



# Greenhouse Gas and Climate Change Impact Analysis



Sacramento Metropolitan Air Quality Management  
District Workshop  
April 20, 2009  
9 AM- 4 PM



## Unit 5a Thresholds of Significance

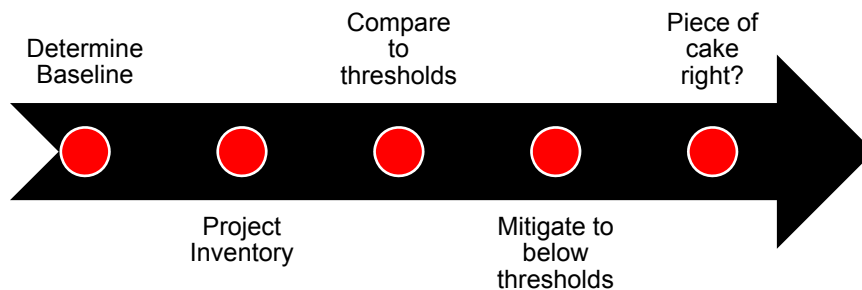
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ICF Jones & Stokes

Presented at the SMAQMD Climate Change Workshop  
April 20, 2009

## Unit 5a – “Thresholds of Significance”

- Why are “thresholds” important?
- CAPCOA report and approaches
- CARB thresholds framework
- SCAQMD thresholds framework

## Climate Change CEQA Impact Analysis



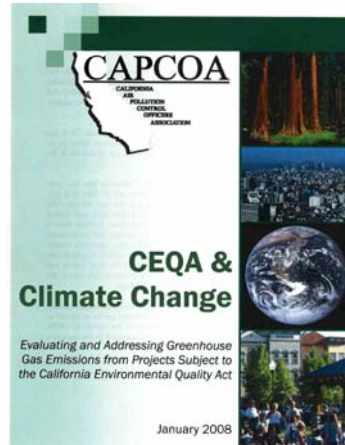
## Thresholds

- Significance Thresholds
  - CEQA not mentioned in AB 32
  - OPR guidelines proposed April 2009
    - But no thresholds proposed....
  - Different concepts exist
  - Importance of cumulative context

## Significance Threshold Jeopardy

What will the state do?	What will new development need to do?	What about newly developed communities?
How to avoid de minimus arguments?	How to support "positive" action?	How to avoid inefficiency?
How to avoid ineffective action?	What about Negative Declarations?	What about Categorical Exemptions?

