

Recycling & Waste Management Strategies in the Climate Change Scoping Plan

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California Integrated Waste Management Board
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Valais, Switzerland



Argentina's Upsala Glacier



Cape Hatteras in North Carolina



Mount Hood, Oregon

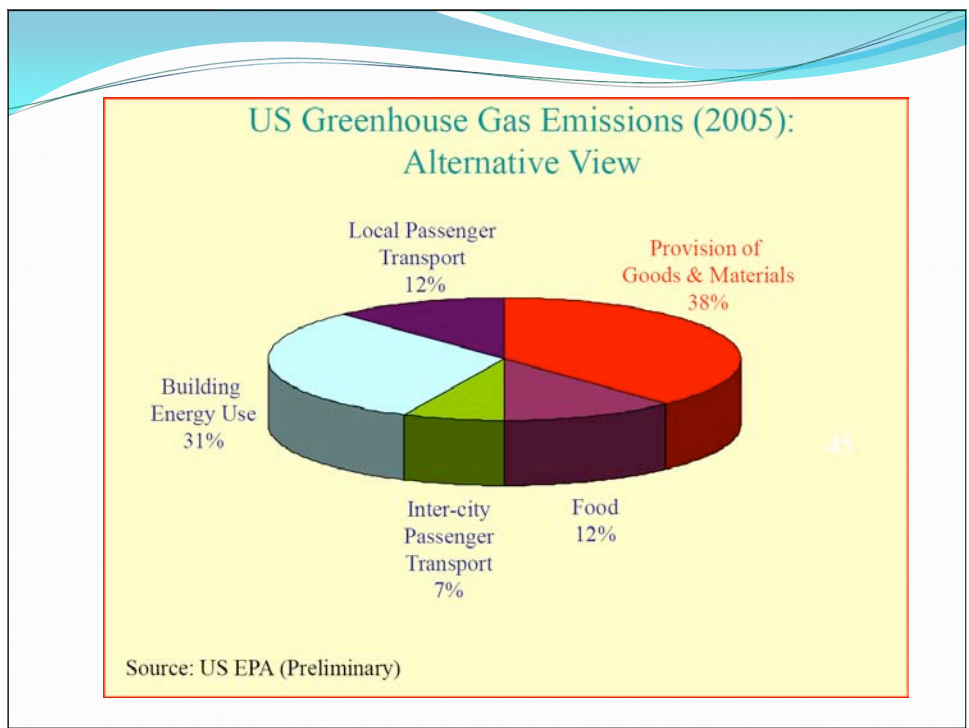
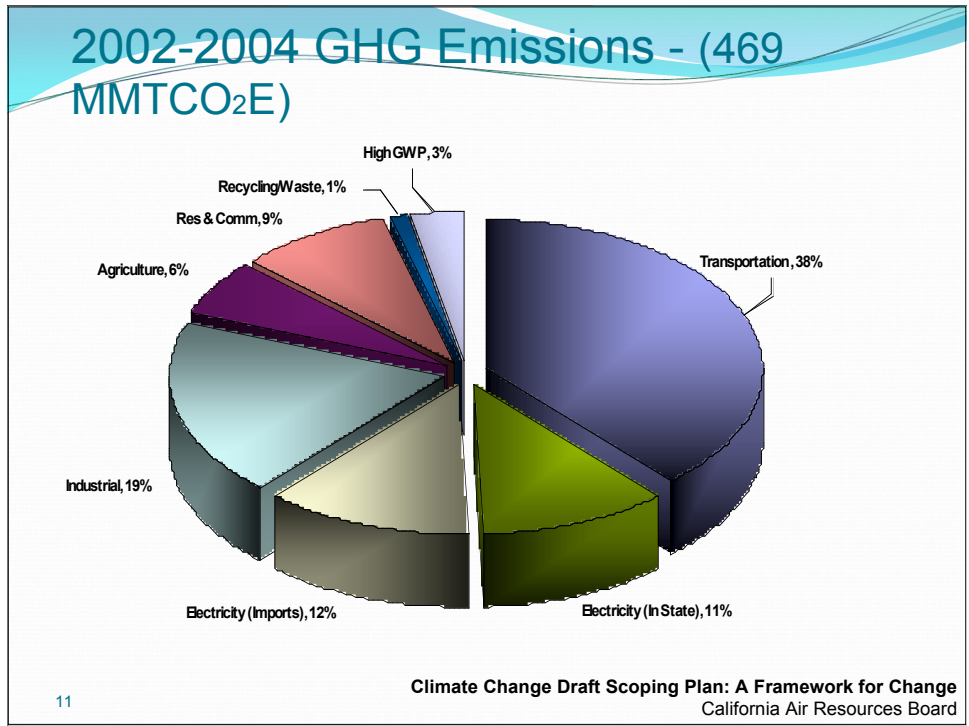


