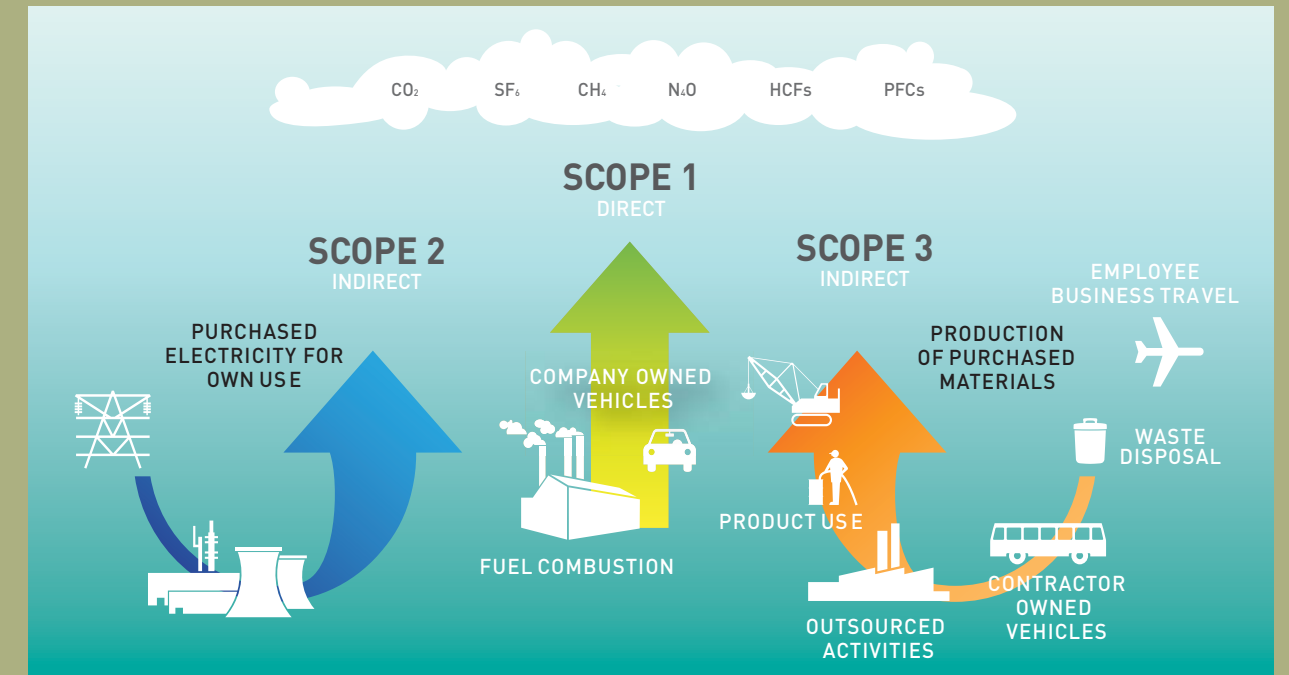


Table 2 below groups the sources of greenhouse gas emissions from Vernon, and describes the emissions from each source according to its scope.

Table 2 – Description of Greenhouse Gases by Source and Scope

SOURCE	SCOPE 1 - Direct	SCOPE 2 - Indirect	SCOPE 3 - Other Indirect
DIESEL GENERATORS - OLD	Stationary Combustion of Diesel Fuel		
ON-ROAD VEHICLE FLEET	Vehicle Emissions		
OFF-ROAD VEHICLE FLEET	Vehicle Emissions		
STORAGE TANKS/ AIR CONDITIONING	Fugitive Emissions		
STREET LIGHTS & TRAFFIC SIGNALS		Electricity Usage Water Consumption	
WATER DELIVERING FACILITIES		Electricity Usage Water Consumption	
CITY HALL	Stationary Combustion of Natural Gas	Electricity Usage Water Consumption	Waste Generation/ Diversion
FOUR FIRE STATIONS	Stationary Combustion of Natural Gas	Electricity Usage Water Consumption	Waste Generation/ Diversion
OLD POWER PLANT	Stationary Combustion of Natural Gas		Waste Generation/ Diversion

Emissions Inventory: Past, Present, and Future

Table 3 shows the greenhouse gases, by 'scope,' from City facilities for 2008 and 2010, as well as the greenhouse gases projected to occur in 2020 under a 'business as usual' scenario. The greenhouse gases in Table 3 are shown graphically in detail on the following page in Chart 3.

Table 3 shows that there were approximately 5,258 and 4,926 metric tons of carbon equivalents emitted by City facilities in 2008 and 2010, respectively. Table 3 also shows that the overwhelming majority of the City's greenhouse gas emissions result from the consumption of purchased electricity.

