

2007

City of Woodland California Climate Action

Inventory

A Summary of the Base Year



CITY OF WOODLAND



ENVIRONMENTAL
SERVICES



The California Climate Action Registry is committed to solving climate change through emission reporting and reduction. It serves as a voluntary greenhouse gas registry for entity-wide emissions inventories.

The State of California originally created the California Registry in 2001 to promote and protect business' early actions to manage and reduce their GHG emissions. Through this mandate, the California Registry established protocols to guide emissions inventories and an online tool, CARROT, to serve as a central public database for our members' emissions reports.

- From the CCAR



Rationale for Joining the Registry

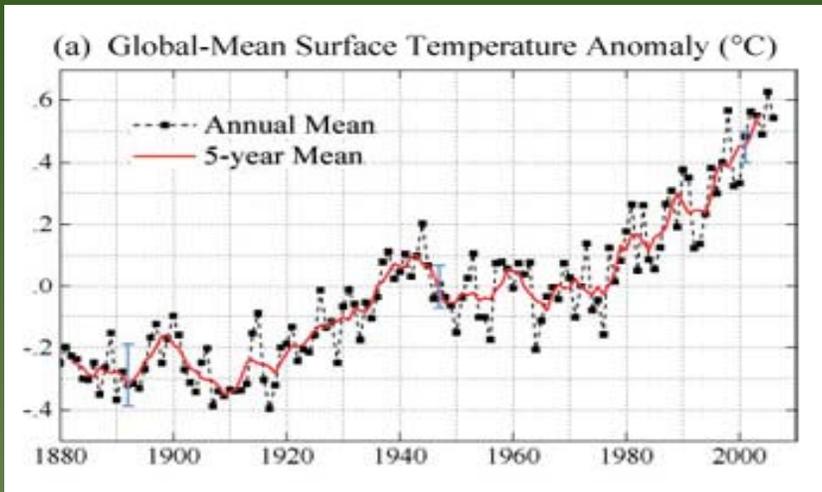
- ◆ **Establishes an Accurate Baseline**
 - Calendar Year 2007
- ◆ **Reveals the Biggest Sources**
 - Electricity, Gasoline, Diesel, etc...
- ◆ **Gives the City a Head Start**
 - Assembly Bills, Regulations, Carbon Counting, etc...

What does MtCO₂e mean?

- ◆ CO₂ is the baseline from which GHGs are measured because it is most prevalent in the atmosphere.
- ◆ Carbon Dioxide emissions are reported in metric tons or tons of carbon dioxide equivalent.
- ◆ Standard unit = metric ton CO₂ = MtCO₂e
- ◆ Global warming impact of all GHGs is measured in terms of equivalency to the impact of CO₂. Otherwise called global warming potential.
- ◆ E.g. Methane is 23x more potent than CO₂. One million tonnes of methane is equal to 23 million MtCO₂e.

