Boulder's Climate Commitment
Path to a Healthy and Sustainable Future

Key Messages

1. Climate change is impacting us now and it could intensify.

2. The causes and necessary responses are clear.

3. There are viable technical and technological options now.

4. Boulder has learned an enormous amount that it can use to leverage a rapid shift to a low-carbon future.

5. Developing early leadership in the transition to a low-carbon economy is the safest and most dynamic investment Boulder can make in its long-term health and prosperity.

Questions for Council

1. Does City Council have feedback on the magnitude and timeframe for the city's long-term goal for GHG reduction?

2. Does council have feedback on the related near-term GHG reduction targets?

3. Does council have feedback on this presentation and the proposed outreach and engagement strategy?

4. Does council have comments or questions regarding the energy efficiency program updates and proposed direction on the work plan items?

5. Specifically, does council agree with staff's recommendation to focus current commercial energy efficiency strategies on further collaboration and pilot projects to refine the strategies that may be utilized in designing a commercial rating and reporting requirement?

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#1: Climate Change Is Now

NCAR | University Corporation
UCAR | for Atmospheric Research

The year 2012 was the warmest on record for the contiguous United States, according to the National Climatic Data Center (NCDC).
The decade as a whole (2000–2009) was the nation's warmest on record.

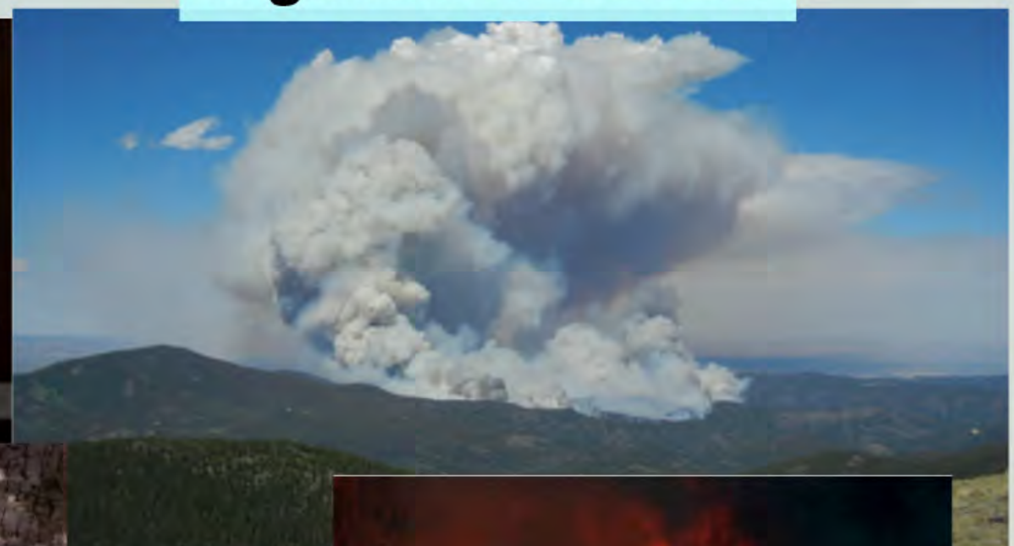
The New York Times

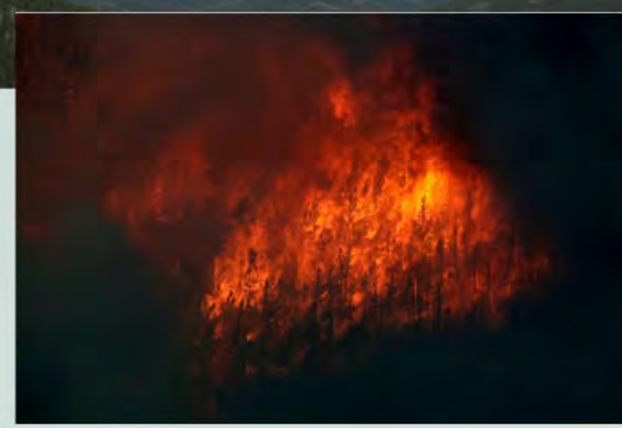
In addition to being the nation's warmest year, 2012 turned out to be the second-worst on a measure called the Climate Extremes Index, surpassed only by 1998.

