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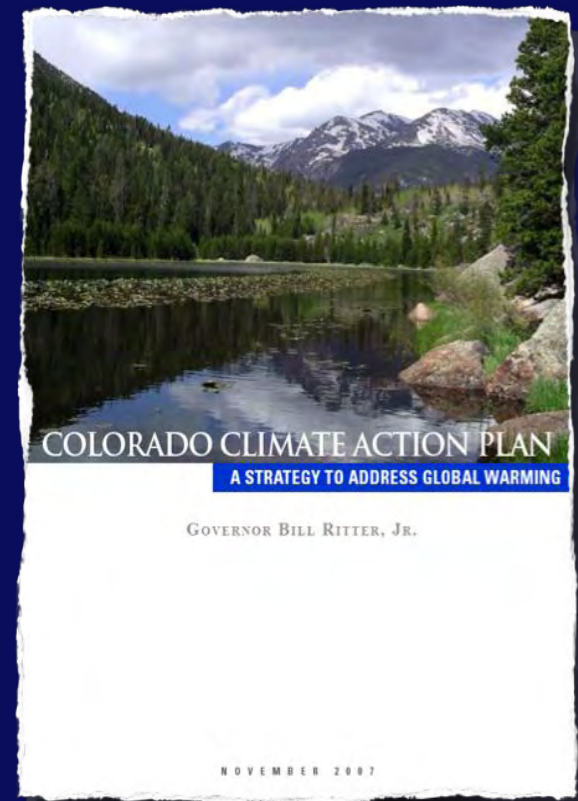
Tom Plant
Director
Governor's Energy Office



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Colorado's Climate Action Plan

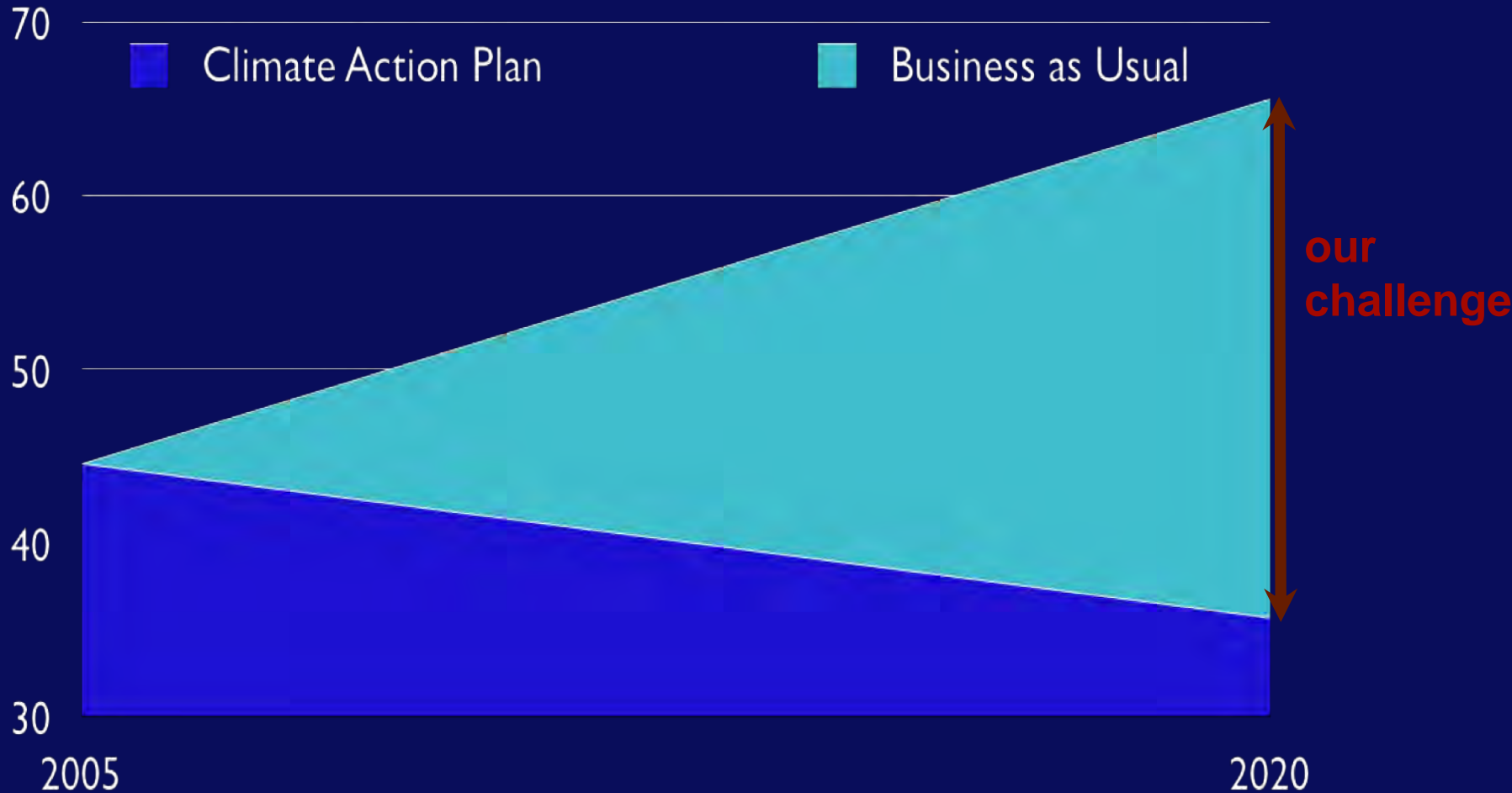
- ◆ Establish Goals for the State
 - * 20% below 2005 Levels by 2020
 - * 80% below 2005 Levels by 2050