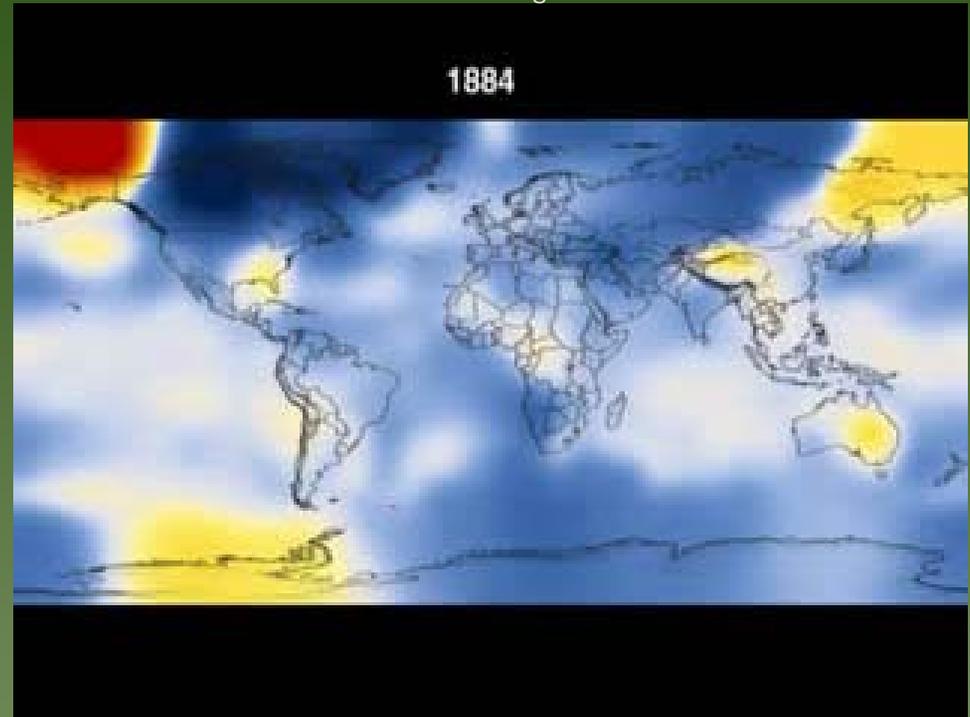
Global Climate Change History

Global-mean surface temperature change



"Climate Change" Graph - Image by NASA

NASA Climate Change Animation



Over the past 30 years Earth has warmed by about 1.08 degrees Fahrenheit. When watching the animation you will see that temperatures have warmed at nearly all locations worldwide and that the greatest temperature changes have occurred in very high latitudes. Since the largest changes have occurred in areas where there are very few people this suggests that the warming is not due to local effects of heat pollution by people, but is instead a global climate change.

Methodology/Inventory

- ◆ 1 full-time employee & 1 intern created a base year inventory management system based on the General Reporting Protocol established by the CCAR



- ◆ Indirect Emissions.

PG&E bills were collected & analyzed for accurate electricity and natural gas usage.



- ◆ Direct Emissions.

Fuel and propane records were collected & analyzed from multiple dispensaries.



- ◆ Proper emission factors were determined.

*** An emission factor is the average emission rate of a pollutant/GHG for a given source. e.g., Gasoline(in CA) emits 8.81 kilograms of carbon dioxide per gallon.**

- ◆ A CCAR approved verifier was contracted to approve the CARROT report.

Tetra Tech EMI Verified the 2007 Emissions Inventory on December 30, 2008

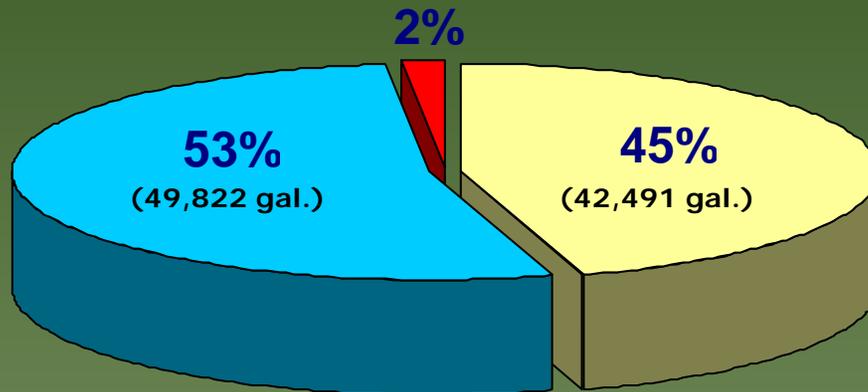
- ◆ Established Baseline Year
- ◆ 8 Emission Sources
- ◆ 1,666 MtCO₂e Direct
- ◆ 3,977 MtCO₂e Indirect
- ◆ 5,643 MtCO₂e Total

Source	Emission Category	Fuel Name	Fuel/ Mileage	Emission Factor	Amount	Unit
Acetylene tanks	Stationary Combustion				0.04	metric ton
Back-up Generators	Stationary Combustion	Distillate Fuel Oil (#1, 2 & 4)	1759 gallon	10.15 kg/gallon	17.86	metric ton
Diesel Consumption	Mobile Combustion	Diesel	31818 gallon	10.15 kg/gallon	322.96	metric ton
Gasoline Consumption	Mobile Combustion	Motor Gasoline	100046 gallon	8.81 kg/gallon	881.41	metric ton
Indirect emission from unowned CO-Generation Plant	Purchased Heating and Cooling				186.73	metric ton
Natural Gas Usage in Therms from PG&E	Stationary Combustion	Natural Gas	83062 therm	5.31 kg/therm	440.73	metric ton
Propane Off-Road Vehicles	Mobile Combustion	Propane	457 gallon	5.74 kg/gallon	2.62	metric ton
Purchased City Electricity from PG&E	Purchased Electricity		18362939 KWh	0.46 lb/KWh	3,789.89	metric ton

