

Do your part to reduce your carbon footprint,  
invite your livestock to live under the same roof.....



# 2005 Executive Order Established Statewide GHG Targets

“I SAY THE DEBATE IS OVER. WE KNOW THE SCIENCE. WE SEE THE THREAT. AND WE KNOW THE TIME FOR ACTION IS NOW.”

Governor Arnold Schwarzenegger  
June 2005

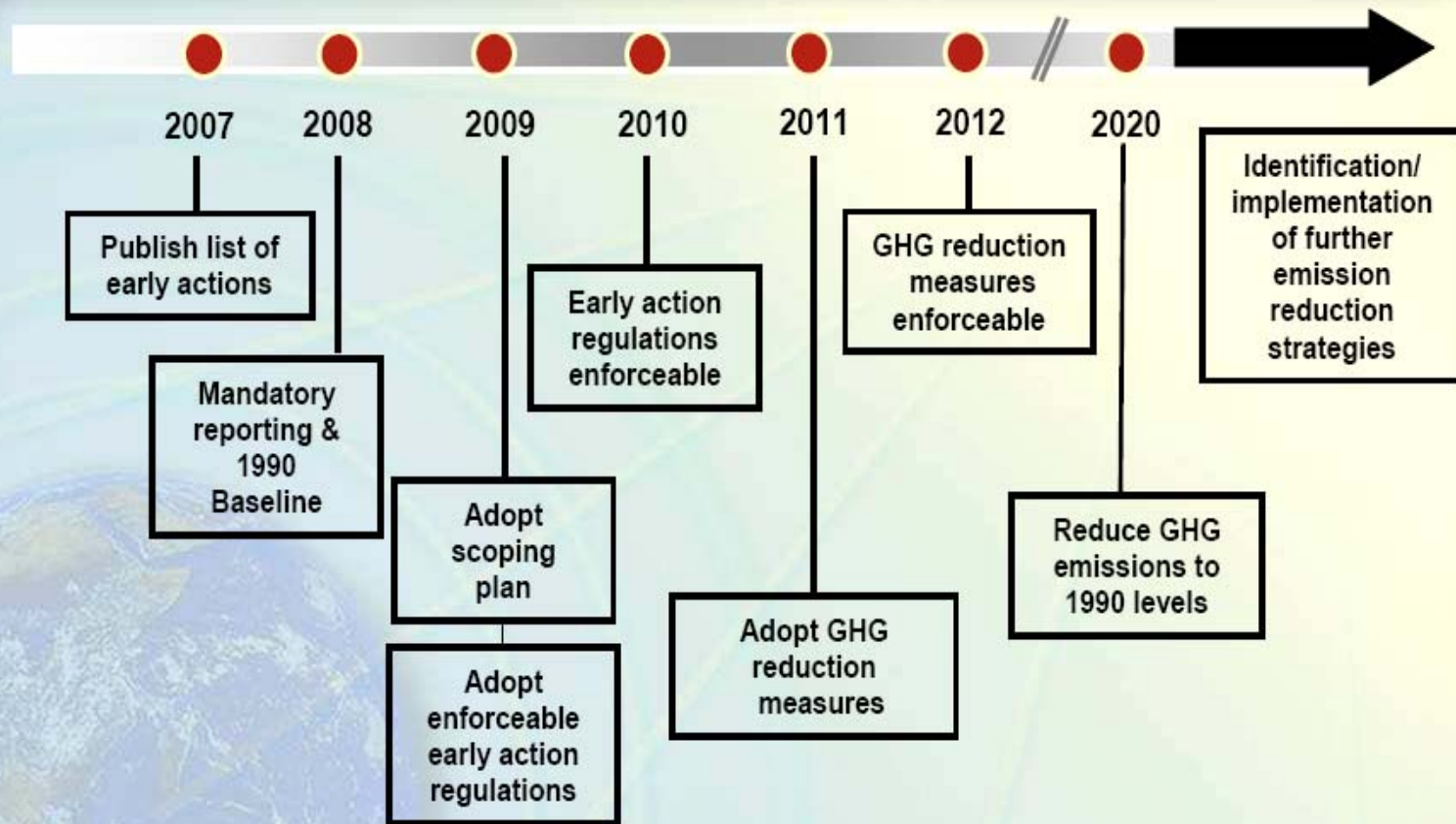


# Assembly Bill 32

- ❑ Global Warming Solutions Act of 2006
- ❑ Reduce GHG emissions to 1990 levels by 2020 (30% reduction)
- ❑ Detailed action schedule

