

MEETING THE SUSTAINABILITY CHALLENGE

Lessons Learned at the
2007 Idaho Energy and Green Building
Conference

Climate Protection Committee Annual Report

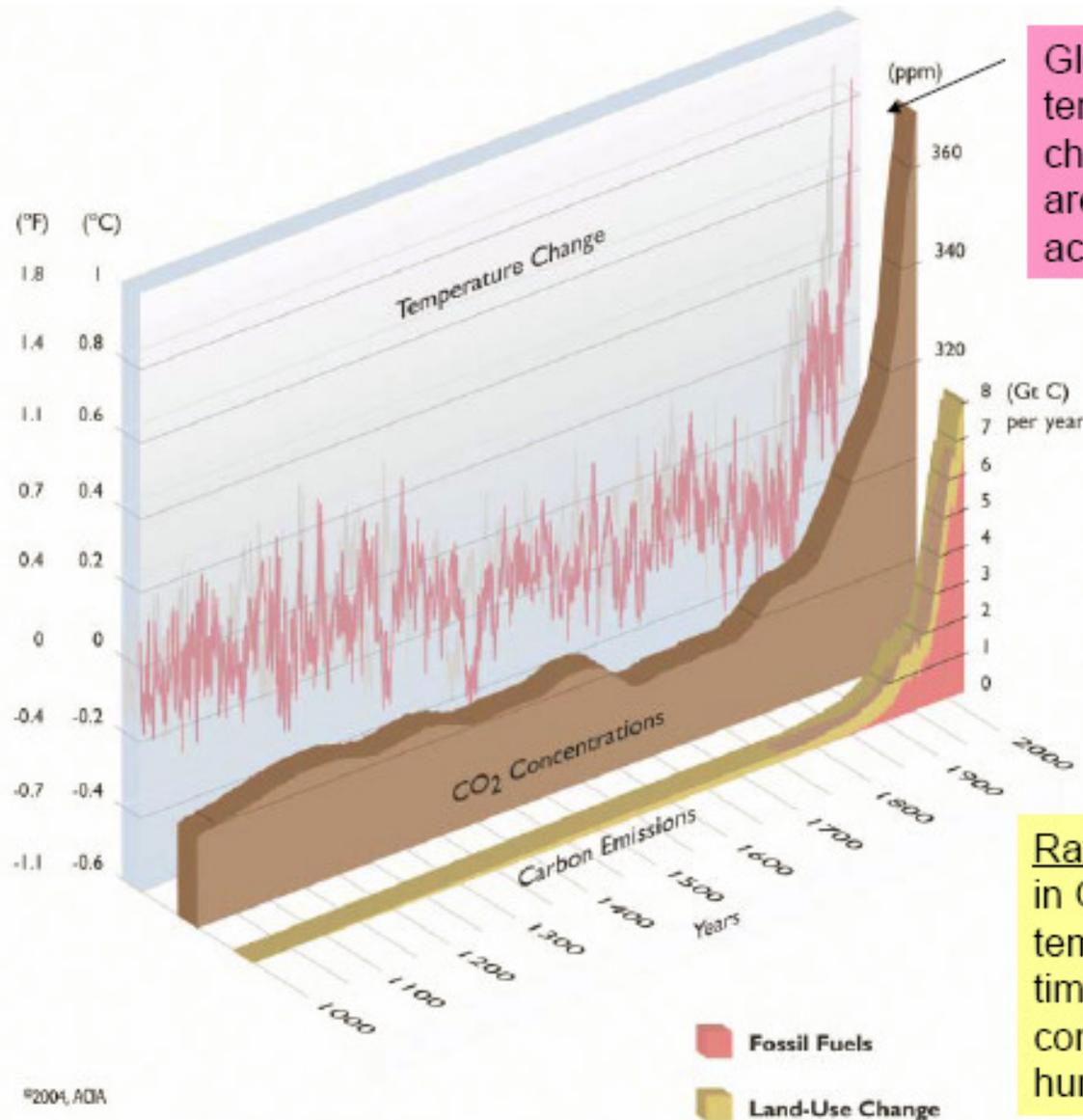


Overview

- The science of global warming and climate change
- Impacts of climate change
- Responding to climate change
- Planning for climate change
- Climate Protection Committee Annual Report
- Building Energy Consumption
- What Can Hailey Do?



CO2 & Temperature Change



Global average temperature change – what are patterns across globe (?)

Rate of change in GHG and temperature over time was key to conclusions about human impacts

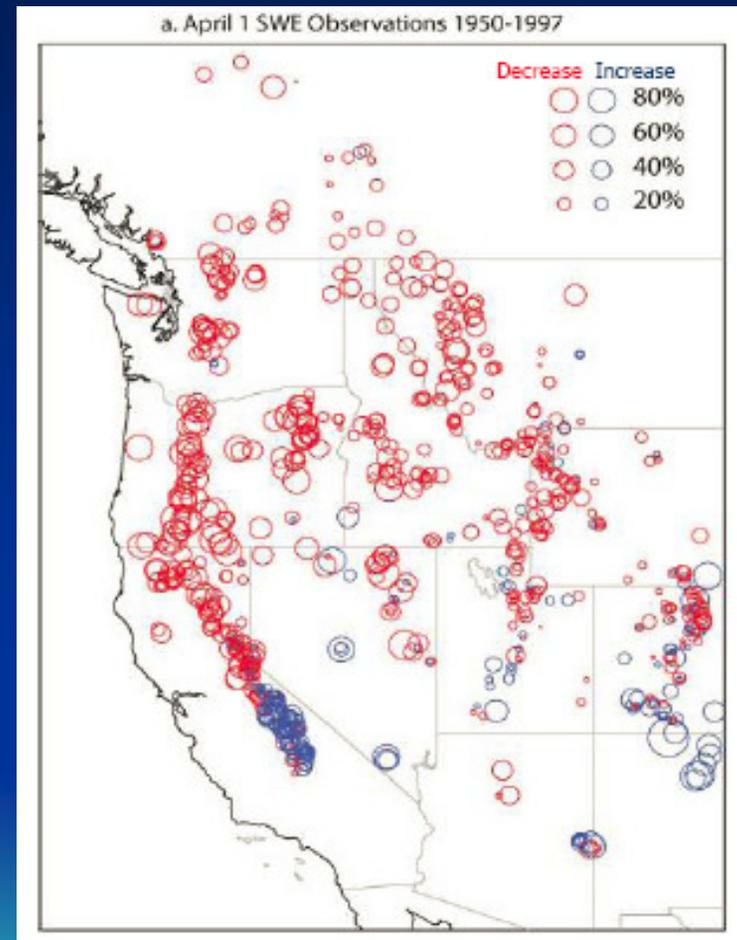
Who Evaluates and Reports Climate Science?