White Spruce trees in Alaska

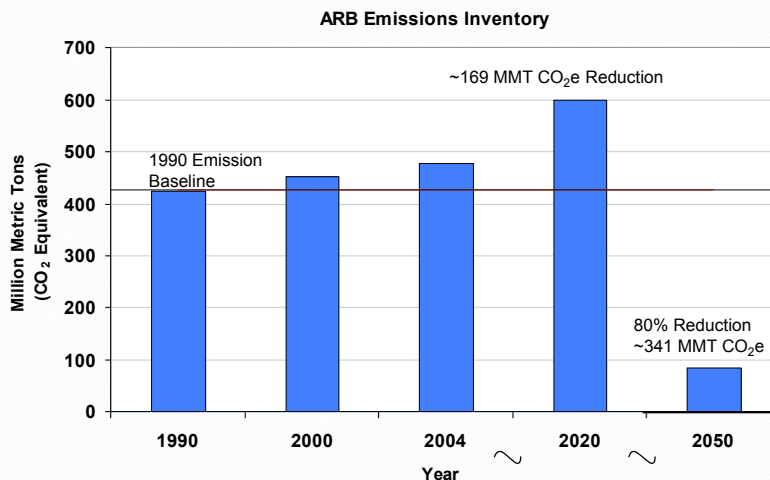




- ## Assembly Bill 32
- Sets the 2020 GHG limit at 1990 level
 - Assigns ARB to monitor/regulate GHG sources
 - Appoints ARB as the lead with extensive collaboration with other agencies
- Requires CARB to:
- Establish a 2020 GHG emissions target
 - 427 MMTCO_{2e}
 - Adopt mandatory reporting rules by January 1, 2009.
 - Adopt a plan to achieve GHG reductions via regulations, market mechanisms and other actions by January 1, 2009.
 - Draft Scoping Plan released on 6/26/08
 - Proposed Scoping Plan to be released on 10/3/08
 - Adopt regulations to implement plan by January 1, 2011.



Magnitude of the Challenge



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Climate Change Draft Scoping Plan: A Framework for Change
California Air Resources Board

Scoping Plan

- Describes how California will reduce GHG emission levels to 1990 levels by 2020
 - Address every sector of the economy
- Provides a vision for a low carbon future - 2020 and 2050
- Maximize benefits to California
 - Criteria and toxic air pollutants reductions
 - Economic development (greentech)
- Must assess economic, environmental, public health and societal impacts in Plan

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Scoping Plan (2)

- Preliminary recommendations –
 - Car standards, low carbon fuel standard, land use, energy efficiency, renewable portfolio standard
- Mix of:
 - Direct regulations
 - Regional Cap and trade program linked to WCI
 - Carbon fees
- Expect positive overall impact on co-pollutants
 - Efficiency and reduced fuel use
- Targeted fees to fund implementation

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Recycling & Waste Management Strategies

- Landfill Methane Control (Discrete Early Action) – 1 MMTCO₂e
- Increasing Efficiency of Landfill Methane Capture - TBD
- Liquified Natural Gas from Landfill Gas – 1 MMTCO₂e
- Commercial Recycling – 5.5 to 11 MMTCO₂e
- Increase Production & Markets for Compost – 3.1 MMTCO₂e
- Anaerobic Digestion – 2.2. MMTCO₂e
- Extended Producer Responsibility & Environmentally Preferable Purchasing – TBD
- Watershed-Friendly Landscape Guidelines - TBD

Landfill Methane Capture

- Methane 21 times the GWP of CO₂
- Early Action Item must be in place by 1/1/2010
- Reduce methane emissions from landfills by requiring gas collection and control systems on landfills where these systems are not currently required
- Establish statewide performance standards to maximize methane capture efficiencies
- ARB & CIWMB staff will explore opportunities to increase energy recovery from landfill methane gas

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Other Landfill Strategies

- Liquified Natural Gas from Landfill Gas
 - CIWMB grant funded project at one landfill
 - Demonstration of commercial scale technologies
 - Project completion – June 2009
- Increasing Efficiency of Landfill Methane Capture
 - Use recent CIWMB BMP guidance document as an outreach tool
 - Increase efficiency beyond new landfill control measure

Commercial Recycling

- 60% of landfill waste is from commercial sector
- Focuses on recovery of traditional recyclables
 - Paper, cardboard, plastics, lumber, metals, glass
- Institute for Local Governments (ILG) CA Climate Action Network (CCAN):
 - CIMWB funded project - \$200K
 - Conduct inventories, develop action plans, implement policies, document case study, develop model ordinance
- Voluntary implementation approach

Commercial Recycling – Key Issues

- Boundary concerns
 - Where does the GHG reduction occur?
 - Is point of re-manufacturing outside of CA?
 - How much re-manufacturing occurs in California?
 - Potential double-counting of emission reductions
 - “Leakage” issues – reduction of GHG emissions in CA that result in an increase in GHG emissions outside of CA
 - Need CA market survey
- Implementation mechanism
 - Voluntary versus regulatory
 - If mandated, no carbon offsets for jurisdictions, manufacturers, haulers, etc.