Of the total amount of electricity used by the City, the largest portion is used to pump water to City buildings and facilities. The next largest portion is the power used in City buildings and facilities, followed by the power used to operate the City's traffic signals and street lights. Because these are the largest sources of the City's greenhouse gas emissions, they are also the source for the greatest amount of potential reductions.



Malburg Generating Station

The greenhouse gas emission inventory in Table 3 does not reflect any emissions resulting from the generation of solid waste by the City. This is because the City's current waste management practices result in a net reduction in greenhouse gas emissions over time. This net reduction occurs over the life cycle of the solid waste generated by the City; from the time it is generated to when the waste is either diverted, or disposed in a landfill. The end of the solid waste life cycle occurs when the organic portion of the waste turns to methane and is sequestered within the landfill, or is combusted by the landfill's flaring or gas-to-energy system. Because this net reduction in emissions occurs over a period that is longer than one year, it is not appropriate to include it in the City's greenhouse gas inventory.

Chart 3 shows a comparison of greenhouse gas emissions for three separate years: Base Year 2008, Current Year 2010, and Business as Usual Year 2020. To determine the 2008 and 2010 emissions, data was collected from field surveys, on-site audits, and utility records. The results of the collected data showed that the sustainable and green practices implemented by the City between 2008 and 2010, together with the long established culture of sustainability and operational efficiency, contributed significantly to the reduction of the City's overall greenhouse emissions during the two year period.



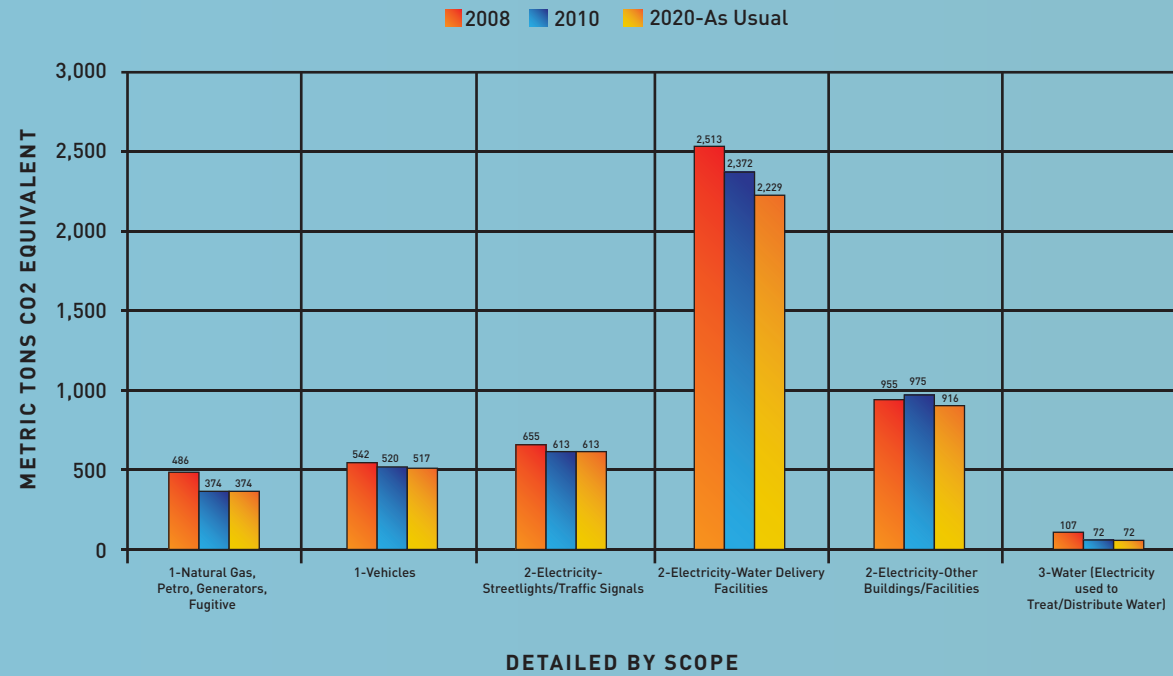
A reliable source of local power to Vernon businesses 24 hours a day