## California Air Pollution Control Officers Association (CAPCOA) CEQA and Climate Change



## Potential Thresholds

### Zero

- Zero emissions above baseline

### Quantitative

- Mass emissions
- Percentage reduction
- Sectoral

### Qualitative

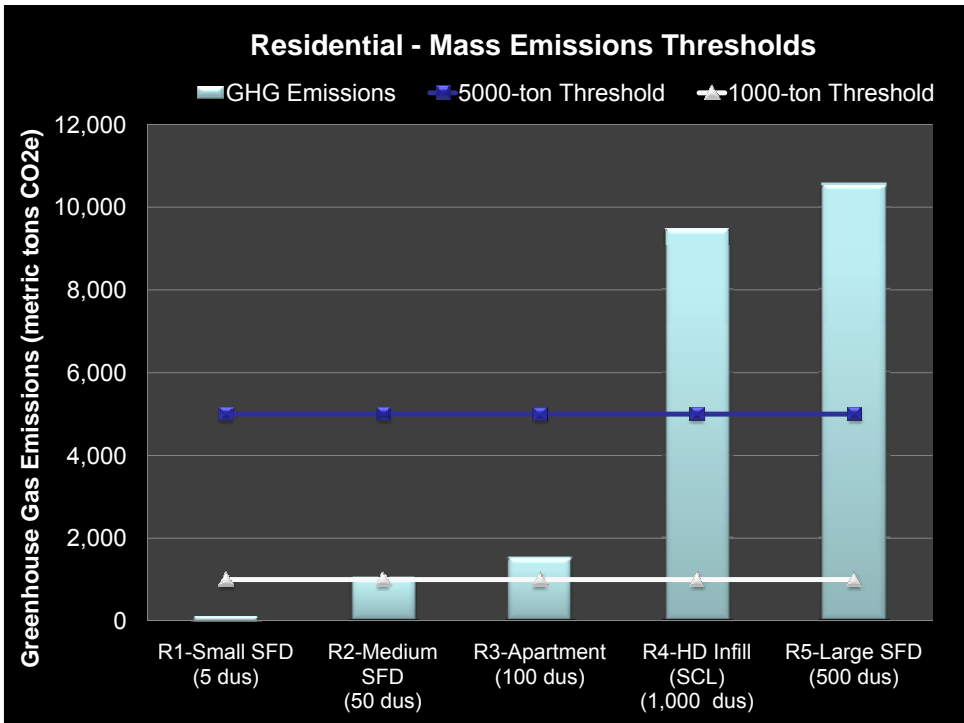
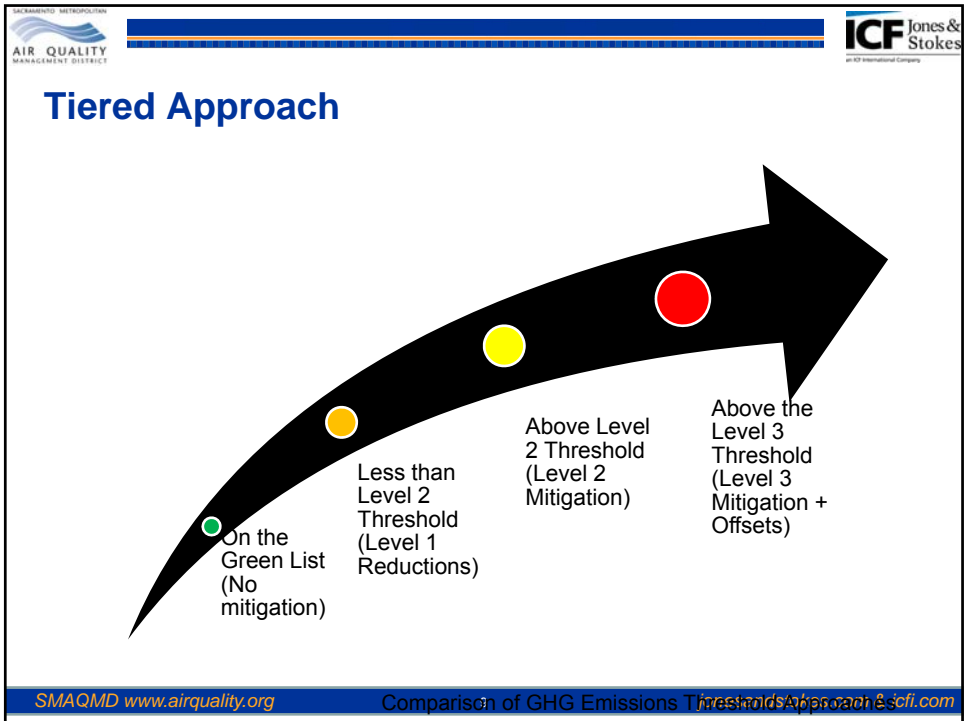
- Units (Trips, etc.)
- VMT