Increase Compost Production & Markets

- SD 6.1 – 50% diversion of organics from landfills by 2020
- LCA of organics management options
 - Beneficial offsets of organics diversion
 - Economics analysis & GHG decision-making tool
- Key issue has been lack of dedicated funding and reliance on fluctuating discretionary funds
- AB 2866 fee increase would have greatly enhanced CIWMB's ability to promote organics diversion – did not pass.

Increase Compost Production & Markets (2)

- Organics Roadmap
 - BMPs survey
 - BMP demonstration project
 - Caltrans/Local government workshops
 - Compost specifications for agriculture
 - Siting & capacity workshops
 - Cross media issues
 - Organics Research Clearinghouse
 - Roadmap #2 is underdevelopment

Anaerobic Digestion

- Encourage the deployment of anaerobic digester projects
- Produces renewable energy from biomass
- Displaces fuel or energy derived from fossil fuels
- Deals with high methane-producing waste types such as food waste, green waste, & other organics
- UC Davis Anaerobic Digester Project - \$120K

Extended Producer Responsibility & Environmentally Preferable Purchasing

- EPR – Shared responsibility that reduces the life cycle environmental impacts of a product
 - Product design, supply chain, production, use, end-of-life
- EPP – Environmentally preferable product choices
 - Opportunity for State to lead by examples
 - Purchasing choices that reduce the quantity & toxicity of waste
 - Purchasing recycled, repairable, durable goods
- EPR & EPP – measures are undergoing further development and evaluation due to the potential for significant reductions in GHG emissions

Watershed Friendly Landscape

- DWR - update State Model Water Efficient Landscape Ordinance
- Landscape Task Force Report – January 1, 2009
 - Landscape locally
 - Landscape for less to the landfill
 - Nurture the soil
 - Conserve water
 - Conserve energy
 - Protect water & air quality
 - Create & protect wildlife habitat

Additional Strategies in Scoping Plan that Involve CIWMB

- Glass manufacturing
- High GWP foams & insulation
- Green Building
- Water efficiency programs
- Tire inflation & fuel-efficient tire standards
- Local government programs – transportation, energy, waste/recycling, water use
- Climate change curriculum for K-12 as part of Education & Environment Initiative

Next Steps

ARB

- November 2008 – ARB Board considers Scoping Plan (must be adopted by December 31, 2008)

CIWMB

- Complete LCA & Economic Analysis of Organic Management Options
- Complete Economics Study for Commercial Recycling
- Continue participation on CAT Subgroups
- Implementation of proposed measures

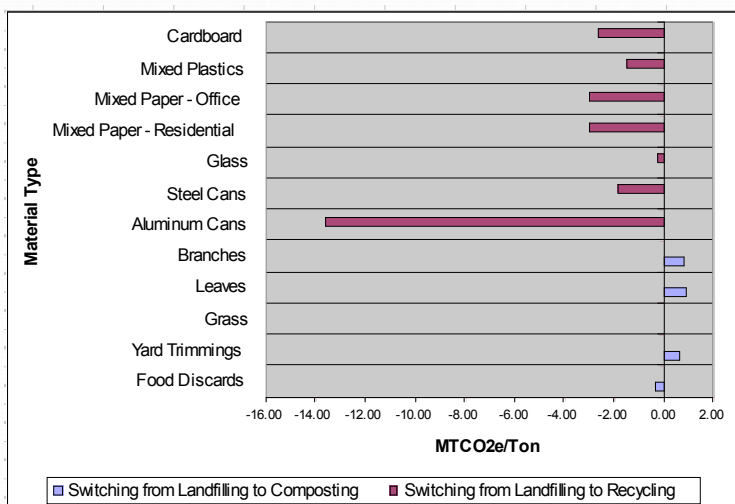
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zero waste
CALIFORNIA
INTEGRATED WASTE MANAGEMENT BOARD



www.ciwmb.ca.gov

Net Changes in GHG emissions when changing from Landfilling to Recycling or Composting (MTCO₂E/Ton)



Solid Waste Management and Greenhouse Gases: A life Cycle Assessment of Emissions and Sinks