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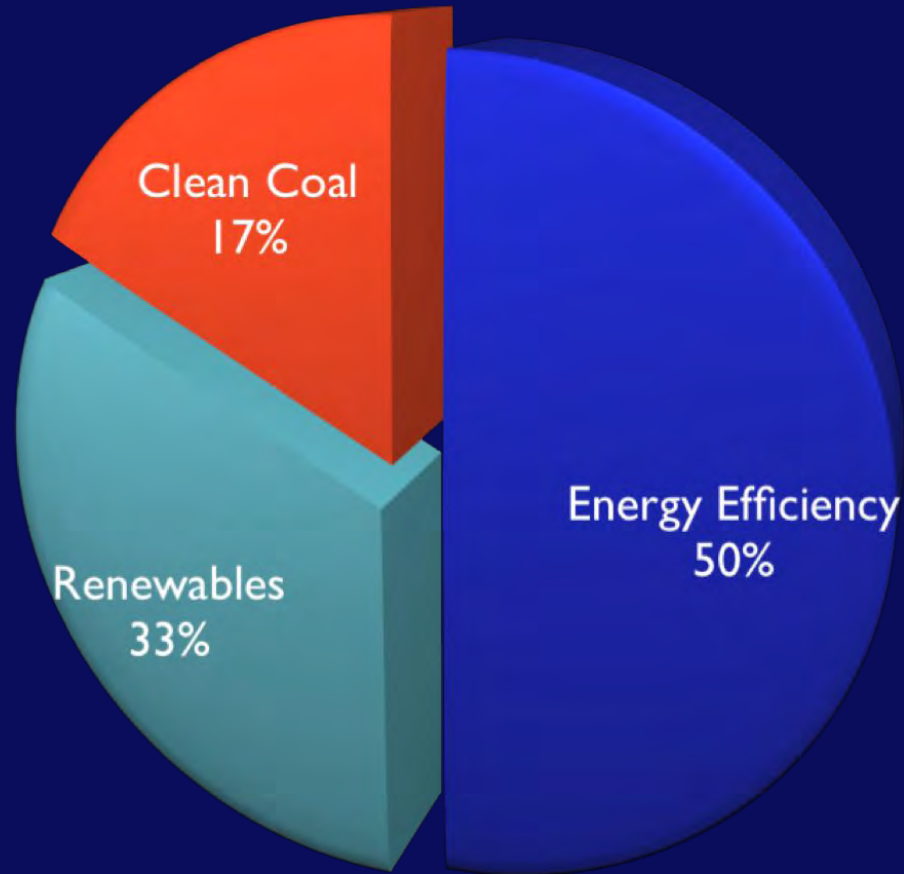
What does it look like?