Table 3 – Greenhouse Gas Inventory

	2008	2010	Business as Usual Projection
	GHG metric tons	GHG metric tons	GHG metric tons
Greenhouse Gas Categories	CO2 equivalent	CO2 equivalent	CO2 equivalent
Scope 1: Direct Emissions			
Stationary combustion (on-site petroleum/gasoline generators)	4.31	6.99	6.99
Stationary natural gas (facilities)	104.87	118.81	118.81
Stationary natural gas (gas turbines)	261.09	129.45	129.45
On-road vehicles (fleet trucks, fleet cars)	525.62	499.65	496.96
Off-road vehicles (forklift, construction equipment)	16.71	20.21	20.21
Fugitive emissions (refrigeration, air conditioning, fire suppression)	115.77	118.95	118.95
Scope 1 Subtotal	1,028.37	894.06	891.37
Scope 2: Indirect Emissions - Purchased Electricity			
Street light and traffic signals	655.22	612.68	612.68
Water delivering facilities	2,512.84	2,371.74	2,229.44
Other buildings and facilities	954.80	974.86	916.37
Scope 2 Subtotal	4,122.85	3,959.28	3,758.49
Scope 3: Other Emissions - Electricity Used to Treat/Distribute Water			
Street light and traffic signals	2.01	0.93	0.93
Water delivering facilities	15.23	18.69	18.69
Other buildings and facilities	89.85	52.77	52.77
Scope 3 Other Emissions Subtotal	107.09	72.39	72.39
Total GHG Emission from Energy Usage (Scopes 1, 2, 3)	5,258.31	4,925.73	4,722.25

Chart 3 – Comparison of GHG Emissions for 2008, 2010 and 2020 Business as Usual

City of Vernon Government Buildings/Facilities
 Comparison of Greenhouse Gas Emissions for 2008, 2010 & 2020 Business as Usual
 Metric Tons CO2 Equivalent by Scope (Excluding Waste)



reducing GHG

Examples of the green practices implemented by the City include:

- The installation of LED lights for all of the City’s traffic signals;
- The replacement of old City vehicles with hybrid vehicles;
- The installation of energy efficient lighting, HVAC systems, and low-flow water fixtures;
- The installation of remote electric meter reading equipment (which replaces site-to-site field meter reading); and,
- The incorporation of amendments to the Water Conservation Ordinance requiring mandatory water usage restrictions.



Vernon is committed to reducing greenhouse gas emissions and improving air quality

To provide a reasonable projection for the “Business as Usual” 2020 emissions, economic trends and indicators were considered as well as information from in-depth interviews conducted with key City staff members. The information was used to project future trends under the assumption that the City will continue its existing sustainable practices and maintain its policy of “continued improvement”. The information provided by City staff indicated that the City intends to continue the existing energy conservation, cost reduction, and other related sustainability programs. The results of this in-depth effort to project the 2020 “Business as Usual” emissions reflect a modest continual decrease from 2010 levels.

emissions



The City operates several energy-saving hybrid vehicles

4

OVERVIEW OF MAJOR GOAL AREAS

energy

efficiency



Using natural light and natural ventilation to save energy

To achieve its targeted reductions in greenhouse gas emissions, the City has set goals and identified several actions to move the City toward those goals. These goals and actions are organized into four categories: Energy Efficiency, Water Conservation, Transportation and Land Use, and Waste Resources Management.

Energy Efficiency

Goals:

- Meet or exceed the goals of AB 32.
- Optimize energy efficiency.
- Purchase one-third of electricity from renewable sources by 2020.
- Reduce greenhouse gas emissions from City operations and services, and support local business community, vendors and contractors to do the same.
- Enhance City staff and the business community's awareness of the relationship between energy conservation and climate change.
- Work with community partners, public agencies to evaluate and/or develop new technologies and infrastructure to reduce GHG emissions.

Table 4 – Energy Efficiency Action Plan

TARGET	ACTION	TIMEFRAME
Reduce GHG emissions generated from City operations 15% by 2020.	As they are refurbished, all City buildings will be retrofitted to meet green building energy standards.	Ongoing
	Install energy management devices on City buildings that reduce the power required to operate equipment and shift equipment usage to off-peak hours.	Ongoing
	Replace incandescent lamps with compact fluorescent lamps in City buildings and facilities.	Ongoing
	Implement accounting system and continue annual quantification and systematic reduction of greenhouse gas emissions generated by City operations and services.	Ongoing
Utilize at least 33% renewable power in City facilities by 2020.	Procure or develop renewable sources of energy for use by the City.	Long
	Develop a remote wind energy project to generate renewable power.	Long
Continue to encourage the installation of renewable power sources by the City's businesses.	Continue to offer Vernon businesses monetary incentives to finance eligible solar projects.	Ongoing
Continue to install renewable power sources for City facilities.	Phase in the use of solar-powered area and street lighting	Near to Medium
Continue to minimize the energy used to pump water to the City's water utility customers.	Evaluate pumping efficiency of water well and booster pumps, and replace failed water pump motors with high-efficiency motors.	Ongoing
Minimize the 'heat island effect.'	Encourage the installation of 'cool roofs' and 'green walls.'	Ongoing
By 2020, assist at least 100 businesses to establish their GHG baseline and reduce GHG emissions generated from their business operations.	Continue to provide sustainability technical assistance to local businesses.	Ongoing
Provide technical business assistance and target specific industries.	Encourage the refrigeration industry to use more environment-friendly refrigerants and participate in the EPA's Greenchill program.	Ongoing
Enhance community awareness.	Provide sustainable web-based resources, workshops, and events to local businesses.	Ongoing
Enhance staff awareness.	Provide staff with training and educational materials on energy efficiency.	Ongoing