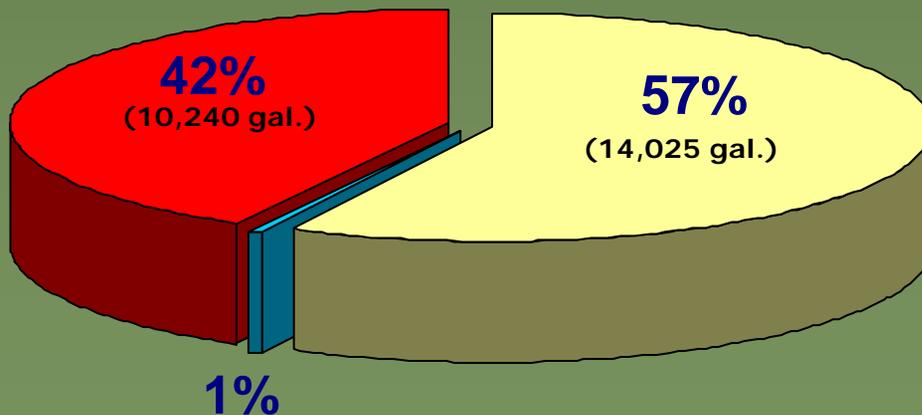
2007 Direct Emissions from Fuel

*Does not include MSC storage tanks

Unleaded Fuel Usage



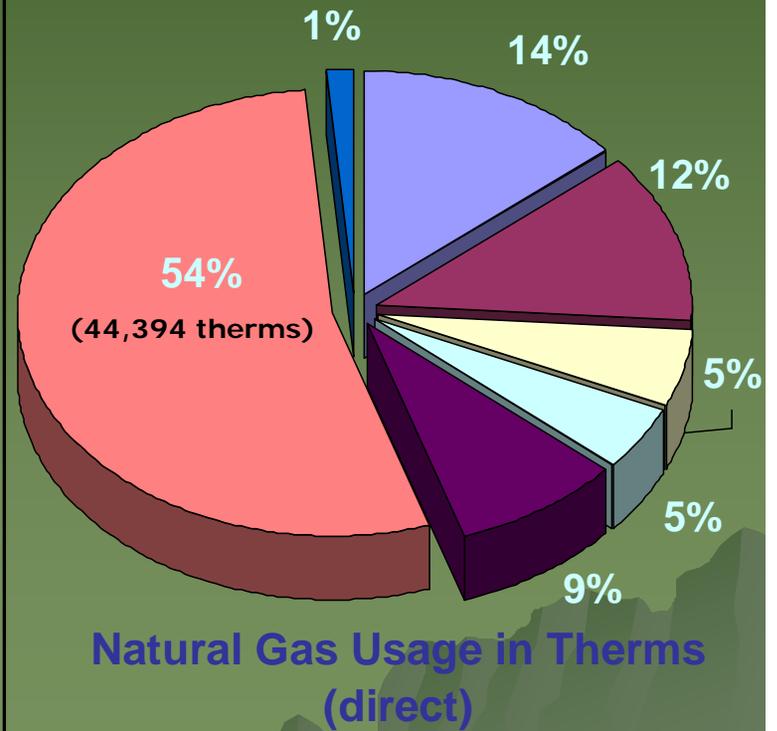
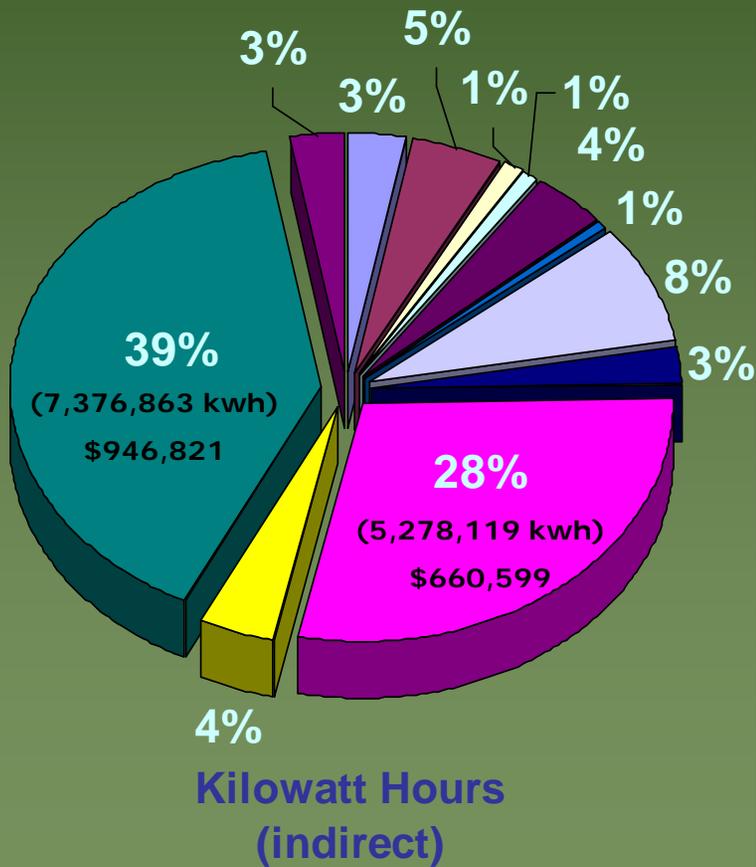
Diesel Fuel Usage