- International Panel of Climate Change (IPCC)
 - International body of climate scientists, commissioned by the U.N.
 - Issue “Assessment Reports” approx every 5-6 years (1996, 2001, 2007) <http://www.ipcc.ch>
- 2001 report stated unequivocally:
 - INFLUENCE OF HUMAN ACTIVITIES NOW EVIDENT
 - RATES OF CHANGE ARE TOO FAST TO BE “JUST” NATURAL CYCLES



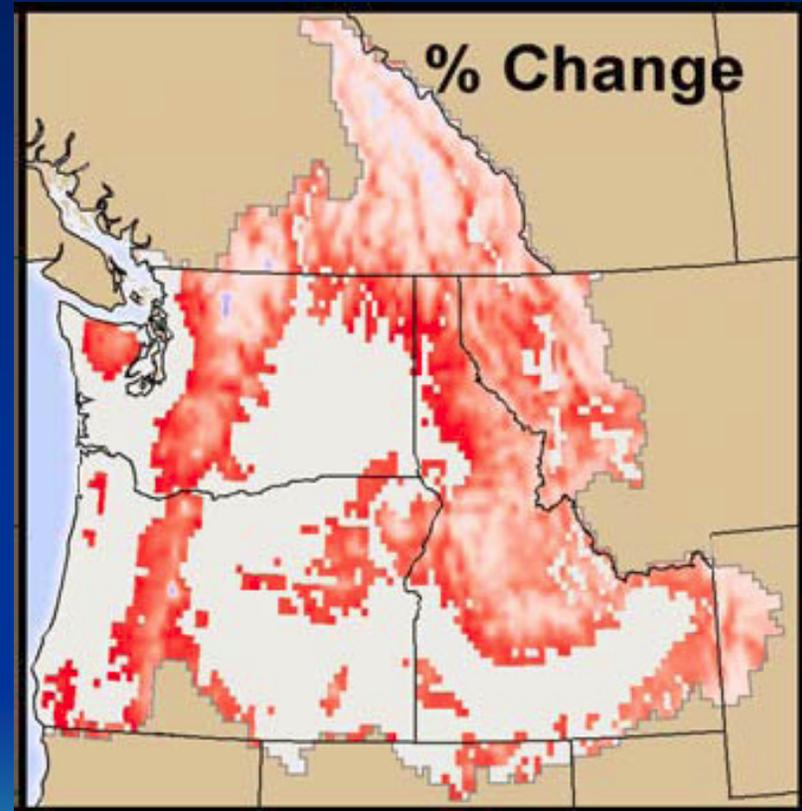
Trends in Snow Water Equivalent

- Most PNW stations show a decline in snow water equivalent
- Western United States - 73% of stations show a decline in April 1 snow water equivalent
- Idaho - numerous sites show declines of 30% to 45%



Lower Spring Snowpack

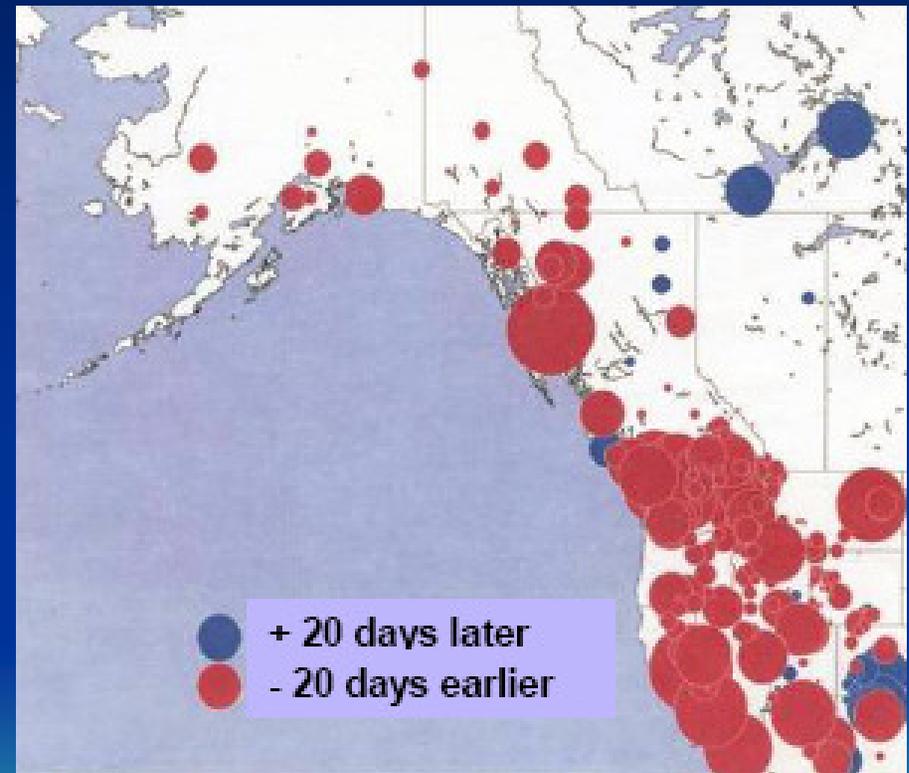
- Spring snowpack is projected to decline as more winter precipitation falls as rain rather than snow, *especially in warmer mid-elevation basins*
- Snowpack will melt earlier with warmer spring temperatures



Trends in Spring Runoff

Peak of spring runoff is moving earlier into the spring throughout western US and Canada

- *Advances of 10-30 days between 1948-2000*
- *Greatest trends in PNW, Canada, and AK*
- *>30% of trends are statistically significant at the 90% level, especially in the PNW*



Resulting Shifts in Streamflow

- More winter rain → **higher winter streamflows**
- Warmer temperatures → **earlier snowmelt** and a **shift in the timing of peak runoff**
- Lower winter snowpack → **lower spring and summer flows**



Flooding and Stormwater

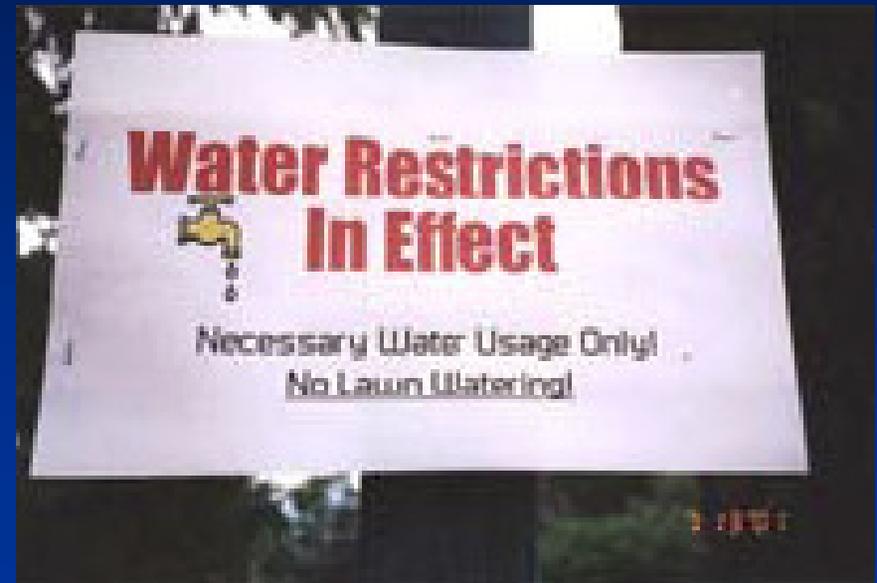
- General increase in risk of winter flooding and combined sewer overflows in low- and mid-elevation basins