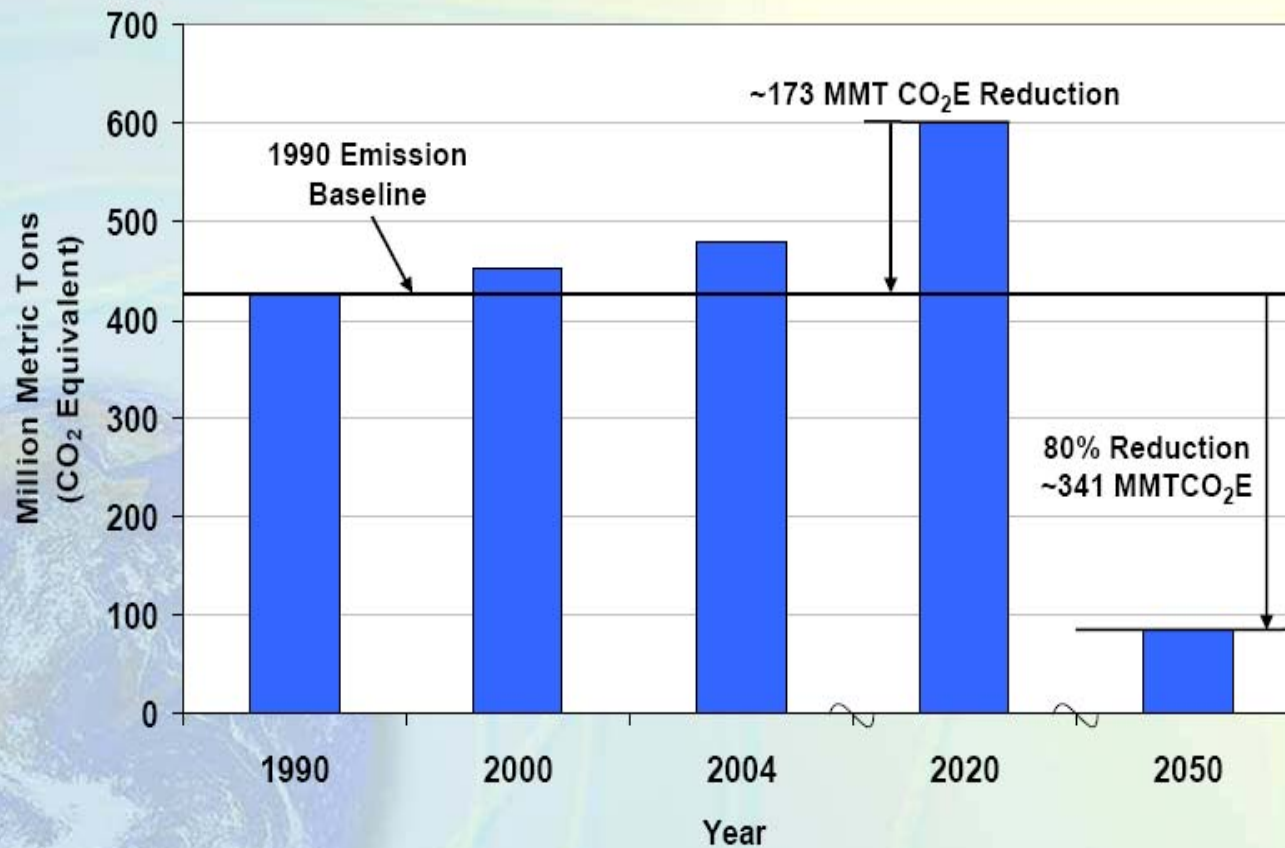


# AB 32 Timeline



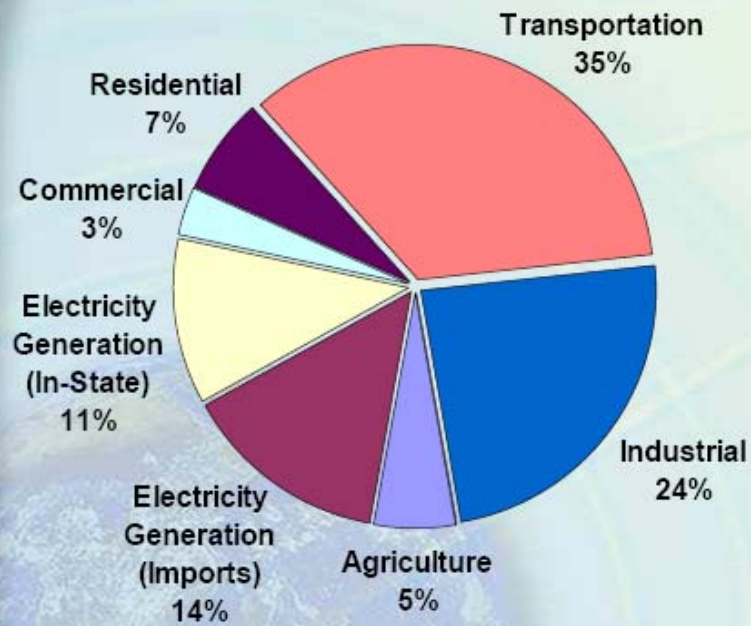
# Magnitude of the Challenge

ARB Emissions Inventory

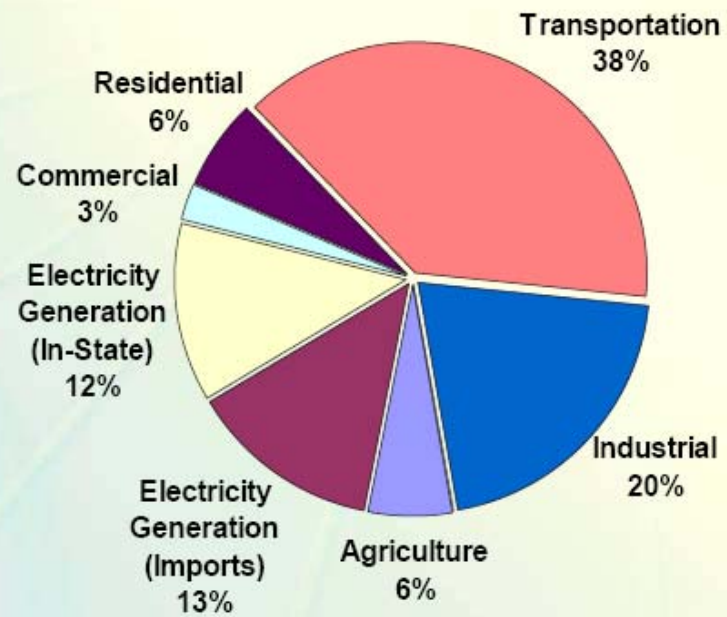


# California GHG Emissions

## GHG EMISSIONS BY SOURCE

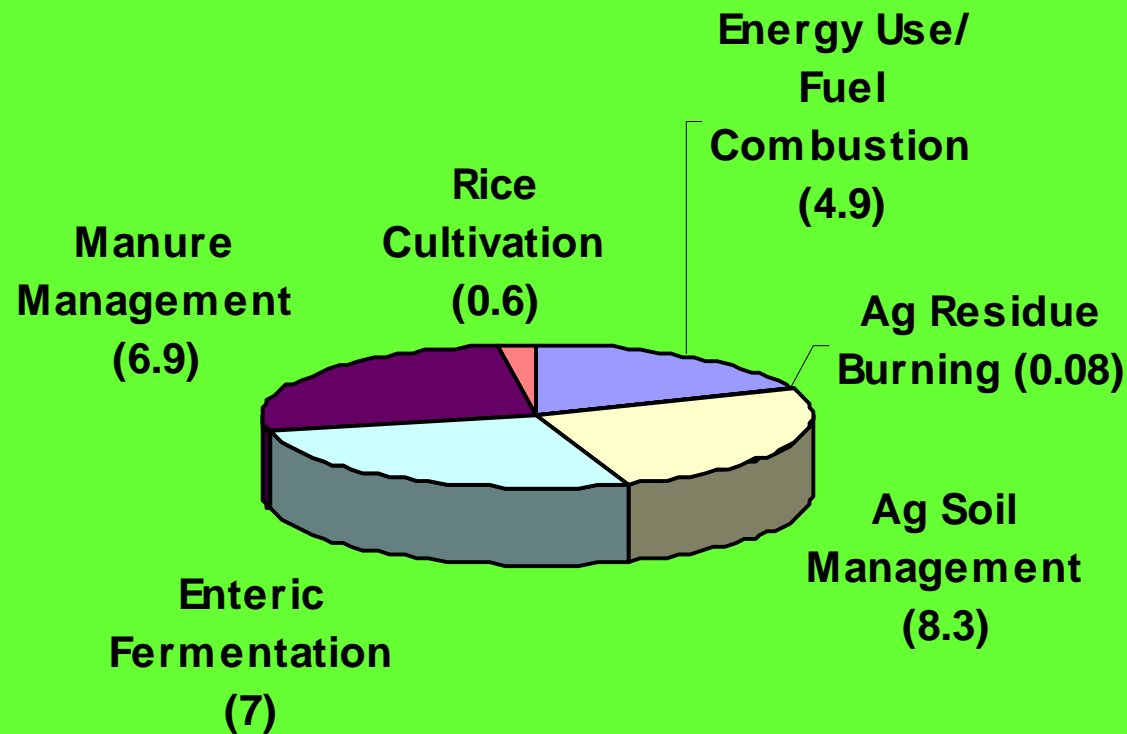


1990 [~427 MMT CO<sub>2</sub> eq]



2004 [~480 MMT CO<sub>2</sub> eq]

# 2004 Agricultural GHG Emissions (28 MMTCO<sub>2</sub>e)



# Total Agricultural Emissions

- 1990 Baseline Emissions:  
23.4 MMTCO<sub>2</sub>E (5% of Statewide total)
- 2004 Baseline Emissions:  
27.9 MMTCO<sub>2</sub>E (6% of Statewide total)
- 2020 Preliminary Forecasted Emissions: 31.9  
MMTCO<sub>2</sub>E



# Advisory Committees

- Environmental Justice
- Economic & Technology Advancement
- Market Advisory

## ETAAC SUBJECT AREAS

- **MANURE MANAGEMENT/DIGESTER TECHNOLOGY:** expand on the recently developed protocol and projects that can reduce methane from manure management and produce renewable energy.
- **ORCHARD AND VINEYARD MANAGEMENT FOR CARBON STORAGE:** explore management practices that could enhance above and below ground carbon sequestration
- **REFORESTATION AND RIPARIAN RESTORATION ON FARMS AND RANCHES:** restoration projects that have the potential to increase carbon storage and provide other environmental and wildlife benefits
- **BIOMASS UTILIZATION AND BIOFUELS:** Use of abundant agricultural byproducts including prunings, straws, processing wastes, etc. for production of biofuels using biochemical and thermo chemical technologies
- **EFFICIENT FERTILIZER AND WATER USAGE/ENTERIC FERMENTATION:** Evaluate methods to reduce emissions from fertilizer use and livestock feeding activities

