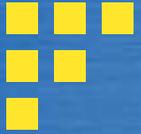


Energy Aware Planning Guide Workshop

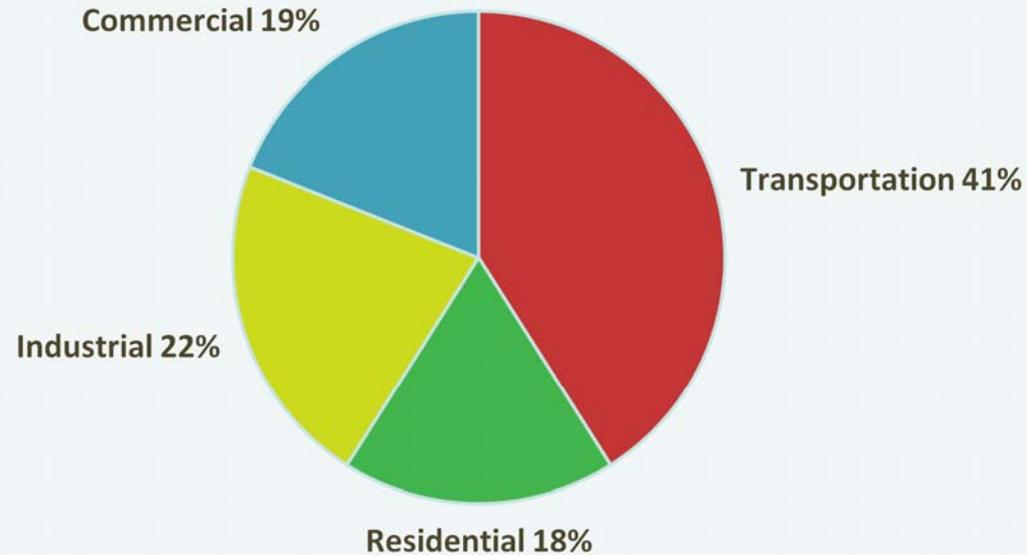
Reducing Energy Use
through Building, Water and
Community Strategies