Water Management

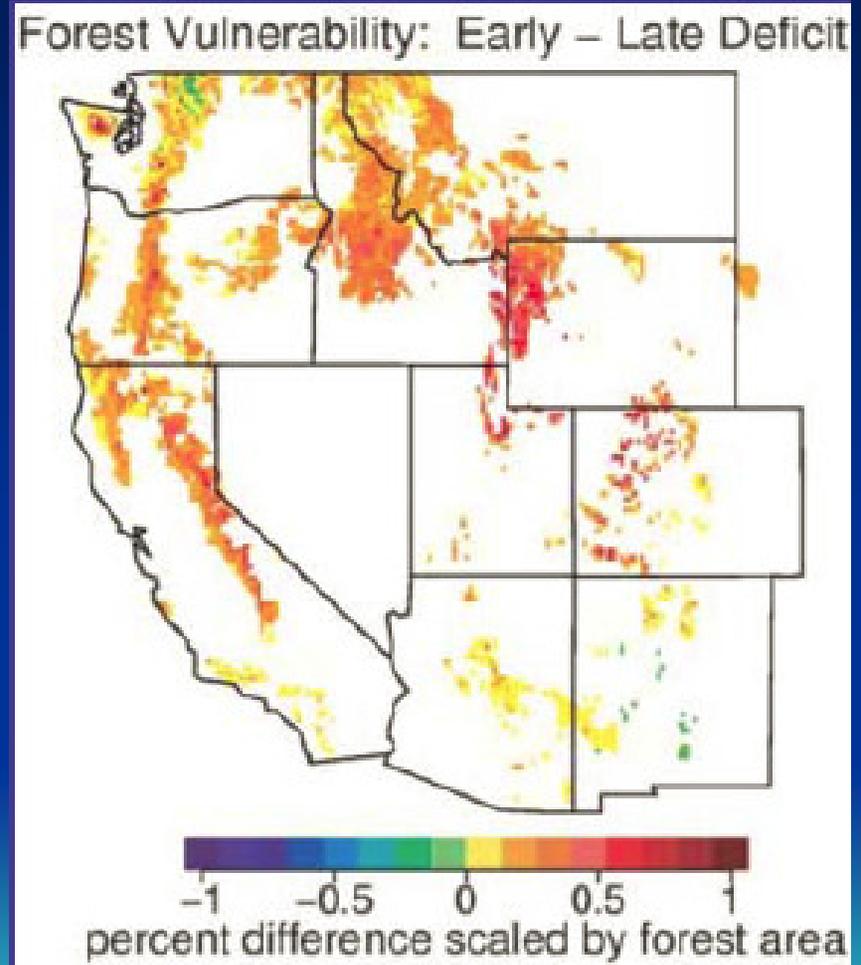
- Increased demand for water, habitat management, water quality management
- Water systems must manage the longer and more extreme drawdown periods than in the past

Bottom line: Increased competition for water and increased vulnerability to drought



Fire and Insects

- Increased vulnerability to fires and insect outbreaks due to a longer dry season (except in especially cool-wet locations)
- Northern Rockies particularly vulnerable to increased fire with projected climate change





Responding to Climate Change

Mitigation

Focus on reducing emissions of greenhouse gases.



Adaptation

Focus on developing the capacity to manage the change that occurs as mitigation strategies are debated and enacted.



Planning for Climate Change

- Collect and review basic information on climate change impacts to your region
- Build internal and external support for climate change preparedness
- Create your preparedness team
- Identify your community's vulnerabilities to climate change
- Develop and implement your preparedness plan
- Measure your progress and update your plan



Climate Protection Committee

Annual Review





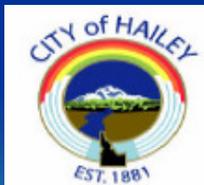
Frank
Church
Institute



OUR EARTH

Our Town, Our Future

December
2007
Issue No. 9



Climate Protection Plan





Climate Protection Committee

- ▶ Introduction
- ▶ Latest News
- ▶ U.S. Mayors Climate Protection Agreement

Committee Initiatives

- ▶ Proposed Issues
- ▶ Hailey's Climate Protection Plan
- ▶ Committee Initiatives

What Can You Do?

- ▶ Taking Action
- ▶ Carbon Footprint
- ▶ Idling Your Vehicle's Engine
- ▶ Wise Water Usage
- ▶ Small Steps To A Greener Winter
- ▶ Lights & Appliances

Our Earth Newsletter

[Home](#) > [Boards, Commissions & Committees](#) > Climate Protection Committee

Climate Protection Committee

▶ Introduction



On February 12, 2007, Mayor Susan McBryant and the Hailey City Council joined 496 U.S. mayors and cities in ratifying the U.S. Mayors Climate Protection Agreement. The agreement, modeled on the Kyoto Protocol, is a pledge to take local action in improving the quality of our air through the reduction of air and climate pollutants and to promote stronger federal policy and action. See a copy of the agreement [here](#).