Transportation and Land Use

Goals:

- Reduce traffic congestion.
- Decrease environmental impact and GHG emissions generated from transportation activities.



The City encourages employees to rideshare



transportation + land use

Transportation is one of the largest source of greenhouse gas emissions

Table 5 - Transportation and Land Use Action Plan

TARGET	ACTION	TIMEFRAME
Reduce vehicle trips by the City's workforce 5% by 2020.	Promote Rideshare programs among the City's employees.	Short
	Encourage the use of van pools and car pool programs and public transit passes among the City's employees.	Short
	Provide preferential parking spaces for vanpool / carpool vehicles, and bicycles for City staff.	Short
Reduce emissions from private vehicles used by City staff 5% by 2020.	Consider the development of an incentive-financing program for employees that purchase hybrid or clean fuel, low emission vehicles.	Short
Reduce emissions from City-operated vehicles 25% by 2020.	As existing non-emergency fleet vehicles come to the end of their useful lives, replace them with clean-fuel, low-emission vehicles.	Ongoing
	Evaluate new technologies and fuels to reduce carbon emissions.	Ongoing
	Evaluate, on a case-by-case basis, to promote and test new technologies and fuel options such as using CNG, bio-fuel, propane, electric plug-in and hydrogen cell vehicles.	Ongoing
	Conduct fleet size and utilization study for City fleet vehicles.	Ongoing
	Pursue viable grant funding opportunities for purchasing alternative fuel vehicles, installing advanced emission control devices for City owned/operated fleet vehicles.	Ongoing
Install a CNG filling station, convert City vehicles to CNG and use City-provided natural gas to power City vehicles.		Medium to Long



Parking shelter also produces solar power



Every day, UPS delivers on its sustainability goals

Water Protection and Conservation

Goals:

- Protect our ecosystem and increase adequate access to safe drinking water.
- Conserve the usage of water.
- Reduce the volume of untreated wastewater discharges.

water protection + conservation



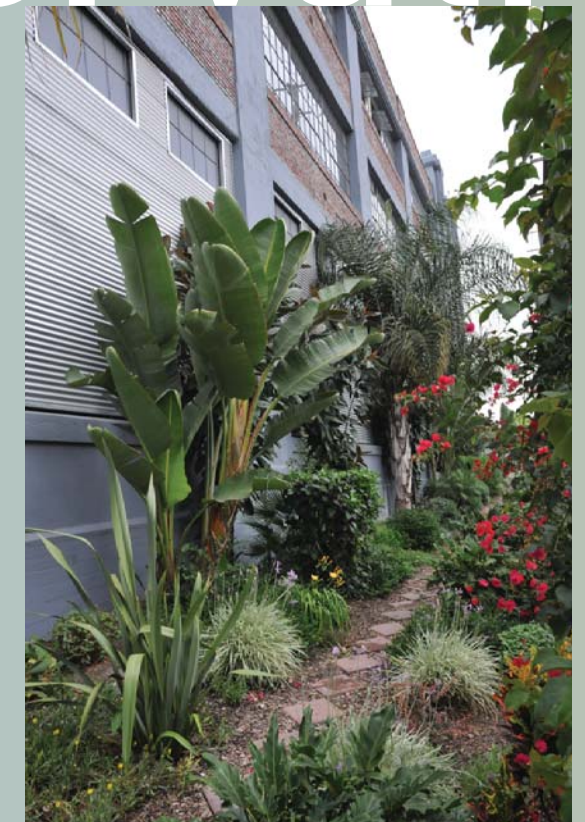
Reducing stormwater pollution and protecting the LA River is a major goal for Vernon