Patrick Stoner
Local Government Commission



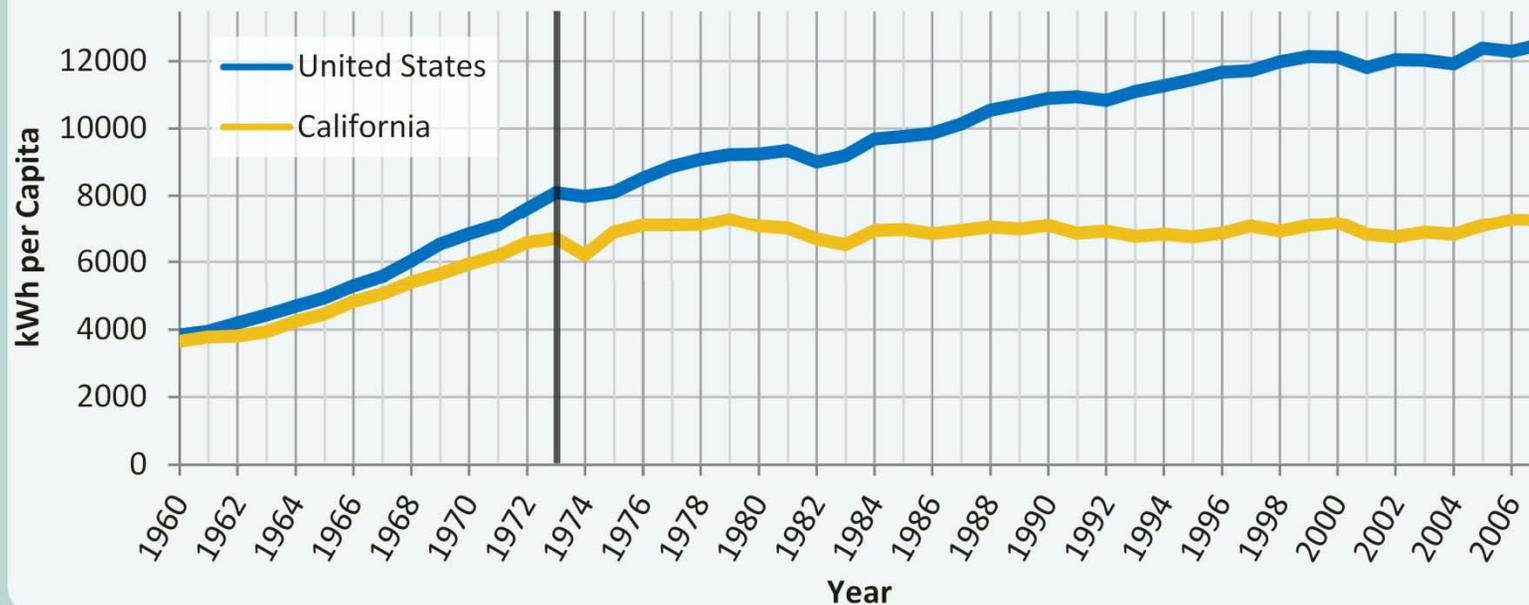
Buildings Background

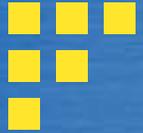
Energy Use by Sector - 2006



Per Capita Electricity Use

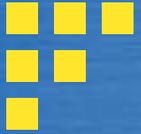
California Holds the Line on Electricity Consumption





New Buildings

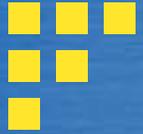
- California's Title 24 Building & Appliance Standards
- CA Long Term Energy Efficiency Strategic Plan
 1. All new residential construction in California will be zero net energy by 2020;
 2. All new commercial construction in California will be zero net energy by 2030; and
 3. The Heating, Ventilation, and Air Conditioning (HVAC) industry will be reshaped to ensure optimal equipment performance.



Existing Commercial Buildings

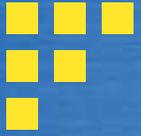
- All business types - lighting, heating, ventilation, cooling
- Grocery stores - lighting, refrigeration
- Restaurants - refrigeration units, dish washing machinery, sprayers, cooking
- Retro-commissioning