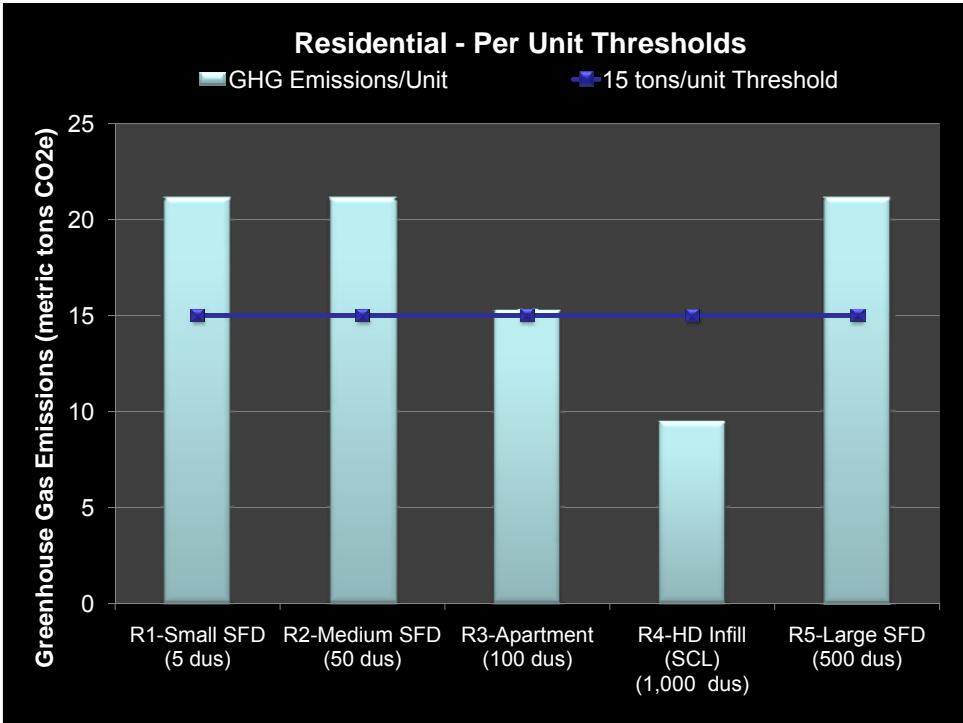
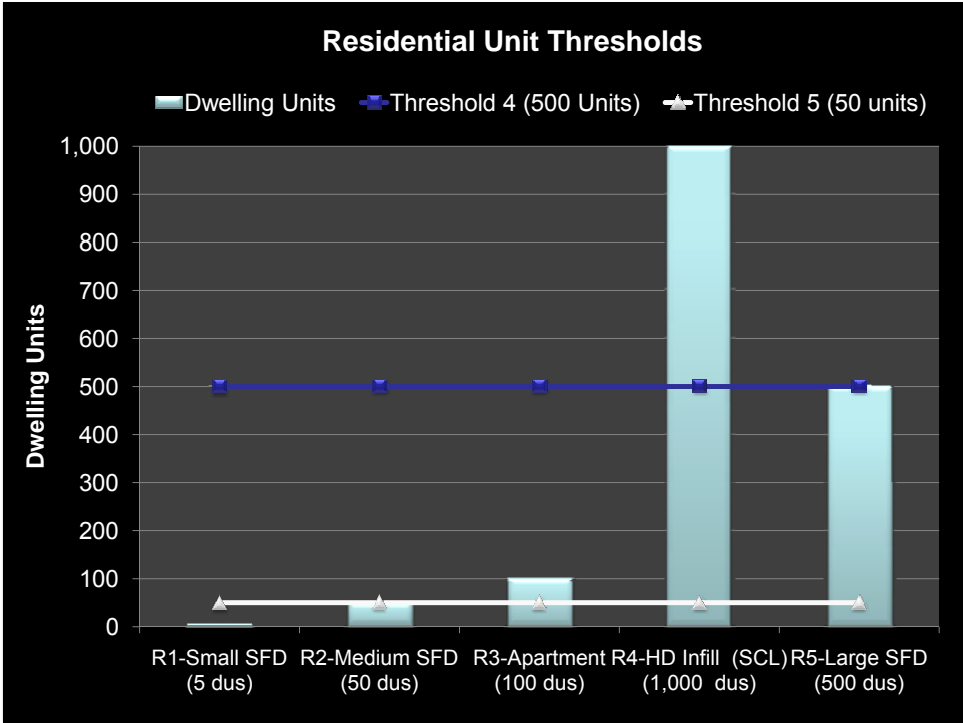
### Efficiency-Based