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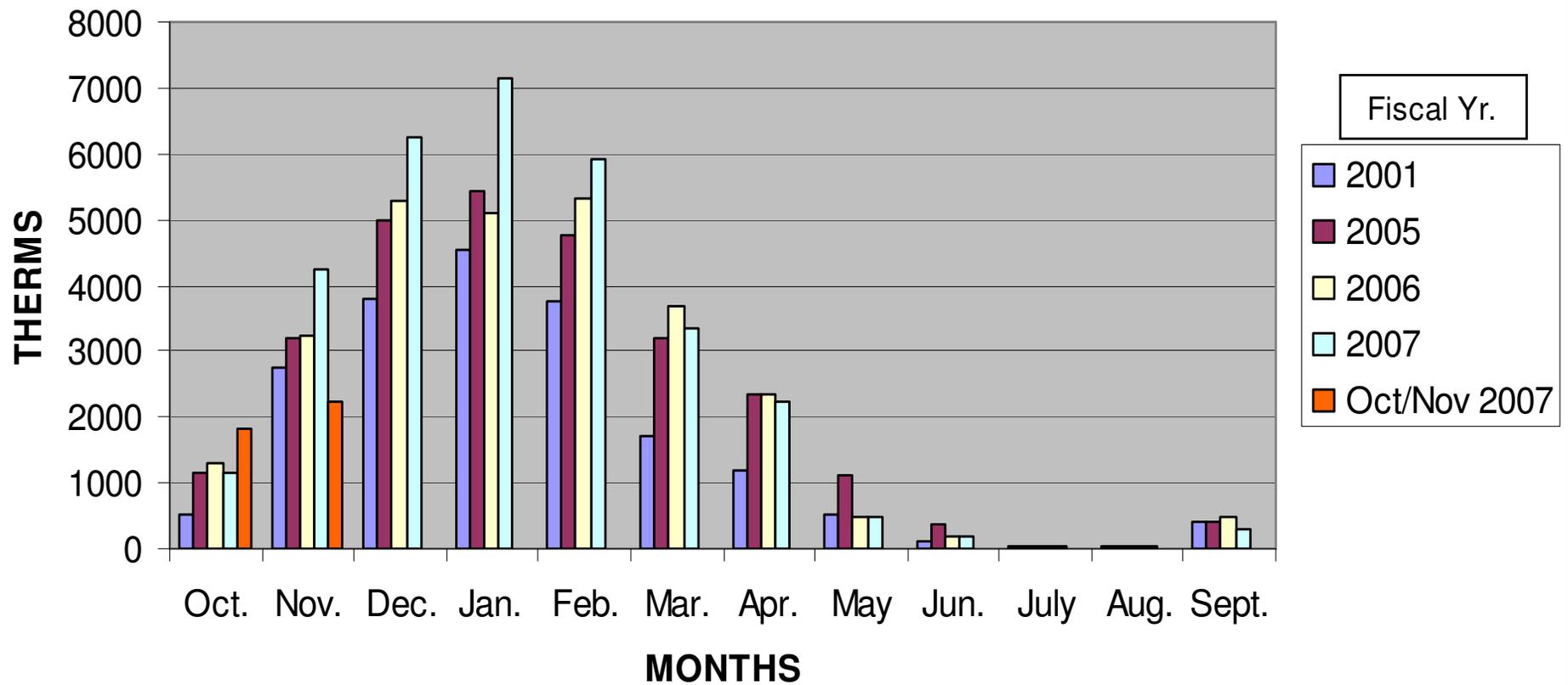
▶ Latest News

- [Climate Protection Efforts Achieve Positive First-Year Results](#)

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▶ Proposed Issues

CITY BUILDINGS NATURAL GAS USAGE

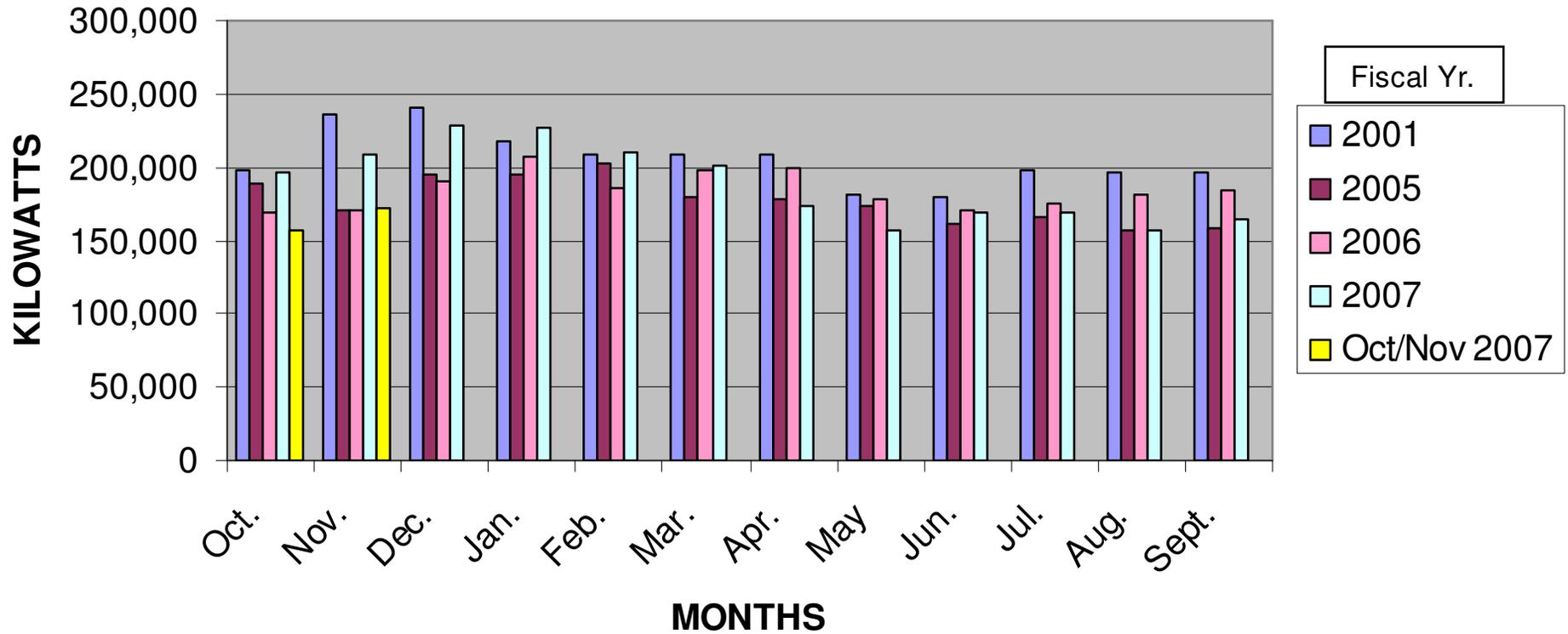


Kyoto Protocol 7% reduction from 1990 by 2012

Hailey's November 2007 gas use is 19% less than 2000



CITY BUILDINGS ELECTRICITY USAGE



Kyoto Protocol 7% reduction from 1990 by 2012

Hailey's November 2007 electricity use is 28% less than 2000



Great Things Hailey Does

Valley Leader in
Environmental and
Climate Sustainability



What we're doing right, right now.

Transportation

- Twin Falls van pool, city bus passes, bike to work
- Police acquisition of first hybrid vehicle
- No-idling campaign

Water

- Metering for all city residents and businesses
- Adoption of conservation-based water rates

Toxins

- No-toxin cleaners used
- Usage of low VOC and biodegradable paints



What we're doing right, *cont.*

Heating

- Digital thermostats
- Efficient dome heater installed at water treatment plant

Lighting

- Lighting retrofit
- New LED Christmas lights
- Dark Sky ordinance



City – Wide Transportation

- Safe Routes to School
- Community Smart Moves Challenge (May, June)
 - 100 Hailey residents participated
 - City of Hailey employees placed 2nd!
- 500 bus riders per month on free bus

1,000 lbs CO2 emissions per month eliminated!!!