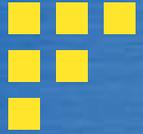
Existing Homes





Lighting

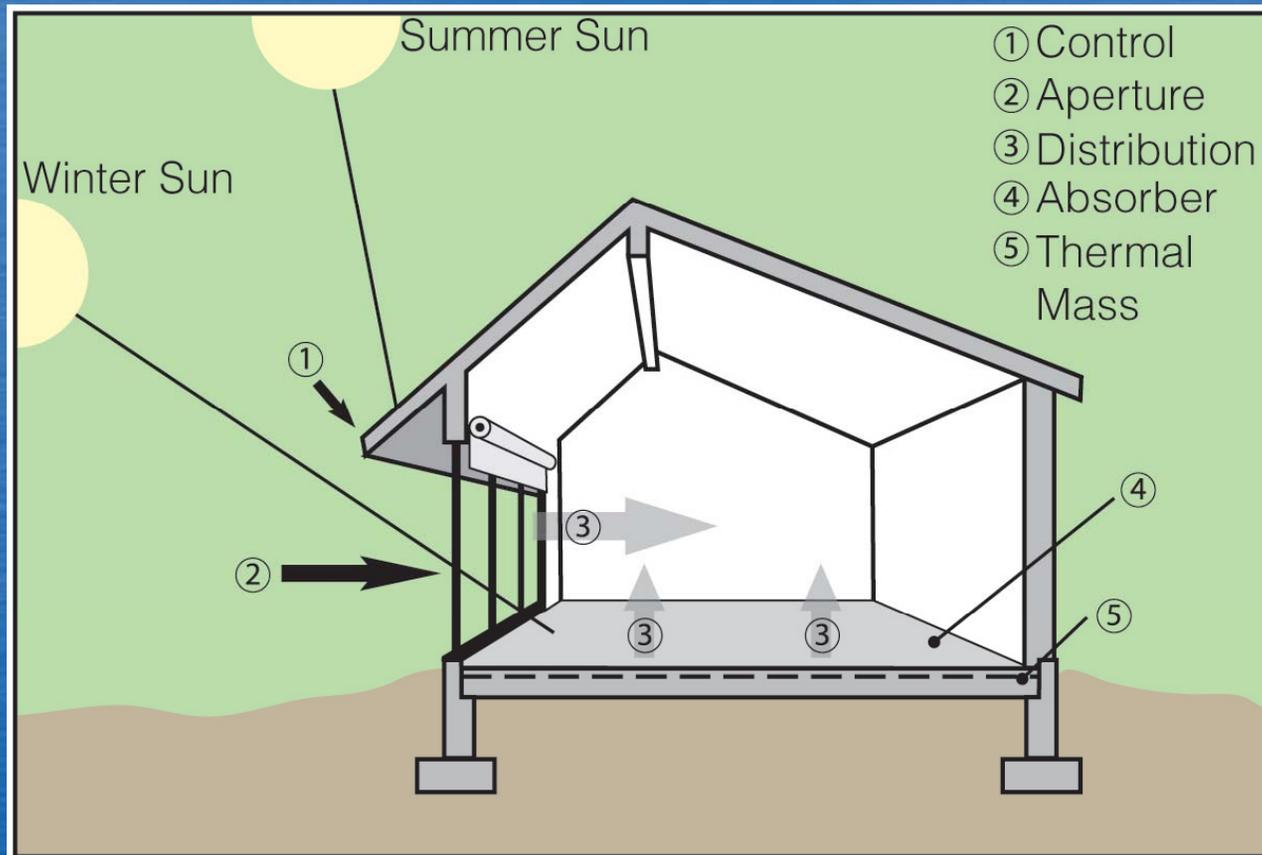


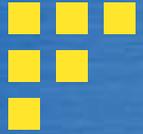


Shade Trees



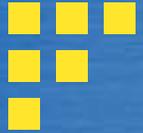
Passive Solar





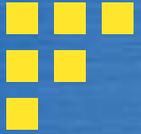
Active Solar Systems





Local Government Actions

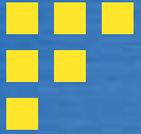
- Code Enforcement
- Reach Code Adoption
- Commercial (Residential) Energy Conservation Ordinances
- Incentive programs (expedited permitting, reduced permit fees, density bonuses)
- Utility partnerships & programs
- Energy financing districts



Water Background



- Largest energy use in CA
- 66% of urban water goes to residences, over 50% of that is for landscaping, much of the remainder is heated for washing dishes, clothes, bodies
- Conservation is cheapest, most available supply

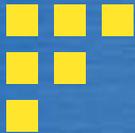


Water & Community Design



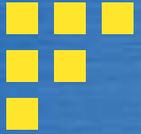
Compact
development
requires less
infrastructure and
energy to deliver
water





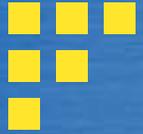
Density & Runoff

Scenario A	Scenario B	Scenario C
		
Impervious cover = 20% Runoff/acre = 18,700 ft ³ /yr Runoff/unit = 18,700 ft ³ /yr	Impervious cover = 38% Runoff/acre = 24,800 ft ³ /yr Runoff/unit = 6,200 ft ³ /yr	Impervious cover = 65% Runoff/acre = 39,600 ft ³ /yr Runoff/unit = 4,950 ft ³ /yr



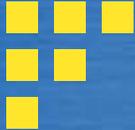
Stormwater Strategies





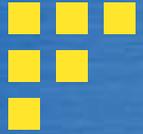
Conservation





Water Reuse & Recycling

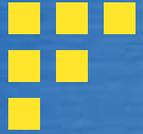




Wastewater Strategies

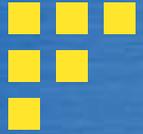
- Wastewater treatment is major energy user
- More efficient motors and drives
- Methane capture for generation
- Water conservation





Local Government Actions

- Conservation first
- Land Use - Water quality/supply connection
- Water recycling
- Dual plumbing for water reuse



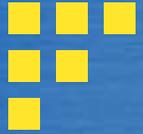
Community Strategies

- Municipal Operations
- Energy Offices
- Distributed Generation
- Cool Communities
- Local Food
- Solid Waste

Municipal Operations

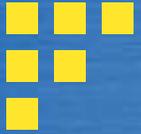
- New green construction
- Municipal facilities retrofit
- Green fleets
- Green procurement





Energy Offices

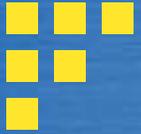
- Regional Energy Offices
 - California Center for Sustainable Energy
 - Redwood Coast Energy Authority
 - Ventura County Regional Energy Alliance
- Community Choice Aggregation



Energy Financing Districts

- Solar Santa Monica
- Berkeley FIRST
- AB 811 Programs

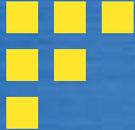




Cool Communities



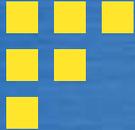
- Cool Roofs
- Other reflective surfaces/pavement
- Narrow, tree-lined streets



Distributed & Renewable Generation



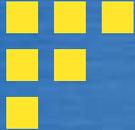
- Avoid transmission & distribution costs
- Reduce congestion on grid - risk of blackouts due to overloading
- Use resources that would otherwise be lost or become liabilities



Local Food

- Farmers markets
- Community gardens
- Community supported agriculture
- Farm to schools programs

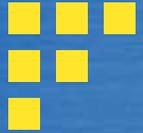




Solid Waste Reduction

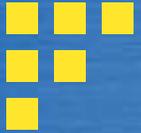


- Reduce
- Reuse
- Recycle



Local Government Actions

- Reduce energy consumption in municipal facilities first
- Consider setting up an energy office
- Encourage distributed, renewable energy in municipal facilities and community-wide
- Encourage local food activities



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