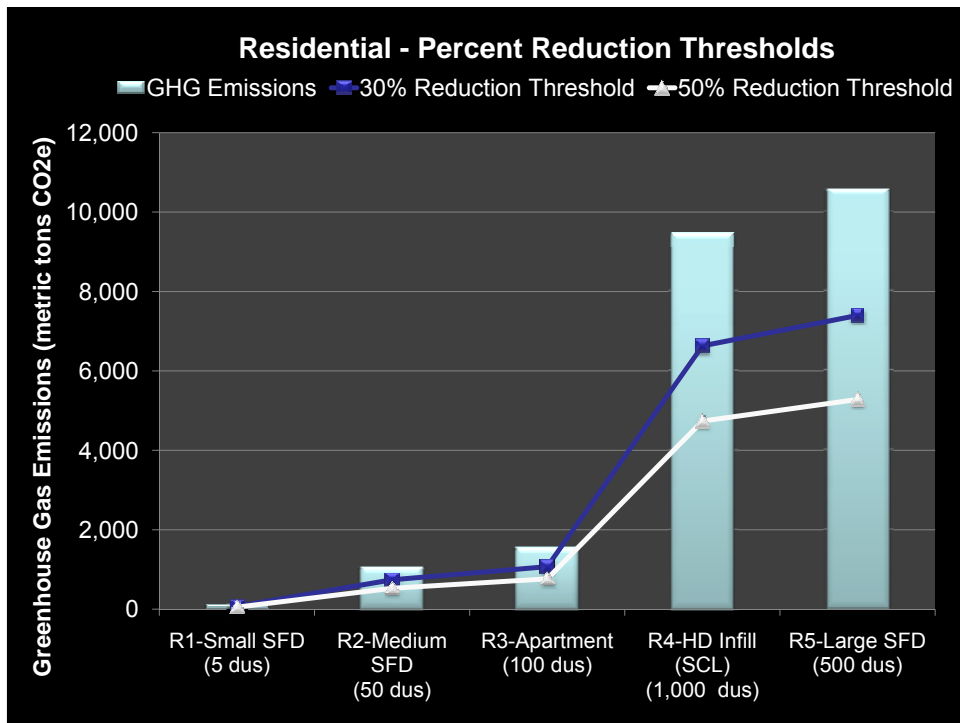
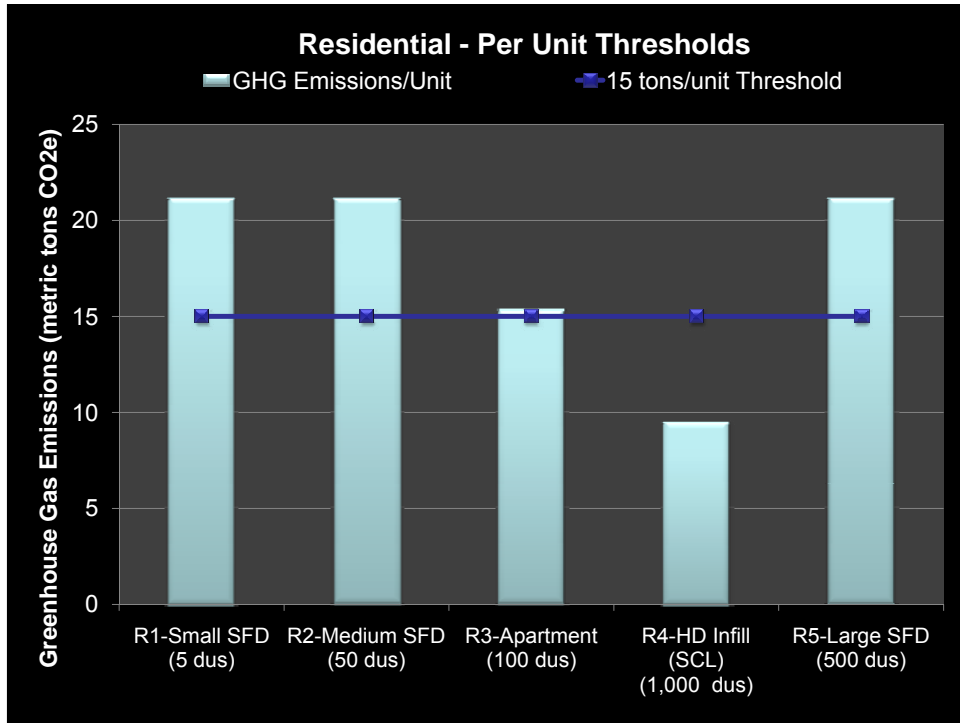
- Emissions/capita
- Emissions/unit
- Emissions/job or \$GSP

### Greenlist

- Example: Extending transit to existing developed areas; park & ride; Bicycle, pedestrian, or zero emission transportation infrastructure.