Recycling Efforts

- City-wide curbside recycling since mid 1990s
- Used vehicle oil used as heating fuel at the county street shop
- Tires recycled through Les Schwab
- Office paper, cardboard, bottles and cans recycled

Recycled Content purchasing

- All office, towels and toilet paper is at least 30% recycled content
- Retread tires used where possible



Electronics Recycling

- Southern Idaho Solid Waste, as of November 1, 2007 recycles electronics at the Ohio Gulch Transfer Station
- City offices have diverted 256 pounds of lead from the landfill by recycling old computer equipment



CO2 Reduction in City Buildings

Reduction=Savings

- A **10%** reduction in kWats
- A **15%** reduction in therms

	Quantity Saved	Pounds of CO2 Reduced	Money Saved
Electricity	174,380 kWh saved	238,000	\$10,463
Natural Gas	1,960 Therms saved	236,000	\$1,960
CFL Bulbs	18 @ 100 lbs per year	1,800	\$596

Totals: 475,000 lbs \$13,019

Source: epa.gov calculator

Reduction measured from Mar through Nov '07 in comparison to Mar through Nov '06

First Year's Harvest

CO2 reduction

304.6 tons / 609,192 pounds

- Public Transportation
- City Facilities

An impressive start!



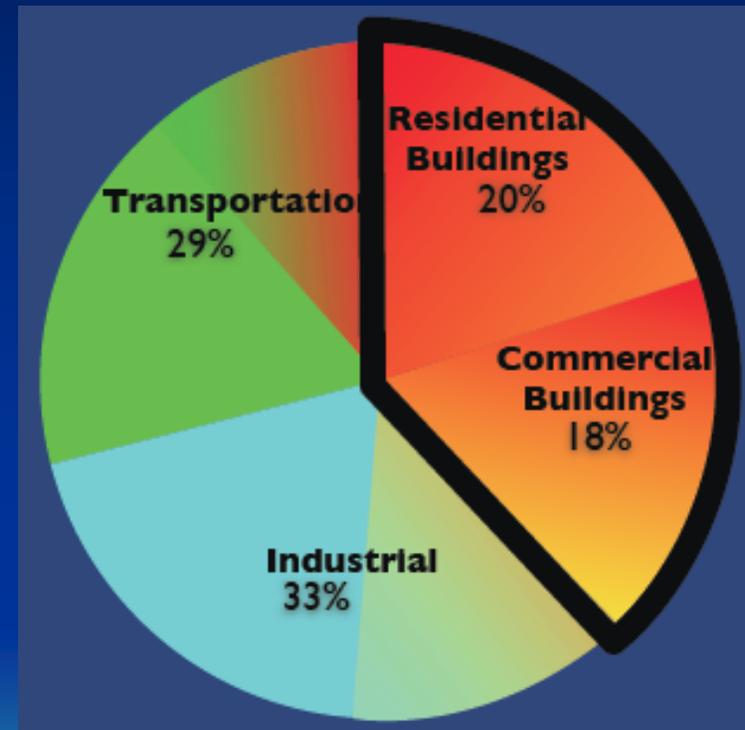
HAILEY
ENVIRONMENTAL
LEADERSHIP
PROGRAM

HELPING OUR EARTH
HELPING OUR COMMUNITY
HELPING OURSELVES



BUILDINGS

A Major Aspect
of Energy Use
and Global
Warming



U.S. Energy Consumption

General Implementation Tools

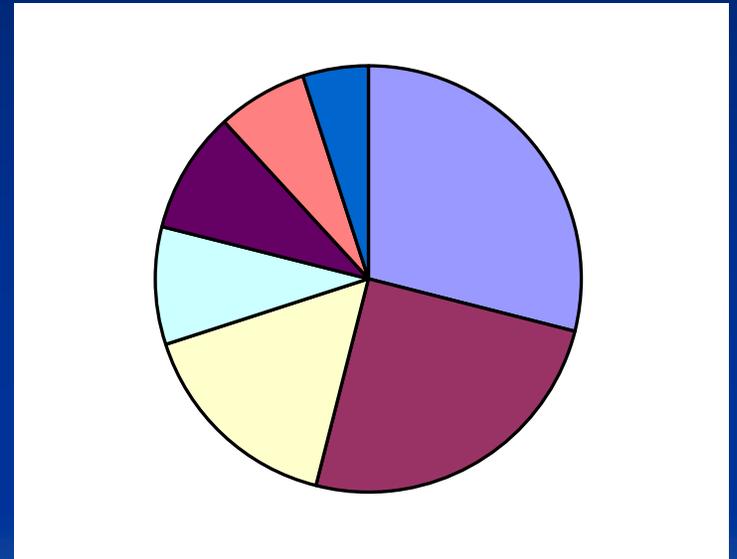
- Zoning rules and regulations
- Taxation (including tax incentives)
- Building codes/design standards
- Utility rates/fee setting
- Public safety rules and regulations
- Issuance of bonds
- Infrastructure development
- Permitting and enforcement
- Best management practices
- Outreach and education
- Emergency management powers
- Partnership building with other communities