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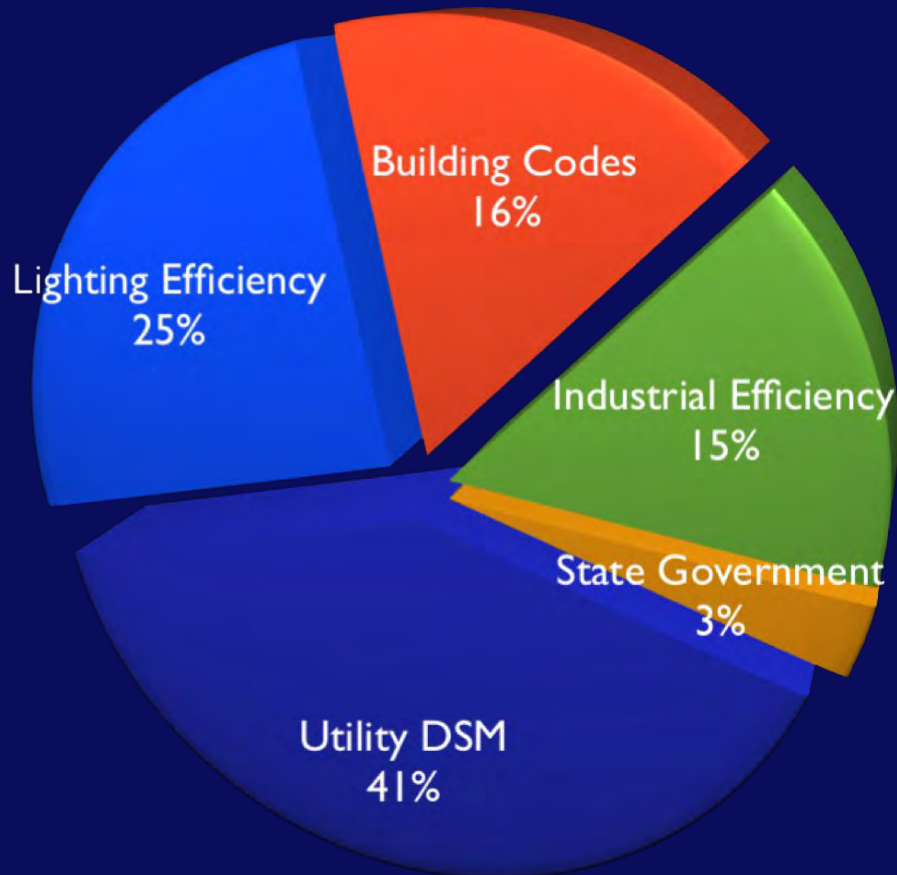
Changing Energy Sources





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50% of Climate Goals from Efficiency





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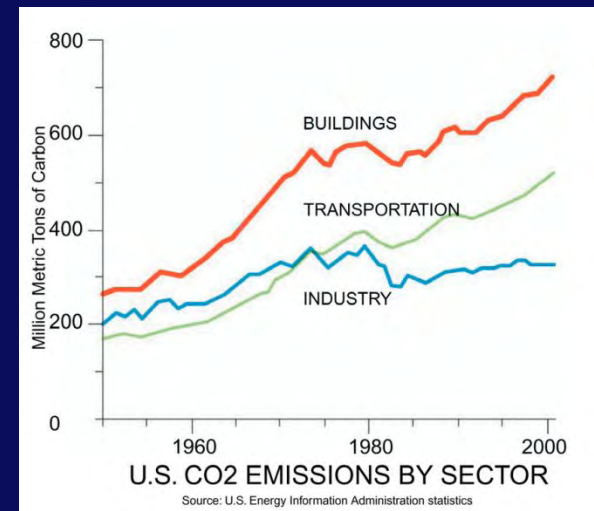
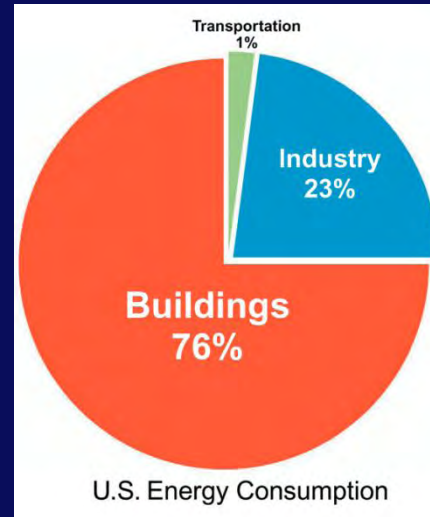
Buildings

◆ Residential

- * Insulation Rebates
- * Contractor Training
- * New Energy Codes
- * Energy Star Homes
- * Renewable Rebates
- * Xcel DSM Programs

◆ Commercial

- * Performance Contracting
- * K-12 Schools





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Colorado Industrial Challenge Program