## CARB Draft Threshold

- Tiered/Hybrid Approach
- Compliance with reduction plan
- Compliance with Performance Standards
  - Construction
    - Alternative transportation
    - Recycle and salvage 75% of material
    - Use 20% recycled material
  - Energy – 30% better than BAU
  - Water
    - Indoor use 20 % better than CA Green Bldg. Code
    - Outdoor use 50% better than CA Green Bldg. Code

## CARB Draft Threshold

- Performance Standards (Cont.)
  - Waste
    - fully use local recycling and composting programs
  - Transportation
    - Residential - 14,000 VMT/household
    - Commercial – proximity and design
      - ½ mile of residential zone with at least 10 du/acre
      - ½ mile of at least 10 neighborhood services with pedestrian access
      - Transportation demand management for employee trip reduction by 20%
- Compliance with Quantitative Limit (“X”)

## SCAQMD Threshold Framework

- SCAQMD Threshold
  - Tiered/hybrid approach
  - Tier 1 - Exemptions (including SB 97)
  - Tier 2 - Consistency with GHG reduction plan
  - Tier 3 – Quantitative threshold
    - Industrial threshold – 10,000 tons
    - Residential/commercial – TBD
  - Tier 4 – Performance standards (not yet adopted)
  - Tier 5 – Mitigation/offsets

## Unit 5b –Mitigation for GHG Impacts

- Regional Plans and General Plans
- Climate Action Plans
- Project level mitigation

## So...what do we do about it?

- Address on the largest scale feasible
  - Regional Transportation Plans
  - General Plans
  - Specific Plans
  - ...and then at the project level!
- Planning determines GHG emissions profile:
  - Vehicles, residences, industry, commerce
  - Land use patterns
  - Urban design

## Regional Plans and General Plans

- Regional Plan: potentially an effective way to address CC (SB 375 approach)
  - Allows development of regional approaches; shared solutions; EIR for regional tiering
  - But we've never done this kind of plan; may take years to adopt; implementation/effectiveness unknown
- General plan: Can offer policies; promote better land use patterns
  - General plan must go through the CEQA process, consider cumulative impacts
  - GP EIR can offer point for tiering later actions (Guidelines Section 15183)
  - GP sets stage for local "Climate Action Plan"

## General Plans

- Incorporate in Routine Elements
  - Land use Element
  - Circulation Element
  - Safety Element (Adaptation)
  - Conservation Element
- Or Design New Elements...
  - Climate Change Element?
  - Sustainability Element?
  - Land Use AND Circulation Element?
- Forthcoming CAPCOA Guidance
  - Integrating Climate Change into General Plans

## Climate Action Plans

- Inventory of jurisdiction's emissions and projected emissions
- Evaluation of regional role
- Realistic reduction goals/AB 32
- Specific policies and programs
  - Green Building Ordinance
  - Municipal operations (fleets)
  - Investment in public/alternative transportation
  - Criteria for land use project approvals
  - Renewable energy portfolio standards
  - Advanced Recycling

## Energy Efficiency Programs

- Austin, TX Energy Green Building Program:
  - Comprehensive program designed to encourage using sustainable building techniques
- City of Seattle, WA Green Building Program
  - Customized tools and assistance to incorporate green building techniques
- San Francisco, CA
  - Incentives , direct installation and technical assistance; expand education and outreach and strengthened codes. Estimated CO2 reduction of 801,000 tons annually.
- City of Boulder, CO Greenhouse Tax
  - Based on electrical usage. Fund implements Greenhouse Gas reduction programs.