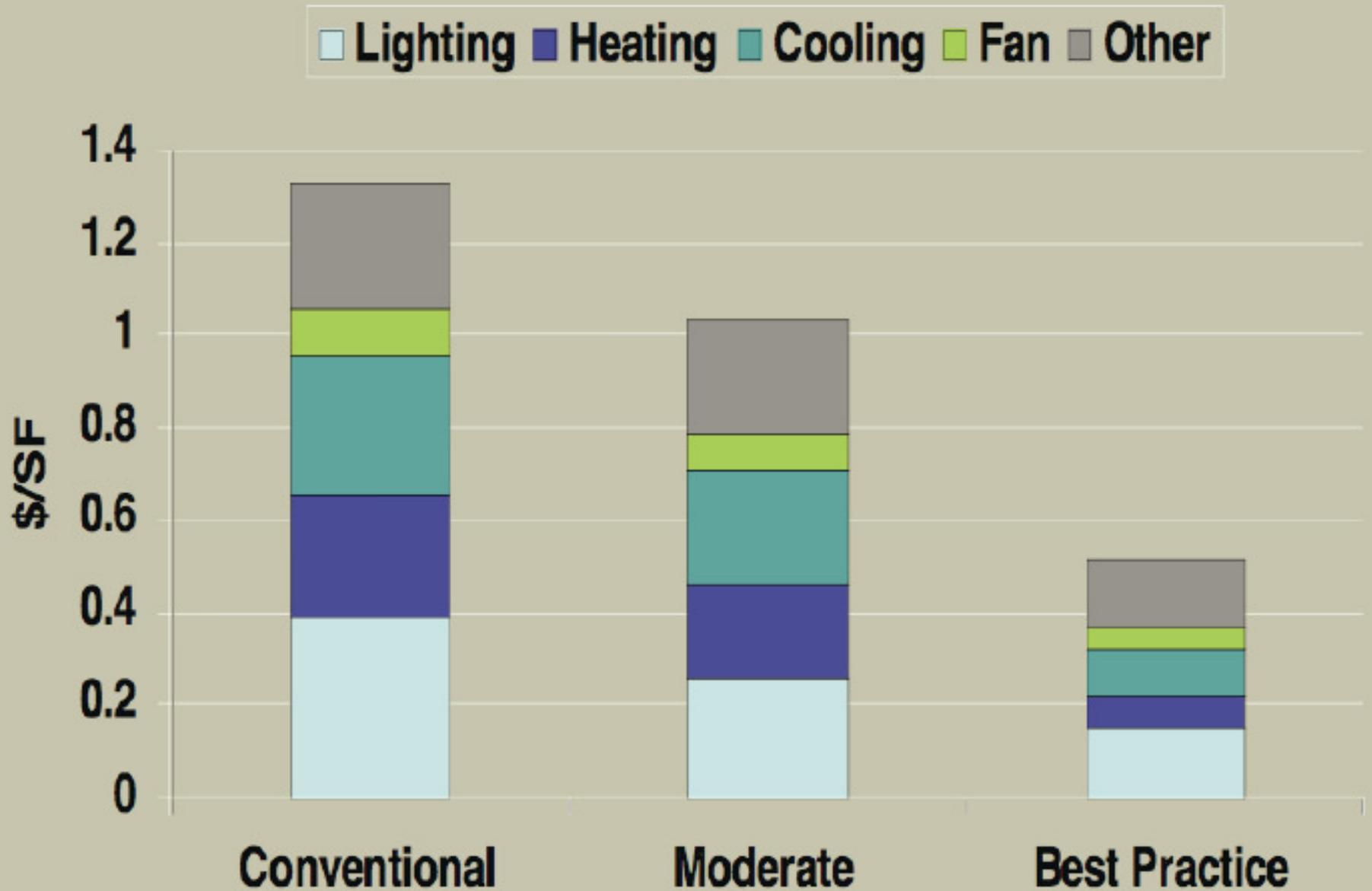
Building Energy Use Components

Understand the Opportunities

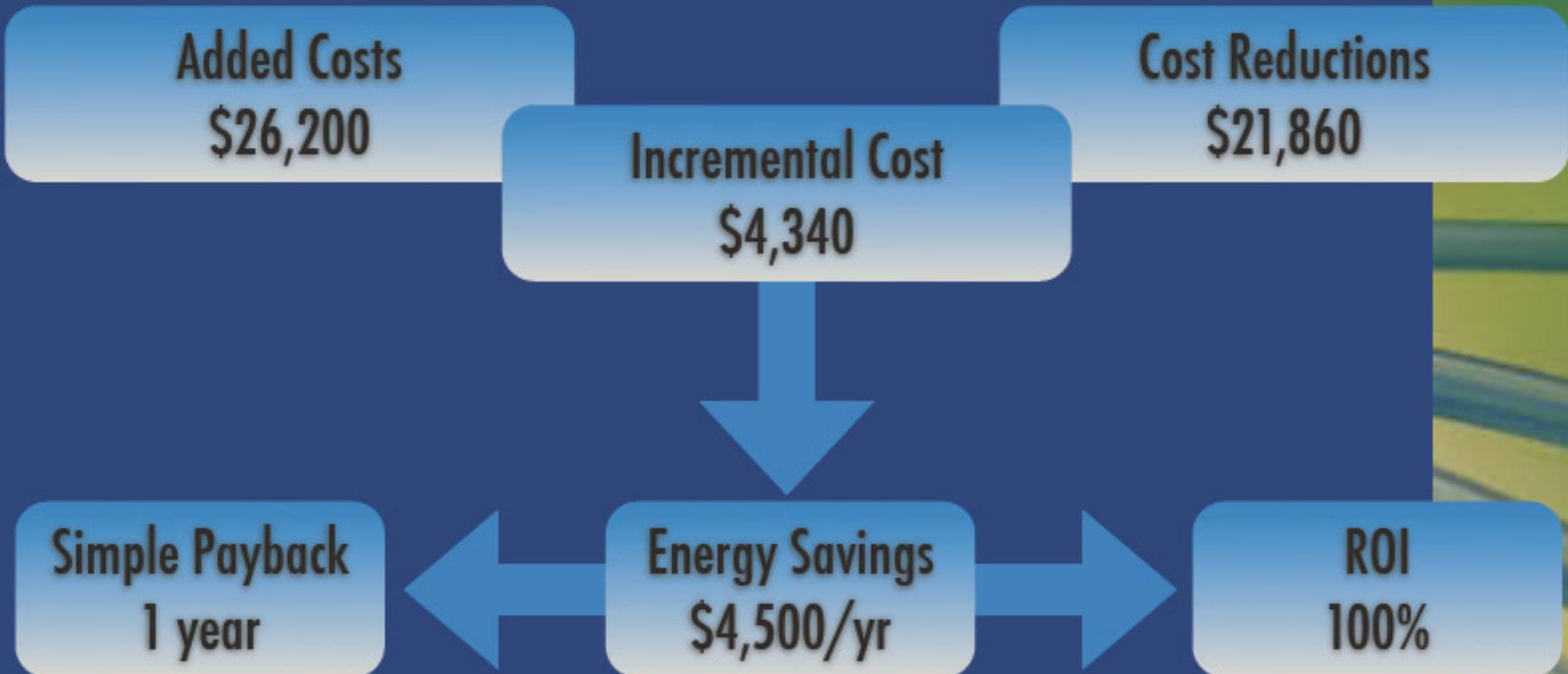
Lighting	29%
Space Heating	25%
Office Equipment	16%
Space Cooling	9%
Water Heating	9%
Ventilation	7%
Misc	5%