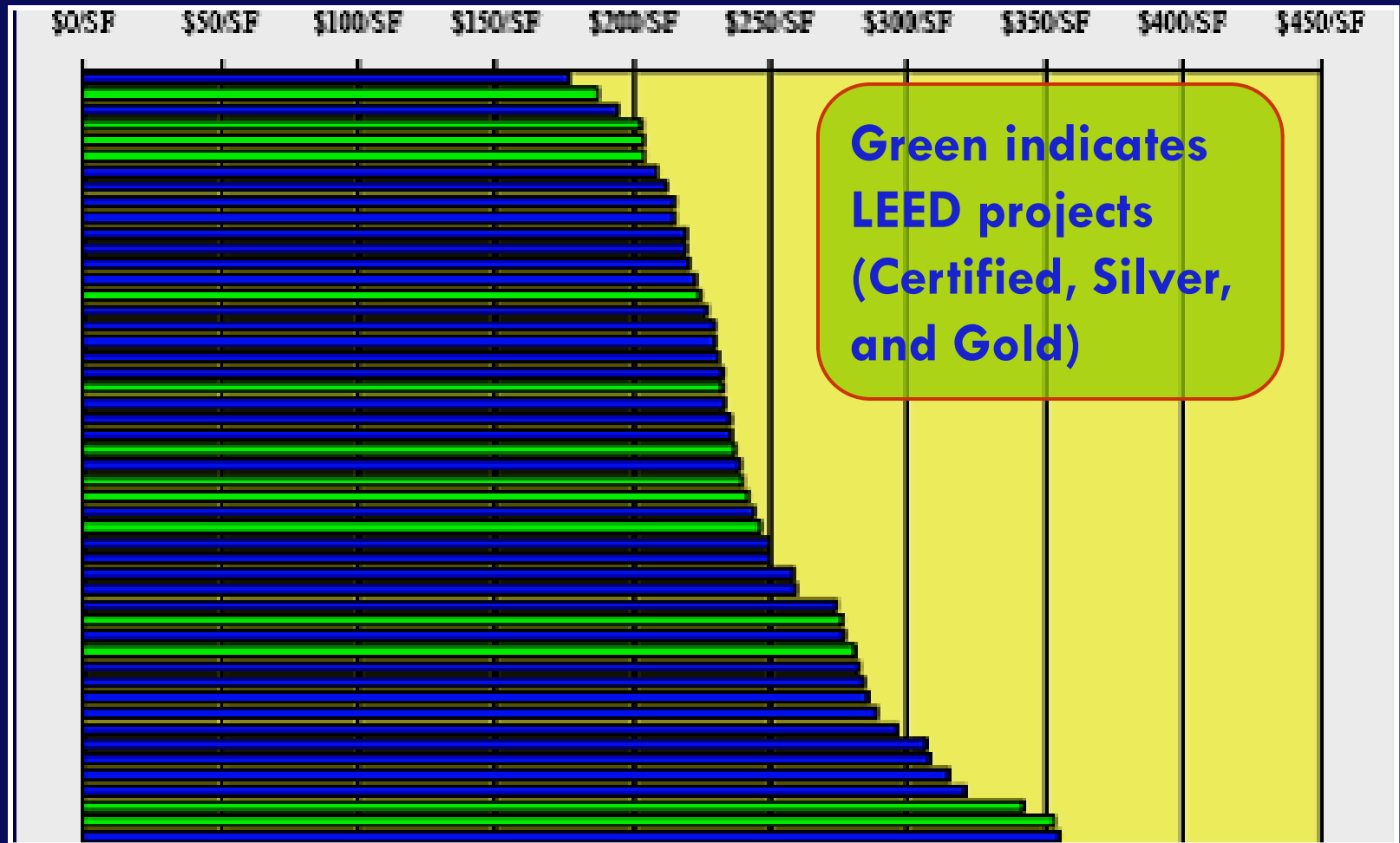
- ◆ Targeted at the state's 100 largest energy users with recognition awards from the Governor.
 - * Commitment to implement all measures with a 5 year payback or less.
 - * The plan assumes energy savings will grow to 11.5% by 2020, leading to 2.2 MMTCO₂ per year in 2020.
 - * Partners: SWEEP, CSU Industrial Assessment Center, Rocky Mtn. CHP Center . Spring, 2009 launch.

	# of Companies	% of CO Ind. Energy Use	% Energy Savings	Energy Savings (trillion Btu)	CO ₂ Savings (metric tons/yr)
Year 1	15	5	0.5	1.5	90,000
Year 2	30	10	1.0	2.9	174,000
Year 3	60	25	2.5	7.3	438,000



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Cost of LEED v. Non-LEED



(Libraries, Office, Classroom, and Laboratory buildings) Green indicates LEED projects (Certified, Silver, and Gold)



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K-12 Program:

Opportunity For Change



**DIRECT SAVINGS
FOR AN AVERAGE
GREEN SCHOOL**

\$47,880

Annual Direct Energy Savings Per School

\$95,760

Annual Total Direct Savings Per School





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Eagle Place Townhomes, Lafayette