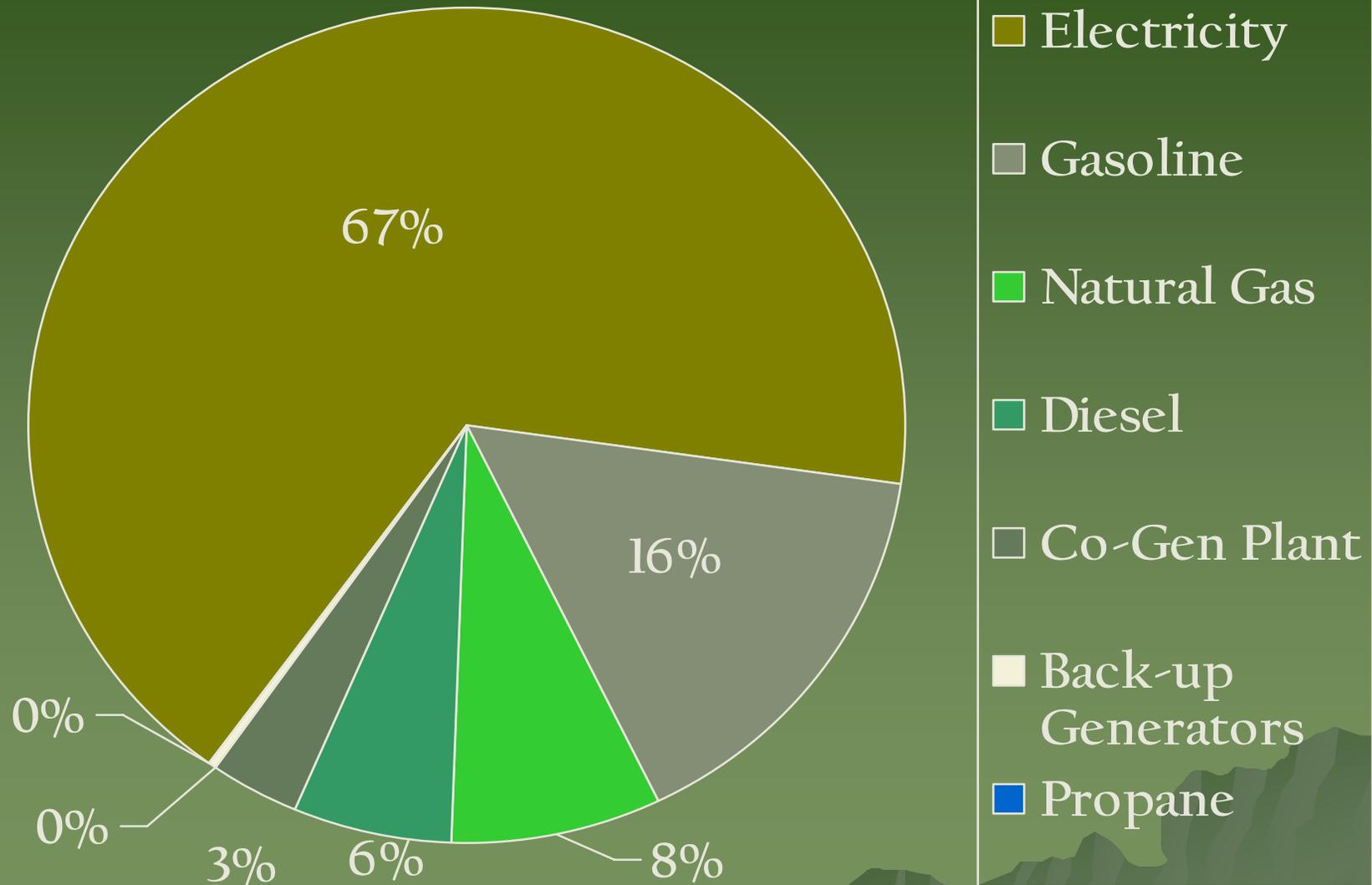
- Public Works & Fleet/Cardlock
- Police Vehicles/Cardlock
- Fire Vehicles/Cardlock