Energy Operating Costs



Whole Systems Thinking

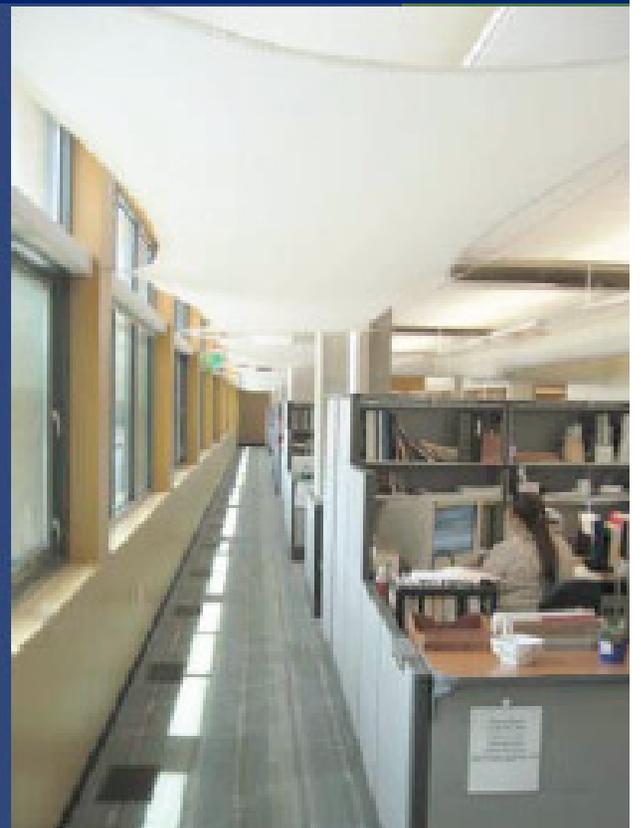
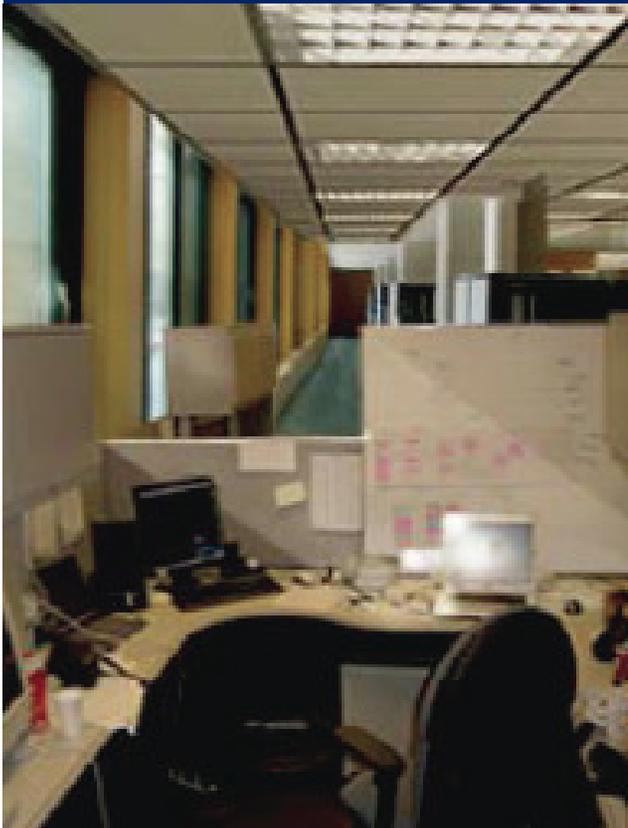


Case Comparison

Typical

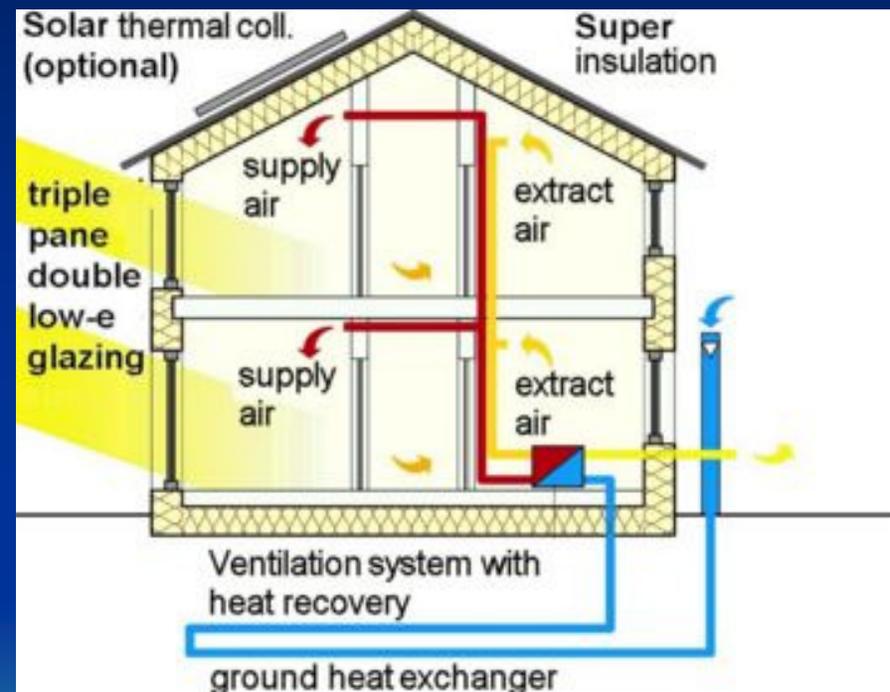
Improved

Design



Passive Technologies

- Natural ventilation
- Thermal Mass
- Night venting
- Daylighting
- Economizers
- Site shading
- Building Orientation
- Group coupling
- Expanded comfort range



Sustainable and Efficient Building Practices

- **Energy Star**
- **Leadership in Energy and Environmental Design (LEED) Green Building Rating System or LEED equivalent**





Energy Star

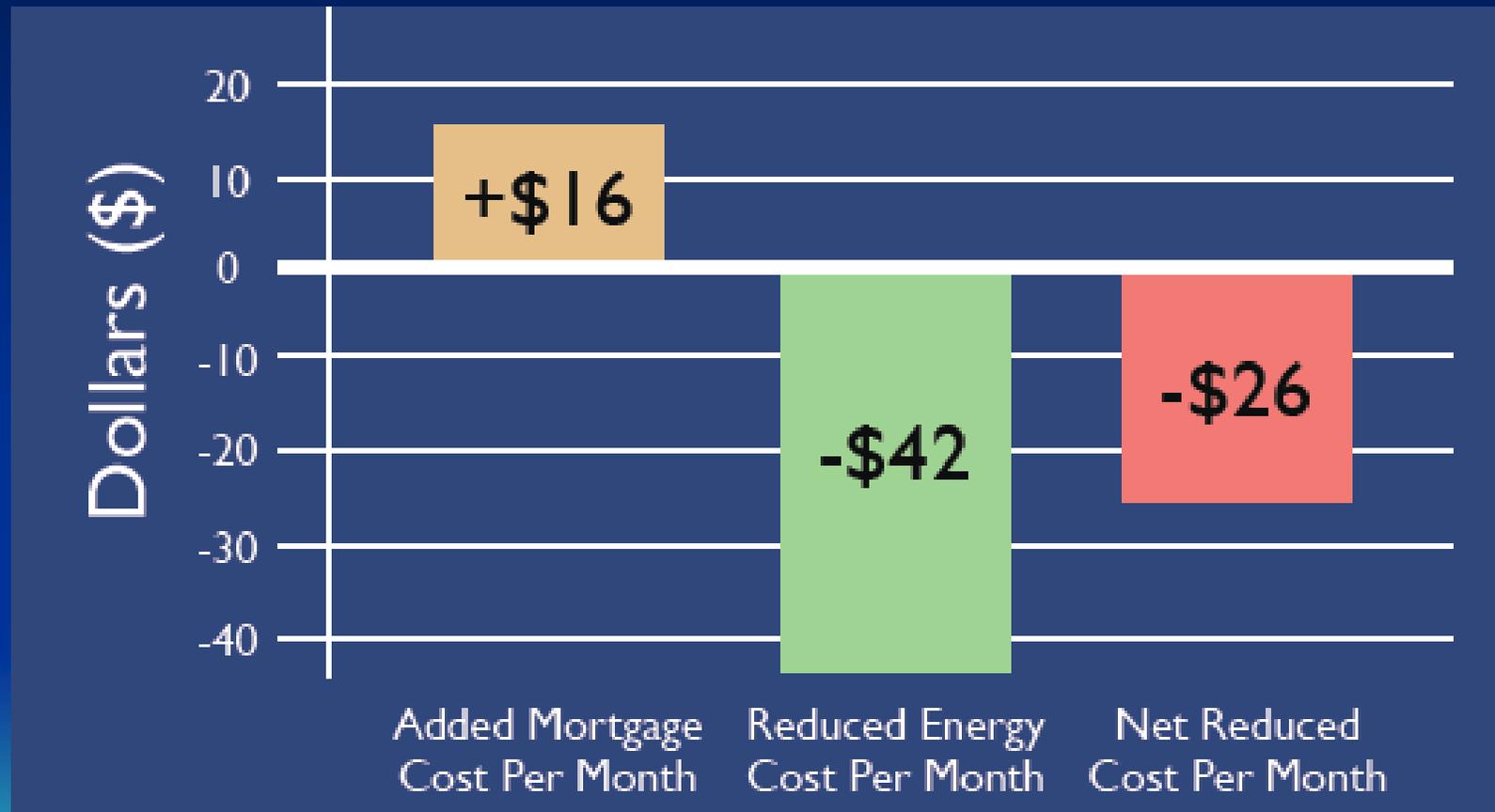
- A joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy
- Promotes energy efficient products and practices for residences and businesses
- Energy performance rating system to measure current energy performance, set goals, track savings, and reward improvements
- Businesses have used for more than 30,000 buildings across the country