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Utilities Program



Jim Tarpey



Ron Binz



Matt Baker

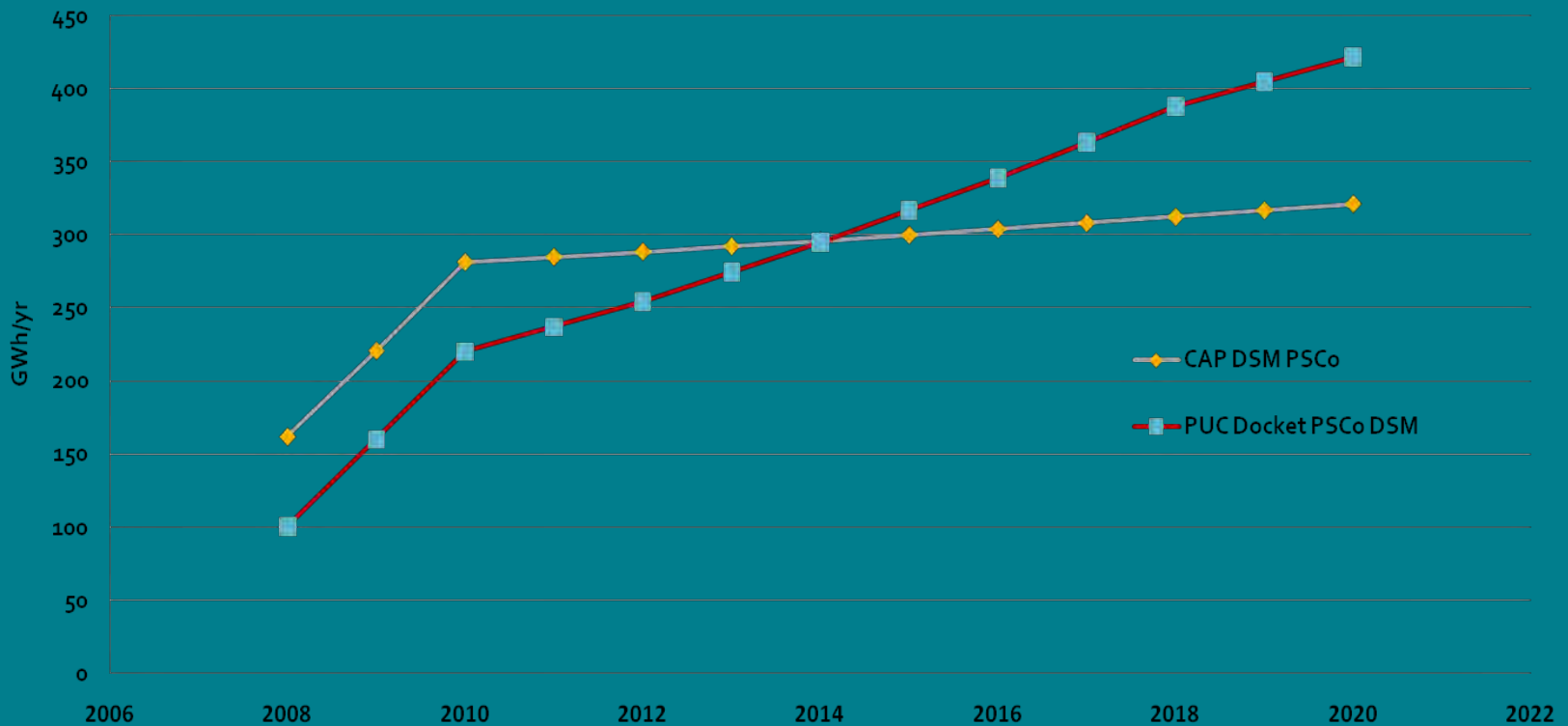
- Electric Resource Plan
- Demand Side Management Docket
- Incentives Investigatory Docket
- Transmission Investigatory Docket



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PUC Decision on DSM

Xcel CAP DSM Targets vs. PUC Docket Order DSM





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E\$P Background

State Funding (HB06-1200/08-1387)

- Energy efficiency measures and education to low-income households
- Heating system and other appliance replacement
- Renewable energy measures
- Energy efficiency upgrades to new housing
- Eligibility criteria 80% AMI
- Serve as many low income households as possible; cost effective



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GEO's Objectives

- ◆ Engage the entire low-income housing sector in energy efficiency
- ◆ Investment-driven energy services (maximize savings/\$ expended)
- ◆ Develop a full spectrum of services



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3 Levels of Service (Tiers)

Tier 1 – Low Cost

CFLs, showerheads, energy ed, Tier 1
Audit

Tier 2 – State Weatherization

High efficiency appliances, Insulation, Air
Sealing

Tier 3 – DOE Weatherization

High efficiency appliances, Insulation, Air
Sealing

Health & Safety

- ◆ All services based on cost-effectiveness
- ◆ Level of service determined by energy use and need.



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Partnership Based...

Energy Saving Partners (E\$P) Program:

- * State/LEAP partnerships
- * State/Xcel partnerships (since 1993)
- * State/Local partnerships (DOE requirement)
- * Service Provider/Service Recipient partnership – expectations upon clients, landlords
- *Regional Partnership Networks*



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2008-09 E\$P Program Budget

U.S. Department of Energy = \$6,558,012

HHS LIHEAP = \$4,706,264

Xcel Energy = \$2,500,000

Colorado HB 06-1200 = \$6,000,000

TOTAL: \$19,764,276

***Approx 25,000 households will receive some level of E\$P service in 2008-09**



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New for 2008-09

- ◆ Streamlined Outreach through Business Reply Card
- ◆ Tier 1 Audit – Agency recruitment and training
- ◆ Cost savings through bulk price agreements on materials
- ◆ New utility partners