Table 6 - Water Protection and Conservation Action Plan

TARGET	ACTION	TIMEFRAME
Develop and implement programs to decrease potable water consumption 15% by 2020.	Evaluate the viability of implementing a "Recycled Water Master Plan".	Ongoing
	Install durable water-saving fixtures and devices. Install weather based irrigation controllers and landscape with drought resistant plants.	Ongoing Ongoing
Continue to protect water quality.	Continue to implement a plan to minimize the City's use of hazardous chemicals or materials for maintenance and operational purposes.	Ongoing
	Require City contractors and service providers to use lower-toxicity or non-toxic chemicals, or eliminate them completely for cleaning and pest control measures on City facilities.	Ongoing
Continue to reduce stormwater pollution at the source.	Require contractors to implement erosion and sediment enforcement control measures on renovation and construction projects.	Ongoing



Energy-saving irrigation controls



Low-water landscape at a Vernon business

waste resources management



Commerce Waste-to-Energy Facility

Waste Resources Management

Goals:

- Meet or exceed the 75% waste reduction goal of AB 341.
- Maximize waste reduction and reuse practices.
- Encourage the highest and best use of recycled materials.
- Encourage further development of local recycling markets.
- Encourage the purchase and use of renewable, nontoxic and environmental friendly products and services.
- Encourage pollution prevention practices and reduce the use of toxic chemicals.



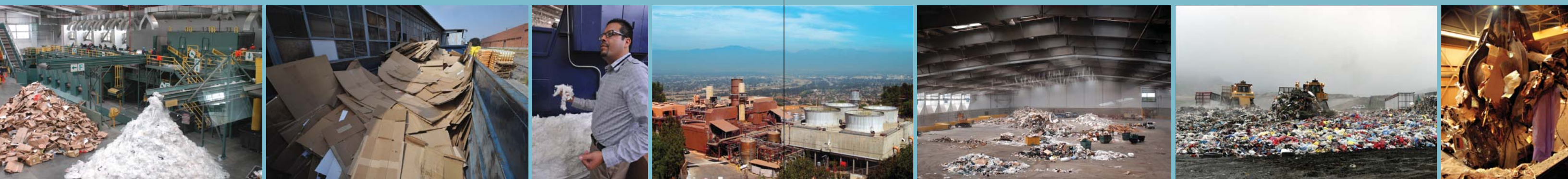
Recycled electronic waste



Transfer stations deliver waste from route vehicles to more distant landfills

Table 7 – Waste Resources Management Action Plan

TARGET	ACTION	TIMEFRAME
Achieve zero waste sent to landfills by 2020.	Develop a "Zero Waste-to-landfill Plan."	Near to Medium
Develop and implement mandatory recycling ordinance to ensure that all businesses participate in recycling.	Meet with representatives of businesses and haulers to outline provisions of the ordinance.	Ongoing
Implement mandatory commercial recycling ordinance (finalize after adoption of regulations by CalRecycle).	Adopt mandatory recycling ordinance.	Near
Develop documentation needed for demonstration of compliance with the State mandatory commercial recycling law	Gather data from haulers and develop recycling database of all businesses in Vernon.	Near
Develop Environmental Preferred Purchasing Policy that incorporates incentives for extended manufacturers' responsibility.	Adopt and implement an "Environmental Preferred Purchasing Policy" addressing "green" services and products (i.e., repairable, long life, energy star rated equipment, post-consumer recycled content, sustainability-produced, non-toxic and chemical free).	Ongoing
Research product certifications (e.g., Green Seal, etc.) and other product and packaging evaluation protocols to determine which environmentally preferred products the City should purchase.	Develop and utilize a product evaluation protocol to compare environmentally preferred products purchased for use by the City. Expand existing waste prevention and waste minimization programs.	Near Near
Work with franchised haulers to implement additional recycling programs targeted to non-traditional materials.	Expand the City recycling program to include additional materials.	Near
Develop sustainability product design purchasing preference policy and program as part of the Environmental Purchasing Plan.	Encourage vendors to design safe, long lasting, repairable and recyclable products and to take back products at the end of their useful life.	Near
Work with existing haulers and recyclers to site and/or expand recycling facilities in the City.	Encourage and provide incentives for recyclers to locate within the City. Promote and encourage local business community to utilize their services.	Near
Expand the waste reduction and recycling technical assistance resources provided to businesses.	Actively promote and provide sustainability technical assistance programs to more businesses on an as-requested basis in addition to the City's business outreach program.	Ongoing
Identify "best management practices" to serve as examples to other Vernon businesses.	Create best management "case studies" of exemplary environmental practices from businesses in the City.	Ongoing
Reduce the City's use of office paper.	Continue the practice of double-sided copying. Continue the transition to a more "paperless" office by storing more information on Laserfiche.	Ongoing
Minimize disposal of universal waste and electronic wastes, and maximize recovery of recyclables portions of these specific streams.	Continue the City's recycling program for electronics and universal wastes and support product take back programs and policies that reduce or eliminate product toxic contents.	Ongoing