2007 Facility Emissions

- Fire Dpt.
- P.D.
- MSC
- Library
- Senior Center
- Pools/Parks
- CDD
- City Hall
- Lights/Signals
- WWTP
- Parks
- City Wells
- Lift / Pump Stations



Electricity Takes the Biggest Slice of the GHG Pie



How we Compare

	<u>Santa Barbara</u>	<u>Ventura</u>	<u>West Hollywood</u>	<u>Yolo County</u>	<u>Woodland</u>
2007 Population	<i>90,040</i>	<i>106,744</i>	<i>34,675</i>	<i>195,000</i>	<i>54,000</i>
Direct Emissions	<i>3,480</i>	<i>4,110</i>	<i>411</i>	<i>3,752</i>	<i>1,666</i>
Indirect Emissions	<i>9,270</i>	<i>10,036</i>	<i>1,319</i>	<i>2,128</i>	<i>3,977</i>
Total Emissions in MtCO₂e	<i>12,750</i>	<i>14,146</i>	<i>1,730</i>	<i>5,880</i>	<i>5,643</i>

A Look Ahead

- ◆ CARB working on addressing pre-mandatory baseline data for AB32 Scoping Plan.
 - ◆ CARB has based its mandatory reporting rules on the California Registry's protocols consistent with AB32.
 - ◆ Senator Amy Klobuchar (D-MN) introduced a Carbon Counter bill that references The Climate Registry as a model.
 - ◆ In the House of Representatives, the House Energy and Commerce committee is looking at a federal GHG reporting bill.
 - ◆ Representative Tammy Baldwin (D-WI) introduced the Greenhouse Gas Registry Act, which ensures a national GHG registry established by the EPA will contain complete, essential, reliable and accurate information. Specifically references The Climate Registry in relation to protocols the EPA should use in drafting regulations and encourages the EPA to take into account The Climate Registry's work.
 - ◆ Climate Action Reserve is a registry program set up to track offset credits.
- 

Extras

- ◆ As of February 18, 2009 Woodland is listed as 1 of only 8 Cities to be awarded **Climate Action Leader** status in California.

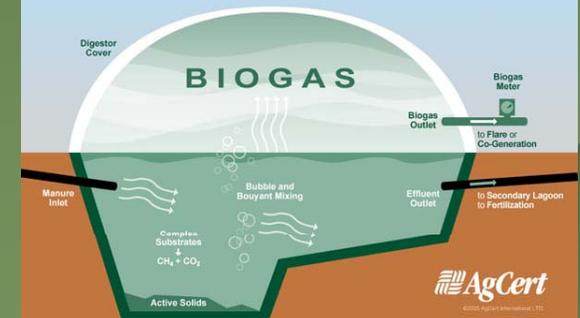


- ◆ Next year's reporting will be guided by the Local Government Operations Protocol (adopted August 2008 by the CCAR).

How to Reduce our Footprint



Anaerobic Digestion



Digesters are designed by optimizing the retention time (typically between 22-28 days) to maximize CH₄ capture.

Woodland is a