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Insulate Colorado

◆ Program Overview

- * Partnerships with Cities, Counties & Utilities
- * Turnkey Rebate Program for Existing Home Attic & Exterior Wall Insulation, Air Sealing
 - ❖ 20% of Job Cost, Up to \$300 (whichever is less)
- * Matching Grants for Local Implementation
 - ❖ Dollar for Dollar Match (up to \$25k)
- * GEO Funding for Homeowner Rebates
 - ❖ Partners Can Be Used for Mktg, Admin, Rebates



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Insulate Colorado

◆ Implementation Model

- * Homes Insulated to IECC 2006 Levels
- * No DIY, Must Use Eligible Contractor
- * Homeowner Must Submit Invoice Copy with Rebate Form to City or County
- * Measure and Verification Audit Program
- * State Sponsored Marketing Campaign



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Insulate Colorado

◆ Implementation Model (continued)

* Recommended IECC 2006 R-Values Vary By County (see Rebate Form):

County	Ceiling Insulation	Wood Framed Wall Insulation
Climate Zone A	R-38	R-13
Climate Zone B	R-38	R-19*
Climate Zone C	R-49	R-19*
Climate Zone D	R-49	R-21*

* = Or insulation sufficient to fill the framing cavity, R-13 minimum for 2x4 wall cavity



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Insulate Colorado

◆ Program Implementation (continued)

Homeowner Submits The Following

- * Completed Homeowner Rebate Form
- * Copy of the Insulation Contractor's Itemized Invoice
- * Copy of the Insulation Card

Description of Insulation Installed and Air Sealing Installed (Must Be Completed)

Where Installed	Type of Insulation	Number of Inches Existing Prior to New Installation	Existing R-Value (see Worksheet below)	Number of Inches Installed	Square Feet of Area	Total R-Value Installed	Air Sealing Completed in Area
Attic							
Exterior Walls							

Rebate Calculations

- A. Total Cost of Attic Insulation Work \$ _____
- B. Total Cost of Exterior Wall Insulation Work \$ _____
- C. Total Cost of Air Sealing Measures \$ _____
- D. Sum Cost (A.) + (B.) + (C.) = \$ _____
- E. Multiply (D.) x 0.20 = \$ _____
- Total REBATE Requested, enter \$300 or value in (E), whichever is less: \$ _____

By my signature, I am certifying that the information entered is accurate to the best of my knowledge. (Both Contractor and Homeowner signatures are required.)

Contractor _____ Date _____

Homeowner _____ Date _____



Optional Insulation Calculation Worksheet

Evaluating the R-Value of Insulation in Existing Homes (includes effects of aging and settling)

R-Value Table (from www.coloradoenergy.org)

Insulation Type	R-Value Per Inch of Thickness
Fiberglass Batt	3.1 to 4.3
Fiberglass Blown (attic)	2.2 to 4.3
Fiberglass Blown (wall)	3.7 to 4.3
Rock Wool Batt	3.1 to 4.0
Rock Wool Blown (attic)	3.1 to 4.0
Rock Wool Blown (wall)	3.1 to 4.0
Cellulose Blown (attic)	3.1
Cellulose Blown (wall)	3.7
Vermiculite	2.1

1. Use this formula to estimate the R-Value of your existing insulation:

$$\frac{\text{Thickness in Inches}}{\text{R-Value per inch}} = \text{Estimated Total R-Value}$$

2. Use this formula to estimate needed R-Value of Insulation:

$$\text{Recommended R-Value} - \text{Existing R-Value} = \text{R-Value Needed}$$

3. Use this formula to estimate how many inches of insulation to add (to obtain recommended R-Value):

$$\frac{\text{R-Value Needed}}{\text{R-Value per inch}} = \text{Estimated Inches Needed}$$

2008 Insulate Colorado

"Supporting residential energy efficiency is a significant component of Colorado's New Energy Economy. Insulation and air sealing can help homeowners save energy, save money and increase the comfort of their homes."

Bill Ritter Jr.
Governor Bill Ritter, Jr.