### Summary of California Agricultural Programs to Reduce GHG Emissions

	Potential California Program Size			Estimated Reduction	Net Annual California Reduction Potential	
	Gross (units/yr)	Technical (units/yr)	Units	Unit Factor (MTCO <sub>2</sub> E/yr)	Gross (MMTCO <sub>2</sub> E)	Technical (MMTCO <sub>2</sub> E)
Manure-to-energy facilities	3,600,000	1,800,000	head	1.70	6.1	3.1
Enteric Fermentation	4,100,000	2,050,000	head	0.39	1.6	0.8
Ag Biomass Utilization	21,000,000	8,000,000	dry tons	0.51	10.7	4.1
Dedicated Bio-Fuels Crops	1,000,000	500,000	acres	1.92	1.9	1.0
Soil Carbon Sequestration	10,000,000	5,000,000	acres	0.61	6.1	3.1
Farmscapes Sequestration	500,000	500,000	acres	5.80	2.9	2.9
Fertilizer Use Efficiency	10,000,000	5,000,000	acres	0.36	3.6	1.8
<b>TOTAL</b>					<b>33.0</b>	<b>16.7</b>

# Potential Agriculture Strategies



- **Livestock emissions**
- **Energy (biomass/biofuels)**
- **Efficiency improvements**
- **Land use**
- **Research**

# Research

- **Explore improved agricultural practices and their impacts**
- **Potential Approaches**
  - **Life Cycle Analysis**
  - **Best Practice Protocols**
  - **Fertilizer N<sub>2</sub>O Emissions**

# Scoping Plan

- **Describes how California will reduce GHG emission levels to 1990 levels by 2020**
- **Not a regulation**
- **Identifies measures for future adoption or implementation**
- **Uses sector based approach**

# Near-Term Focus

- **Livestock and Confined Animal Facilities**
  - Reduction of methane production at source
  - Energy recovery from methane capture
- **Agricultural Biomass Utilization**
- **Voluntary win-win strategies offering cost savings to the producer**
  - Tractor tire inflation program
  - Agricultural irrigation pump efficiency program

# Longer-Term Focus

- **Enteric fermentation**
- **Dedicated bio-fuel crops**
- **On-farm use of renewable energy sources**
- **Fertilizer use efficiency**
- **Farmscape sequestration**
- **Soil carbon sequestration**
- **Composting**



Frank Mitloehner's idea:  
Bull whispering to reduce GHG



## Farmers and Ranchers To Do List

- With help from their ag associations and USDA, take an active role in learning about existing and emerging carbon markets so you are ready to provide GHG/carbon credit opportunities and emission reductions
- Pay attention to 2007 Farm Bill and insure the GHG research and programs are maintained in the Research and Conservation Titles
- Get S. 2191 (Lieberman-Warner changed so it allows ag to get full market credit and the ability to fully participate without limits in offset programs for future cap-and trade programs

## What AAQTF asked USDA to do

- USDA, in conjunction with the NRCS NRI, should establish a national network of on-farm soil measurements to complement existing models and experimental data to develop a national inventory and aid in baselines for soil C markets.
- USDA should convene a working group of university/ government scientists and stakeholders to establish minimum protocol standards for measuring, monitoring and verifying GHG reductions for carbon credits that could be included in FY07 Farm Bill programs.
- The Secretary of Agriculture should actively support a minimum of \$15 million in funding for competitive agricultural GHG research, such as CASMGS, in the 2007 Farm Bill.
- GRACENET should be expanded beyond its 29 sites to better represent the geographic diversity across the U.S.

# **ARB Climate Change Website**

**<http://www.arb.ca.gov/cc/cc.htm>**

**<http://www.climatechange.ca.gov>**

# The Wild Wild West