2020 zero waste to landfill



Sunshine Canyon Landfill in Sylmar

5

SUMMARY OF EMISSION TARGETS

Emission Reduction Targets

Table 8 below again shows the City's current and projected greenhouse gas emissions, and additionally shows the targeted levels of greenhouse gas emissions that it seeks to achieve by 2020. These targeted reductions are shown graphically in Chart 4. These reductions will result from the targeted actions outlined in the previous sections. The largest reduction is targeted to occur in the emissions resulting from the electricity used to pump water to City buildings and facilities. This is due to the City's plan to obtain one-third of its power from renewable energy sources by 2020.

renewable energy sources

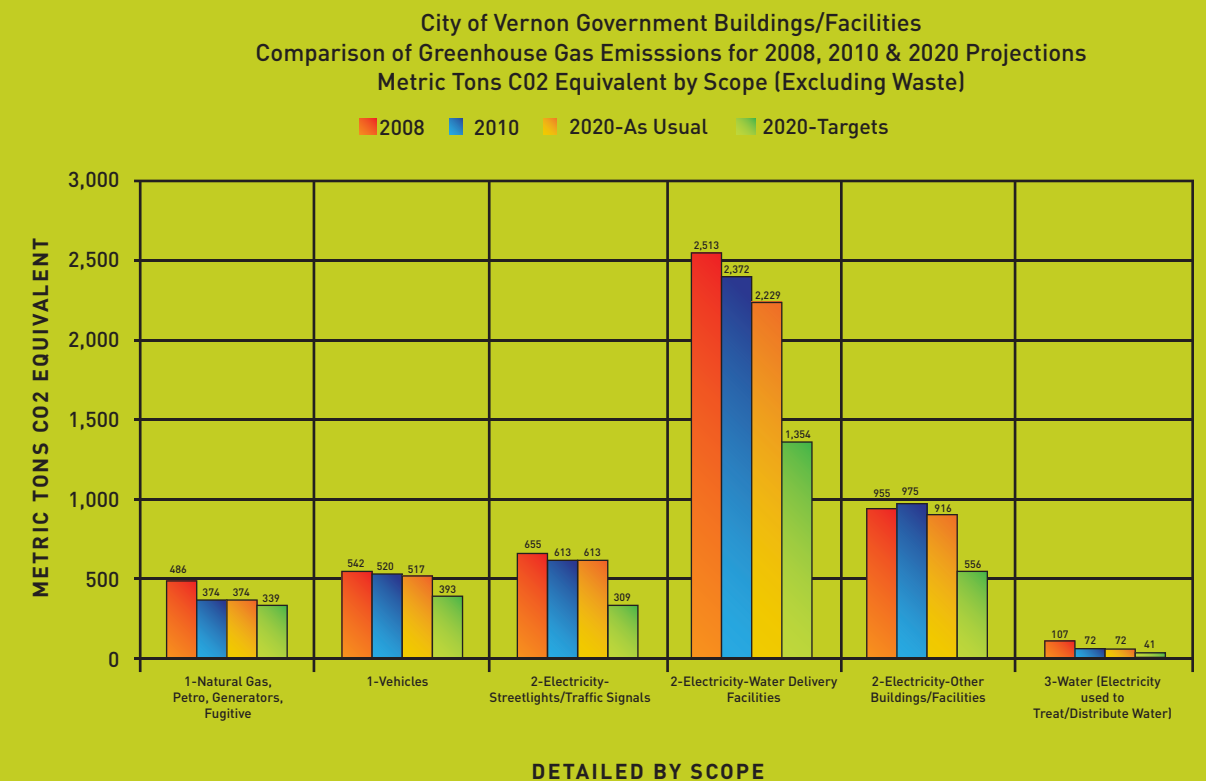


Did you know... that the City of Vernon owns 17,500 acres of prime wind land in the Tehachapi mountains with plans to generate up to 350 megawatts of clean renewable energy?