2008 IECC Recommended R-Value (recommended by county)

Climate Zone	Ceiling Insulation	Wood Framed Wall Insulation
All Counties in IECC Climate Zone A	R-36	R-12
All Counties in IECC Climate Zone B	R-38	R-19*
All Counties in IECC Climate Zone C	R-49	R-19*
All Counties in IECC Climate Zone D	R-49	R-21*

*Or insulation sufficient to fill the framing cavity, R-15 minimum for 2nd wall cavity

Supported in Partnership with the



Governor's Energy Office
Advancing Colorado's New Energy Economy



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HB 07-1146: Energy Codes

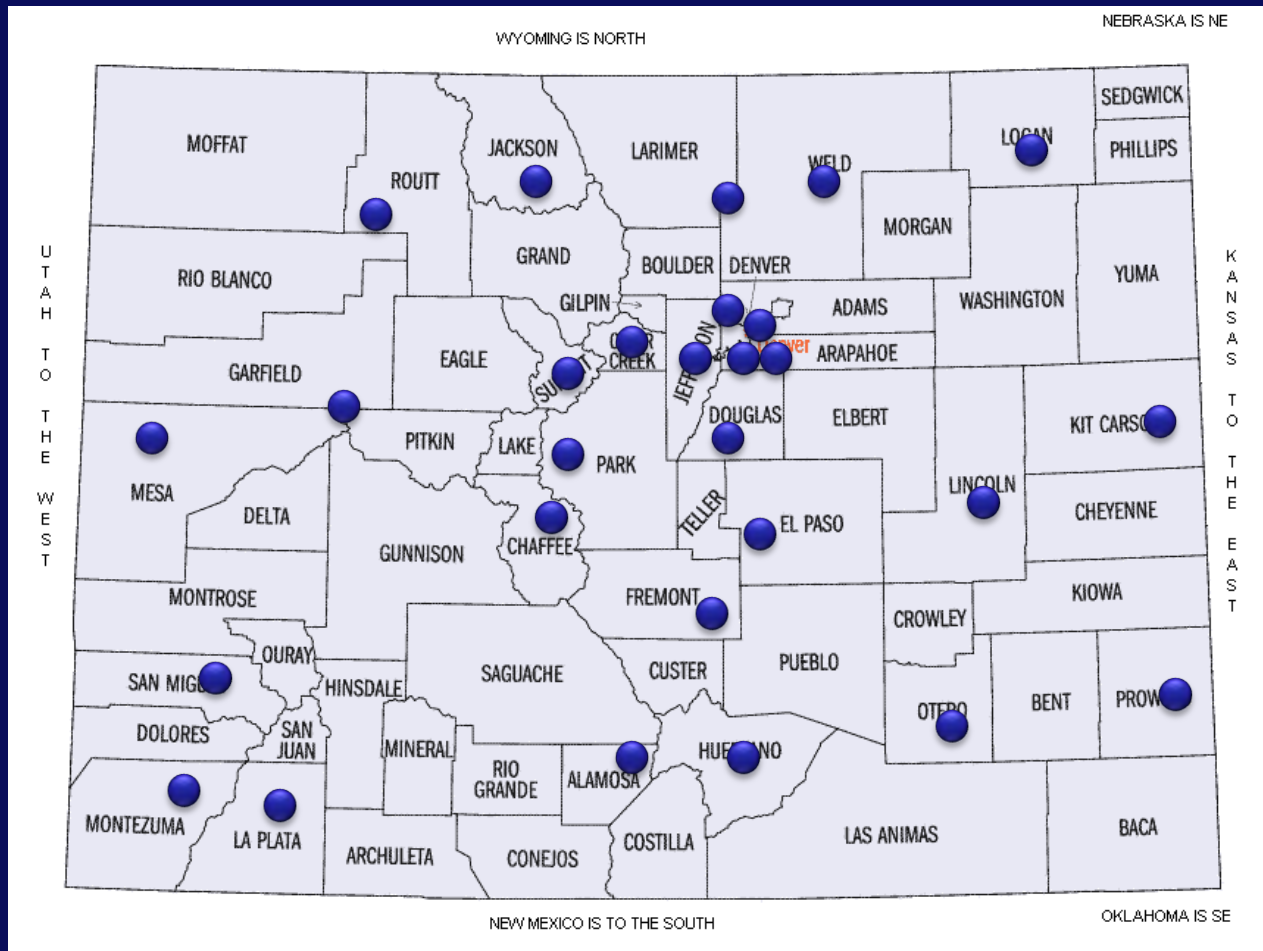
◆ GEO's Implementation Model & Roll-out

- * Completed Statewide Code Training Needs Survey and Status Report (Nov 2007)
- * Published RFP to Secure Statewide Code Training Organization (Dec 2007), (ICC Selected)
- * GEO Coordinated/Sponsored 30 FREE Training Sessions Across CO on both IECC 2003 & IECC 2006 (April 2008 to June 2008)
 - ❖ 850+ Participants Attended
- * FREE Resources Available for Code Officials (code books, code summaries, work books, technical assistance)



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HB 07-1146: Energy Codes (GEO Sponsored IECC 2003 and 2006 Training)





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Why ENERGY STAR NH in CO?

- ◆ Supporting (and funding) Advancements in the Energy Efficiency of CO's Residential NC Sector is a Top Priority of Governor Ritter's Plan for a New Energy Economy.
- ◆ ENERGY STAR Provides A Common (Statewide) Platform For All 329 CO Jurisdictions & 56 Utilities to Build On.
- ◆ ENERGY STAR Offers CO Homebuilders a Thoroughly Tested & Voluntary Construction Template to Follow, and a Proven Brand Name to Market Homes to Homebuyers.