## Renewable Energy: Examples

- California Million Solar Roofs Program
- California Solar Water Heater Program
- Residential Solar - Berkeley, CA
  - New tax district to finance solar energy systems through property taxes.
  - City provides money for installation and material costs, homeowners pay back at a fixed rate over 20 years.
  - Residents pay about \$180 a month through property tax bills for a typical \$22,000 solar-electric system.
- Fontana SCE Project

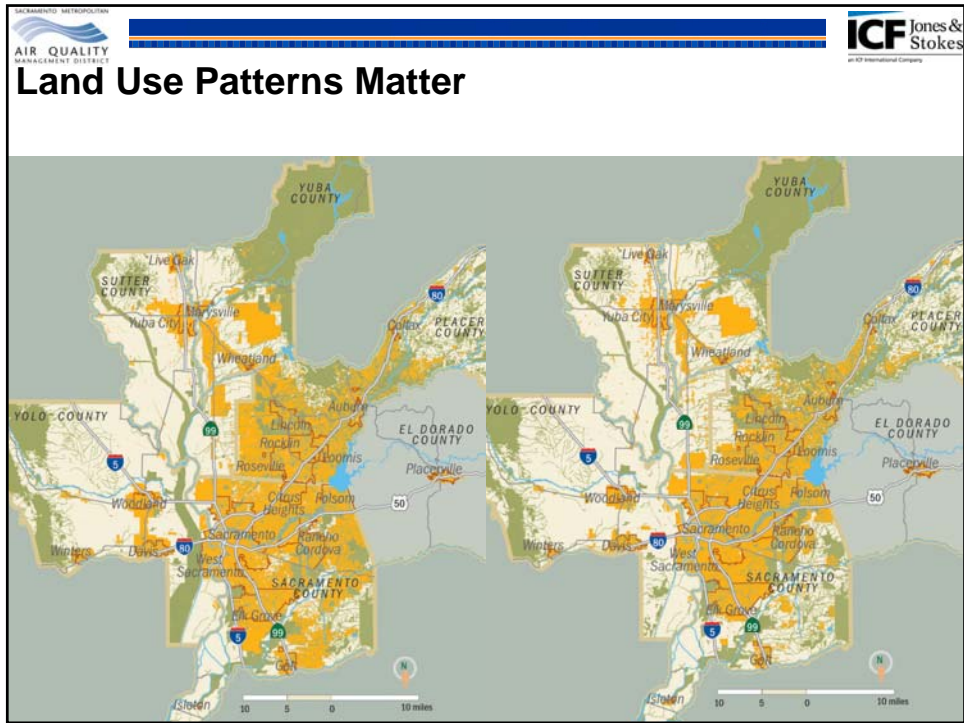
## Land Use and Transportation

- Promote high density and in-fill development through zoning regulations
- Provide incentives and bonuses for development in downtown areas and near public transit
- Link transportation and land use policies



## Land Use and Transportation

- *“Reduction of emissions from cars depends on a three-legged stool: improved vehicle efficiency, cleaner fuels, and a reduction in driving”* (Reid Ewing, Research Professor “Growing Cooler: The Evidence on Urban Development and Climate Change” at the National Center for Smart Growth, University of Maryland, The Urban Land Institute, 2007 )
- Local and Regional Governments are the key to VMT reduction
- VMT Reductions will not be easy but are a key long-term reduction strategy



**Land Use Patterns Matter**

- **Sacramento Blueprint Scorecard in 2050**  
 (Base Case vs. Blueprint)
  - **Transportation Modes**

Auto:	92% vs. 84%
Transit:	1% vs. 3%
Walk or bike:	7% vs. 13%
VMT/household/day:	47 miles vs. 35 miles
Household Daily Travel:	91 minutes vs. 67 minutes
  - **Carbon Dioxide Emissions**  
 14% less with Blueprint
 

*Sacramento Area Council of Governments, Blueprint 2050*

SMAQMD [www.airquality.org](http://www.airquality.org)
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[jonesandstokes.com](http://jonesandstokes.com) & [icfi.com](http://icfi.com)

## Acting Specifically On Transportation

- Promote commute trip reduction
- Restrict idling at public facilities
- Improve traffic signal synchronization
- Bring car sharing programs to community
- Develop and implement bicycle and pedestrian infrastructure programs
- Plan for transit for the long run



## Acting Specifically On Transit

- Fast, frequent, and comfortable transit service will increase ridership, as will high parking charges and/or constrained parking supply.
- The availability of free or low-cost parking is a major deterrent to transit ridership.
- Successful ridership strategies include: TOD transit pass programs Parking reductions, and car-sharing programs.