Table 8 – Emission Reduction Targets

	2008	2010	Business as Usual Projection 2020	Targeted Projection 2020
Greenhouse Gas Categories	GHG metric tons CO2 equivalent	GHG metric tons CO2 equivalent	GHG metric tons CO2 equivalent	GHG metric tons CO2 equivalent
Scope 1: Direct Emissions				
Stationary combustion (on-site petroleum/gasoline generators)	4.31	6.99	6.99	6.99
Stationary natural gas (facilities)	104.87	118.81	118.81	100.99
Stationary natural gas (gas turbines)	261.09	129.45	129.45	129.45
On-road vehicles (fleet trucks, fleet cars)	525.62	499.65	496.96	372.88
Off-road vehicles (forklift, construction equipment)	16.71	20.21	20.21	20.21
Fugitive emissions (refrigeration, air conditioning, fire suppression)	115.77	118.95	118.95	101.11
Scope 1 Subtotal	1,028.37	894.06	891.37	731.62
Scope 2: Indirect Emissions - Purchased Electricity				
Street light and traffic signals	655.22	612.68	612.68	308.56
Water delivering facilities	2,512.84	2,371.74	2,229.44	1,353.72
Other buildings and facilities	954.80	974.86	916.37	556.42
Scope 2 Subtotal	4,122.85	3,959.28	3,758.49	2,218.70
Scope 3: Other Emissions - Electricity Used to Treat/Distribute Water				
Street light and traffic signals	2.01	0.93	0.93	0.63
Water delivering facilities	15.23	18.69	18.69	10.67
Other buildings and facilities	89.85	52.77	52.77	30.12
Scope 3 Other Emissions Subtotal	107.09	72.39	72.39	41.41
Total GHG Emission from Energy Usage (Scopes 1, 2, 3)	5,258.31	4,925.73	4,722.25	2,991.74

Chart 4 – GHG Emissions for 2008, 2010 and Business as Usual and Targeted Reductions



6

TECHNICAL ASSISTANCE TO VERNON BUSINESSES

A key feature of the City's sustainability infrastructure is the continuation of the technical assistance that the City provides to its businesses. The City has been providing technical recycling assistance to its businesses since 2001. In 2008, the City expanded its technical assistance program to include assistance with the conservation of energy, water and transportation fuels.

This technical assistance consists of:

- City contractors meeting with Vernon businesses to discuss their operations and ways they can reduce their carbon footprint.
- Interviewing key personnel and using a sustainability checklist to prepare an abbreviated emissions inventory for each business.
- Providing guidance on adopting sustainable operating practices. This may include providing literature and other resources to assist the businesses in reducing their carbon footprint.

As the City develops its sustainability infrastructure, it will continue and expand the technical assistance it provides to Vernon businesses.

technical assistance to vernon businesses



Earth Day exhibition at the Vernon Chamber of Commerce



Joint UCLA-Gavina waste characterization study to determine recyclability of wastestream



City of Vernon Health Department E-waste collection event

promote + encourage
sustainable



Refurbished 90 year old stairwell at i!T Campus



Artistic use of antique industrial fusebox

7 construction

GREEN BUILDINGS

GREEN BUILDINGS

The City of Vernon will promote and encourage sustainable construction practices for all new construction projects, including improvements to existing City facilities. The City of Vernon recognizes that the environmental impact of the operations of City facilities can be significant over the life of the buildings/facilities. As such, the City of Vernon will implement environmentally sustainable operations and maintenance practices consistent with the LEED for Existing Buildings to reduce the environmental impacts of City facilities over their functional life cycle.

The City of Vernon will research the applicability and feasibility for potential implementation of the following programs:

- Hardscaping/xeriscaping Management Plan
- Integrated Pest Management, Erosion Control and Landscaping
- Heat Island Reduction
- Light Pollution Reduction
- Water Efficiency
- Energy Efficiency
- Refrigerant Management
- Waste Reduction / Recycling, Zero Waste-to-Landfill Disposal
- Renewable Energy
- Sustainable Purchasing (Environmental Preferred Purchasing)
- Green Cleaning Policy



Green walls reduce the need for energy to cool buildings



Innovative reuse of materials in the lobby of i!T Campus

Gaviña

F. Gaviña & Sons, Inc. (Gaviña) is the nation's largest minority family owned coffee roaster. Gaviña's company policies of supply chain management, sustainable growth and giving back to the community are family traditions and are reflected in the company's environmentally sustainable operational protocols and corporate culture.

Gaviña is one of the greenest companies in Southern California, and is known for its philanthropic support to the local and global communities. Gaviña received the City of Vernon's Solid Waste Alternative Programs award in 2007 for its recycling and energy conservation efforts and the Food Industry Business Roundtable (FIBR) award for the Best Food Processor of the Year in 2010.

At Gaviña, reducing waste and decreasing its carbon footprint is a daily commitment. Currently, Gaviña diverts more than 80% of its waste stream from the landfill through proactive waste management programs and green manufacturing practices. The company continually evaluates its coffee processing and packaging operations for reuse, recycling, and energy conservation opportunities. Examples include recycling of wrappings, paper, cardboard, toner cartridges and batteries.