Energy Code Comparisons

Feature	2003 IECC	2006 IECC	Energy Star
Ceiling Insulation	R-38	R-49	R-38
Wall Insulation	R-19	R-19	R-21 or R-19 Advanced
Floors Over Unconditioned Space	R-19	R-30	R-30
Slab Floors - Unheated	R-14 (4 ft)	R-10 (4 ft)	R-10 (2ft)
Slab Floors - Heated	R-16 (4 ft)	R-15 (4 ft)	R-10 (Full Slab)
Basement Wall Insulation	R-18	R-10 - R-13	R-19
Windows – Vertical	U-0.35	U-0.35	U-0.35
Windows – Skylight	U-0.35	U-0.60	U-0.50
Window Area	15%	18%	≤ 21%
Doors	U-0.35	U-0.35	R-5
Building Envelope Air Leakage Testing	Not Required	Not Required	Required
Furnace Efficiency	78%	78%	90%
Air Conditioner Efficiency	13 SEER	13 SEER	13 SEER
Duct R-Value	R-8	R-8	R-8

The Homebuyer Perspective: Why buy green?

Increased Purchasing Power



LEED

The nationally accepted benchmark for the design, construction and operation of high performance green buildings.

- 884 LEED Certified Projects
- 7,936 LEED Registered Projects



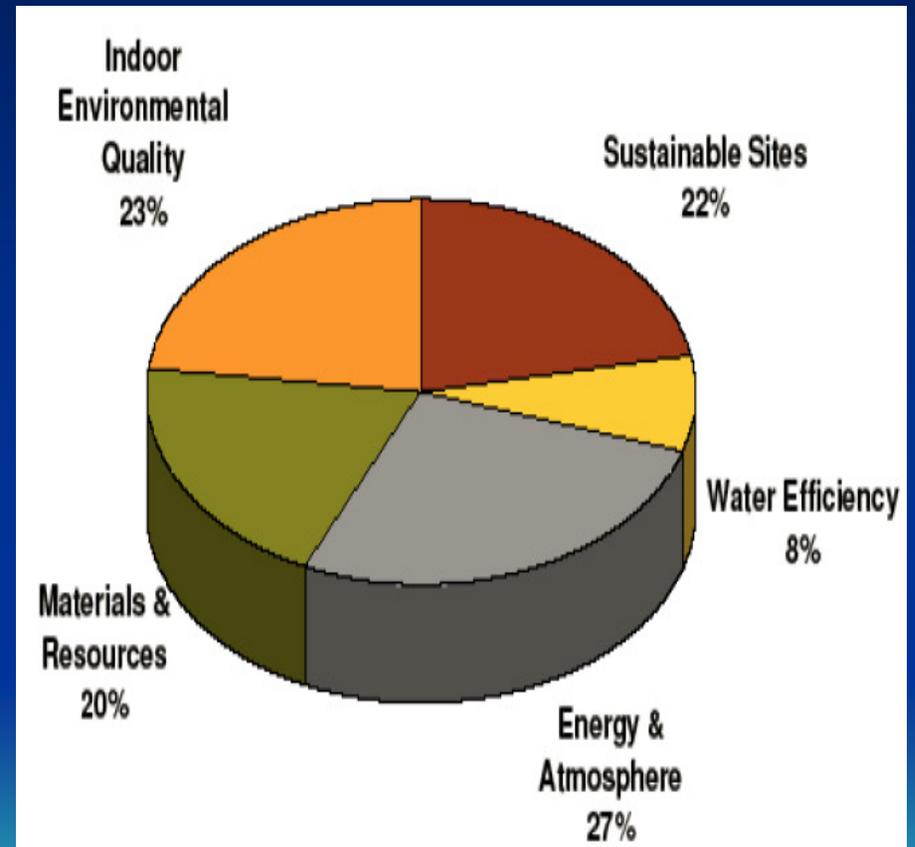
LEED CERTIFICATION LEVELS



- **Platinum 52+ pts**
- **Gold 39 - 51 pts**
- **Silver 33 - 38 pts**
- **Certified 26 - 32 pts**

LEED Rates Performance in 5 Key Areas of Human and Environmental Health

- sustainable site development
- water savings
- energy efficiency
- materials selection
- indoor environmental quality



Water Savings





**“It’s not easy
being green”!**

**Kermit the frog
– 1970**

What Can Hailey do?

Council direction toward Hailey
Environmental Leadership Program
(HELP) development:



Example

Promote Sustainable and Efficient Building

- Look to Energy Star and LEED as models
- Consider offering incentives now (priority permit processing, delayed payment of fees, etc)
- Consider developing standards tailored to Hailey
– **engage community members in research and recommendations**



Other Implementation Ideas

- Zoning rules and regulations
 - Utility rates/fee setting
 - Issuance of bonds
 - Infrastructure development
 - Permitting and enforcement
 - Best management practices
 - Outreach and education
 - Public safety rules and regulations
 - Emergency management powers
 - Partnership building with other communities
- grey water application
 - construction site wood recycling
 - industrial development corporation
 - sidewalk connectivity



Planning for Climate Change

- Collect and review basic information on climate change impacts to your region
- Build internal and external support for climate change preparedness
- Create your preparedness team
- Identify your community's vulnerabilities to climate change
- Develop and implement your preparedness plan
- Measure your progress and update your plan