*Effects of TOD on Housing Parking and Travel, Transit Cooperative Research Program, August 2008*

## Transportation - Examples

- Marin County
  - Safe Routes to Schools Promotes walking and biking to schools; reduced single student car trips by 13 %, saving over 4,250 one-way trips/day.
- Burlington
  - 15 transportation strategies could reduce VMT by 17 million to 30 million depending on aggressiveness.
- San Francisco
  - 6 transportation strategies (increase transit, increase ridesharing, bicycling and walking, employer base trip reduction, discourage driving, increase clean air vehicles): Annual CO2 reduction 963,000 tons.

## Water Measures

- Water sector is the largest user of energy in the state
  - 19% of all electricity consumed in the state
  - 30% of nonpower plant–related natural gas use.
  - Southern California = 2 to 3 times Northern California average water-energy use ( per gallon water delivered – difference is all in transport of water).
- Water Measures for GHG Reductions
  - Water Conservation
  - Water Recycling
  - Water Quality Protection = More Local Water Supply

## Urban Forestry

- US Forest Service:
  - Trees properly planted around buildings can reduce air conditioning needs by 30% and save 20 – 50% in energy used for heating
- Los Angeles:
  - Million Tree initiative (see <http://www.treesearch.fs.fed.us/pubs/29402>)
  - 764,000 to 1.27 million tons over 35 years
  - 22,000 to 36,000 tons annually
- San Diego:
  - Plant 5,000 shade trees annually for 20 years to reduce urban heat island effect
- Seattle:
  - Restore 2,500 acres of forested city park lands by 2025 and add 649,000 trees citywide over 30 years.



## Waste Reduction

- Establish/expand recycling programs
- Public outreach to increase effectiveness of existing programs
- Develop/implement solid waste reduction programs



## Offsets and Other Mechanisms

- Offsets
  - Implement off-site project to reduce emissions elsewhere such as:
    - Reforestation in deforested areas
    - Methane gas digesters for farming (natural gas from...natural gas)
    - Retrofits of existing homes
  - “Additionality” – e.g., it would not happen without the additional funding
  - Question of location
    - In California?
    - In United States?
    - Global?
  - Environmental Justice Concerns

## Offsets and Other Mechanisms

- Carbon Impact Fees
  - Could be used for local projects that reduce existing emissions
  - Could be pooled regionally or state-wide to implement reduction efforts
  - Could have a combined fee and rebate program (“feebate”) based on GHG efficiency
- Carbon Banks
  - Garcia River Forest
    - <http://www.conservationfund.org/west/california/garcia>
  - Lompico Forest Carbon Project
    - <http://www.sempervirens.org/lompicocarbonproject.htm>
  - Vintage Dairy
    - <http://www.allbioenergy.com/>
  - Others:
    - <http://www.climateregistry.org/reserve.html>

## Project Mitigation

- Applying all the strategies just discussed
  - Energy
    - How can the project use energy efficiently?
    - How can the project use renewable energy?
  - Transportation and Land Use
    - How can the project reduce VMT?
  - Water
    - How can the project lower water use?
  - Waste
    - How can the project minimize waste?
  - Urban and rural forestry
    - How can the project preserve existing forests/trees?
    - How can the project increase forests/trees?
  - Offsets

## Resources for Mitigation Measures

- ICLEI, [www.iclei.org](http://www.iclei.org)
- LEED Building Standards
- Institute for Local Government, [www.ca-ilg.org](http://www.ca-ilg.org)
- CAPCOA, CEQA and Climate Change, <http://www.capcoa.org/index.php>
- Climate Action Team Report (March 2006)
- CA Caltrans Climate Action Program
- Attorney General List of Mitigation Measures (see <http://ag.ca.gov/globalwarming/>)
- SMAQMD- list of measures

## SMAQMD Contact Information

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