Gaviña continues to work with the City of Vernon, UCLA's Engineering Extension Recycling Municipal Solid Waste Certificate program and other universities serving as a peer match model to share and mentor sustainability practices and to inspire students and other businesses to become sustainable.



Gaviña headquarters on Fruitland Ave.

green manufacturing+ social responsibility



Coffee packaging line at Gaviña

Presently, Gaviña is evaluating recycling options for the coffee packaging bags and plastic films that will increase its diversion rate to over 90%. Gaviña also has an employee recycling program where all proceeds from soda cans and water bottles recycled are reinvested in the employees. Other efforts include selling coffee bean burlap bags to companies for secondary applications such as multi-use grocery bags, and donating coffee chaff, the outer skin of the coffee bean, to a company that uses it to produce animal feed.

Gaviña supports numerous international and domestic socially responsible programs because the Gaviña family believes that health care and education are keys in the development of the individual, community, and protection of the environment. Examples include improving educational infrastructure for schools and implementing on-line learning centers in coffee farming communities in countries such as Nicaragua, El Salvador and Mexico.



Residual coffee chaff is used for animal feed rather than sent to the landfill



School children in coffee-growing regions learn computer skills courtesy of Gaviña & Sons



The Gaviña family has been in the coffee business for over 100 years



efficiency + resource conservation

8

GREEN ECONOMIC DEVELOPMENT

The City's sustainable infrastructure will also include a program to identify, attract and retain businesses that will contribute to Vernon's culture of efficiency and resource conservation. In addition to the kinds of businesses that already benefit from Vernon's business climate (food processing, furniture manufacturing, etc.), the types of firms the City plans to target will include:

- Companies that manufacture products and/or develop systems that lead to a more efficient use of natural resources. For example, the City may seek to attract firms that manufacture photovoltaic panels.
- Companies that can use recyclable or reusable residual resources as raw materials. For example, the City may seek to attract firms that can use waste paper as packaging material, or firms with industrial processes that could benefit from a reliable supply of reclaimed water.
- Companies that use conversion technologies to convert post-recycled waste residuals into energy and/or useful materials.
- Companies that have adopted a corporate policy to operate in a sustainable manner so as to minimize the impact of business operations on the environment.

This program will consist of four components:

Inventory of Available Vernon Facilities – The City will maintain a list of sites in the City that are available for occupancy or development.

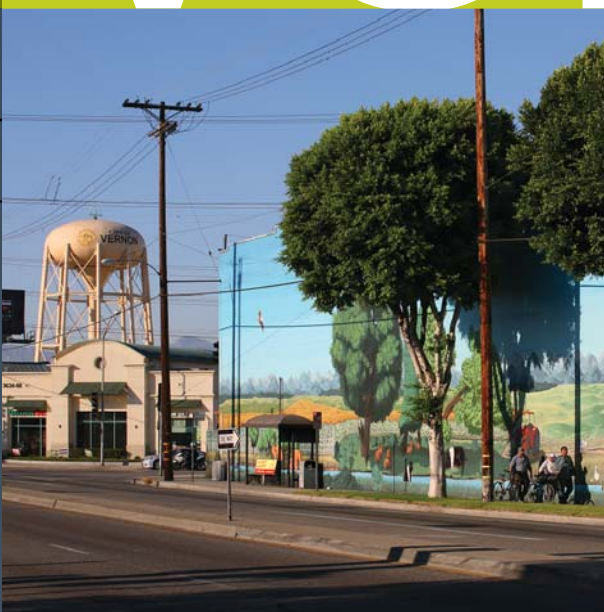
Outreach to Potential Businesses – The City will reach out to targeted businesses through industrial associations, and through Vernon businesses and their customer and vendor relationships.

Financial Incentives – The City will continue to assist its businesses in procuring low cost loans such as the Recycling Market Development Zone and other programs, and/or will help assist in applying for grants/loans to fund sustainable environmental projects.

Employee Skills Development – The City will establish a skills development fund to assist Vernon businesses and trade unions to design and finance customized job-training projects in concert with nearby community colleges (e.g., Los Angeles Trade-Tech, East Los Angeles College, etc.) and/or non-profits NGOs to increase the implementation of sustainable environmental practices.

It is the City's goal that, through the Green Economic Development program, and through the other actions outlined in this Plan, both current and future members of the business community will continue Vernon's heritage of efficiency and sustainability.

City of Vernon
vernon
sustainability action plan



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