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2008 CO ENERGY STAR NH Pgm.

◆ Late 2007, GEO Convened A Meeting With CO Utilities, Cities and Counties to Discuss Their Interest in Supporting Area ENERGY STAR Builders.

* Response Was Overwhelmingly Positive

◆ In 2008, GEO Made 13 Matching Grants to 51 Cities, Counties & Utilities to Support ENERGY STAR

* \$225,00+ in Funding to Provide:

- ❖ HERS Rater Trainings
- ❖ Homebuilder Trainings
- ❖ Trades & Contractor Trainings
- ❖ Realtor Trainings
- ❖ Consumer Awareness Campaigns



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2009 CO ENERGY STAR NH Pgm.

- ◆ GEO Continuing Matching Grants For Regional Efforts:
 - * HERS Rater Trainings
 - * Homebuilder Trainings
 - * Trades & Contractor Trainings
 - * Realtor Trainings
 - * Consumer Awareness Campaigns
- ◆ GEO Launching Statewide Marketing Effort
 - * All Major Colorado Markets & Homebuyers Will Receive GEO Sponsored ENERGY STAR Messaging by Print, Radio, etc.
- ◆ GEO Partnering with Utilities to Offer ENERGY STAR New Home Incentives to Builders Statewide!



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2009 CO ENERGY STAR NH Pgm.

- ◆ The Colorado New Construction Market Is Changing, ENERGY STAR Is Actually Growing Very Quickly Here ...
 - * 2005 = 4.2% Market Penetration
 - * 2006 = 5.7% Market Penetration
 - * 2007 = 7.8% Market Penetration
 - * 2008 (YTD) = 14.5% Market Penetration

- ◆ GEO and Partners Are Looking to Support All Builders Interested in Trying the ENERGY STAR Program.



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Coloradocarbonfund.org



We Have The Power

latest news

Colorado Carbon Fund license plate now available!



Sign up for our monthly e-newsletter

Enter your Email

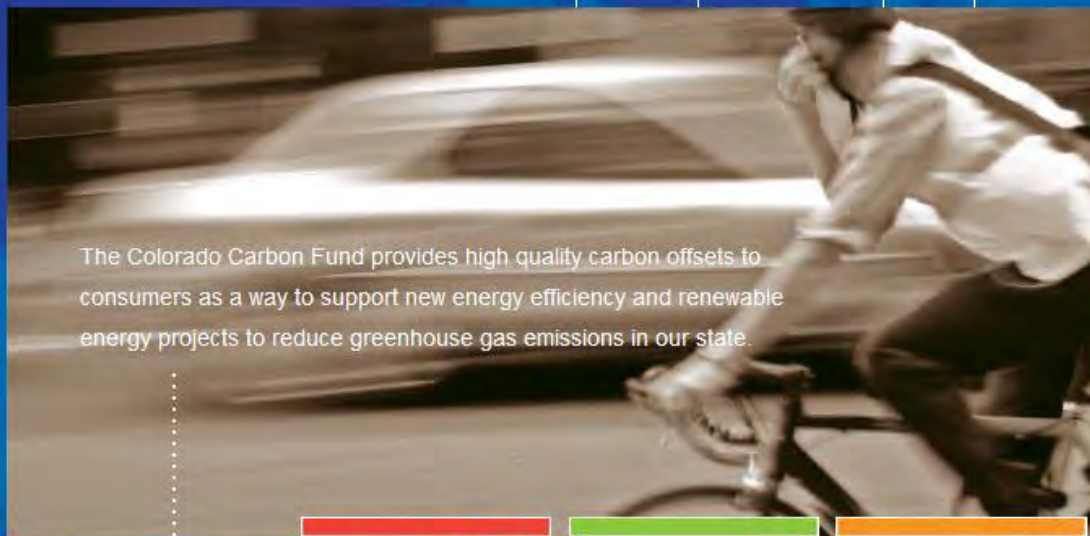
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[Offset Projects](#)

[News](#)

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The Colorado Carbon Fund provides high quality carbon offsets to consumers as a way to support new energy efficiency and renewable energy projects to reduce greenhouse gas emissions in our state.

DO YOUR PART >>

think

Use our online calculator to measure the greenhouse gas emissions from your energy use, driving and air travel

act

Take simple steps to reduce your energy consumption - you'll lower emissions and save money on your energy and fuel bills

fund

For the emissions you can't reduce on your own, donate to the Colorado Carbon Fund and we'll support projects that reduce emissions right here in our state



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changing the way we think about energy.

Tom Plant

tom.plant@state.co.us

www.colorado.gov/energy