- 11 disasters in 2012 have exceeded a threshold of $1 billion in damages
- Hurricane Sandy damage likely to exceed $60 billion in nearly half the states, primarily in the mid-Atlantic region.

Four Mile Canyon Fire-2010

High Park Fire-2012

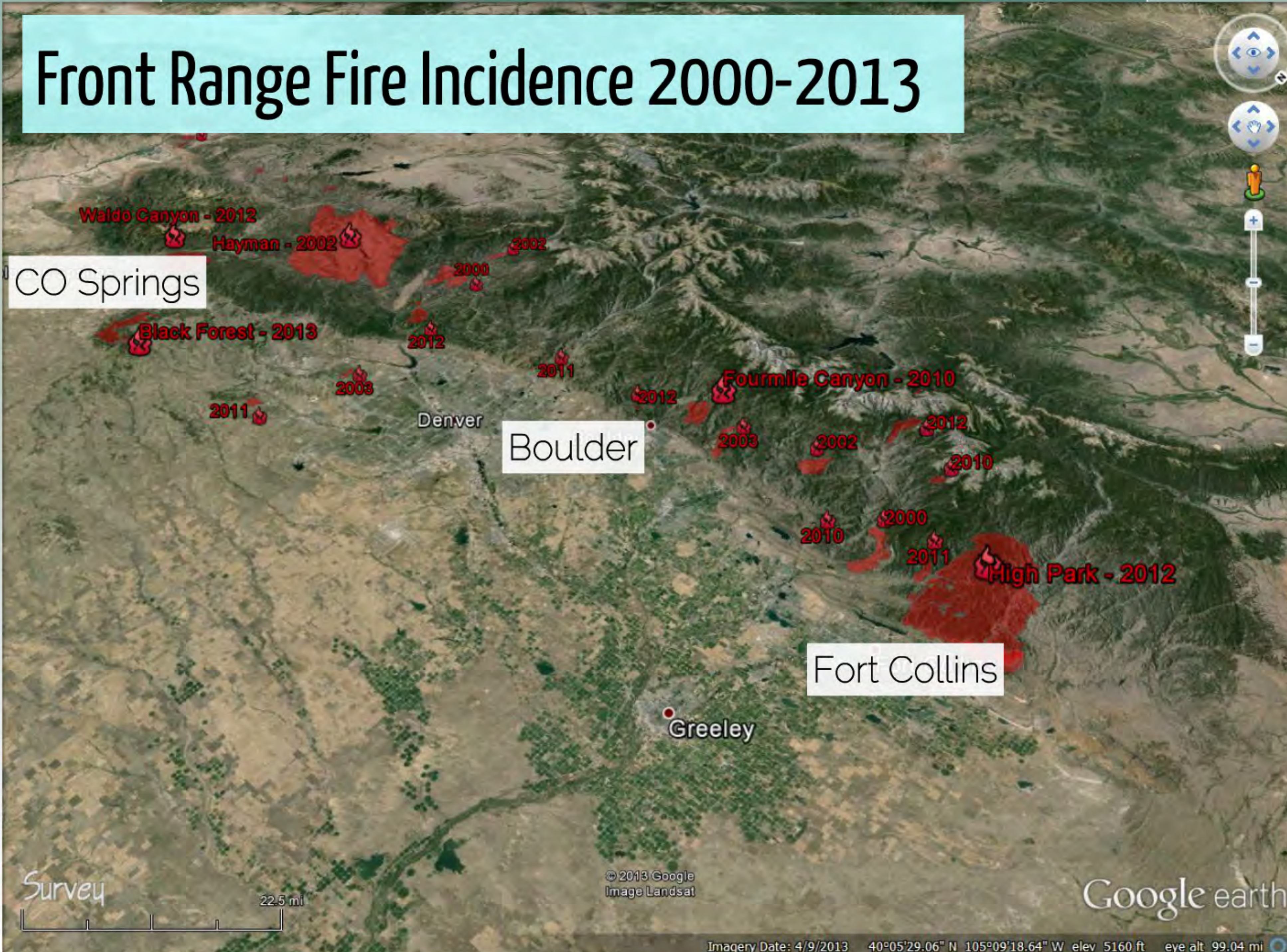




Waldo Canyon Fire-2012

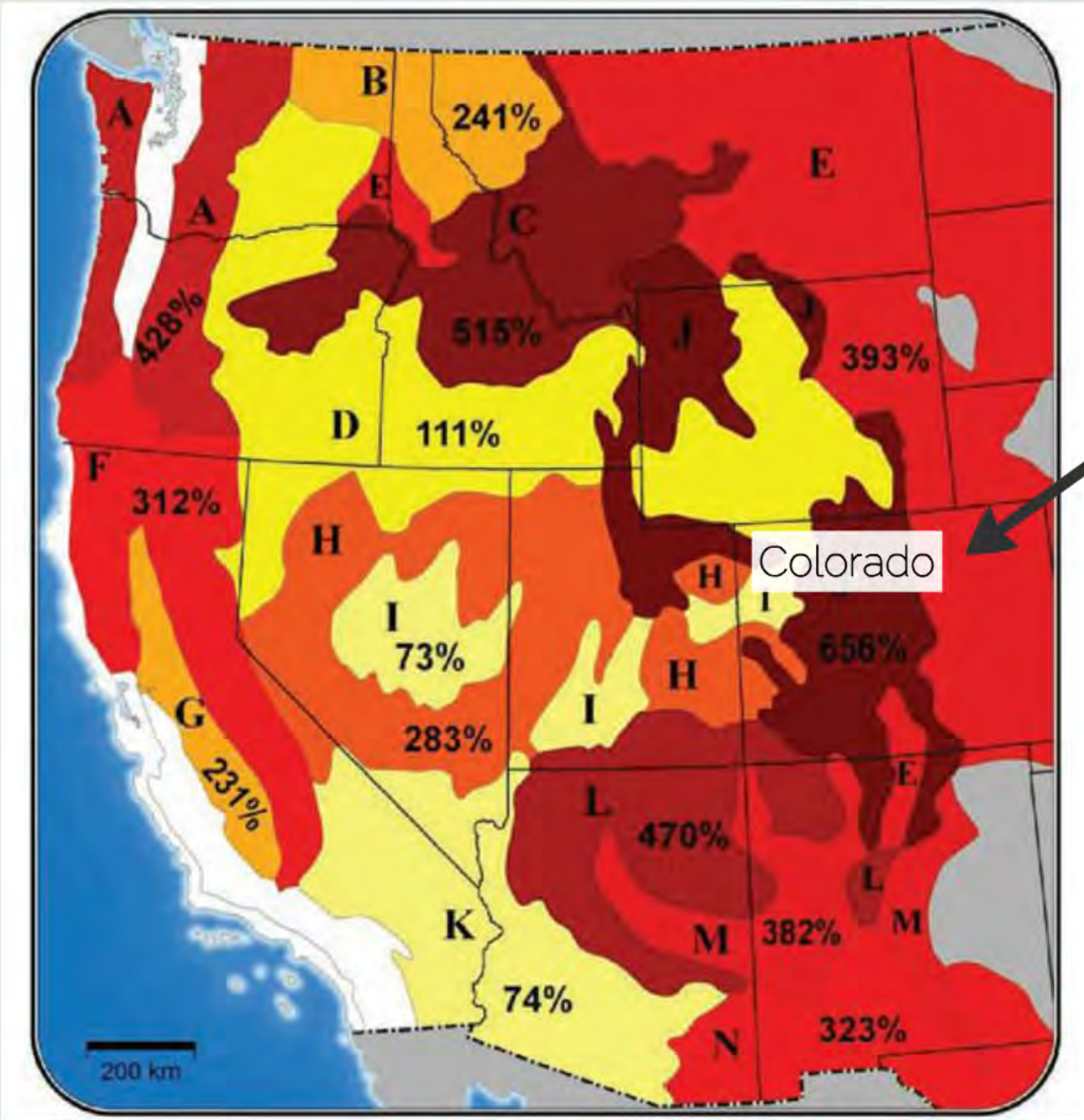
Black Forest-2013

Front Range Fire Incidence 2000-2013



Post Fire: Floods And Landslides

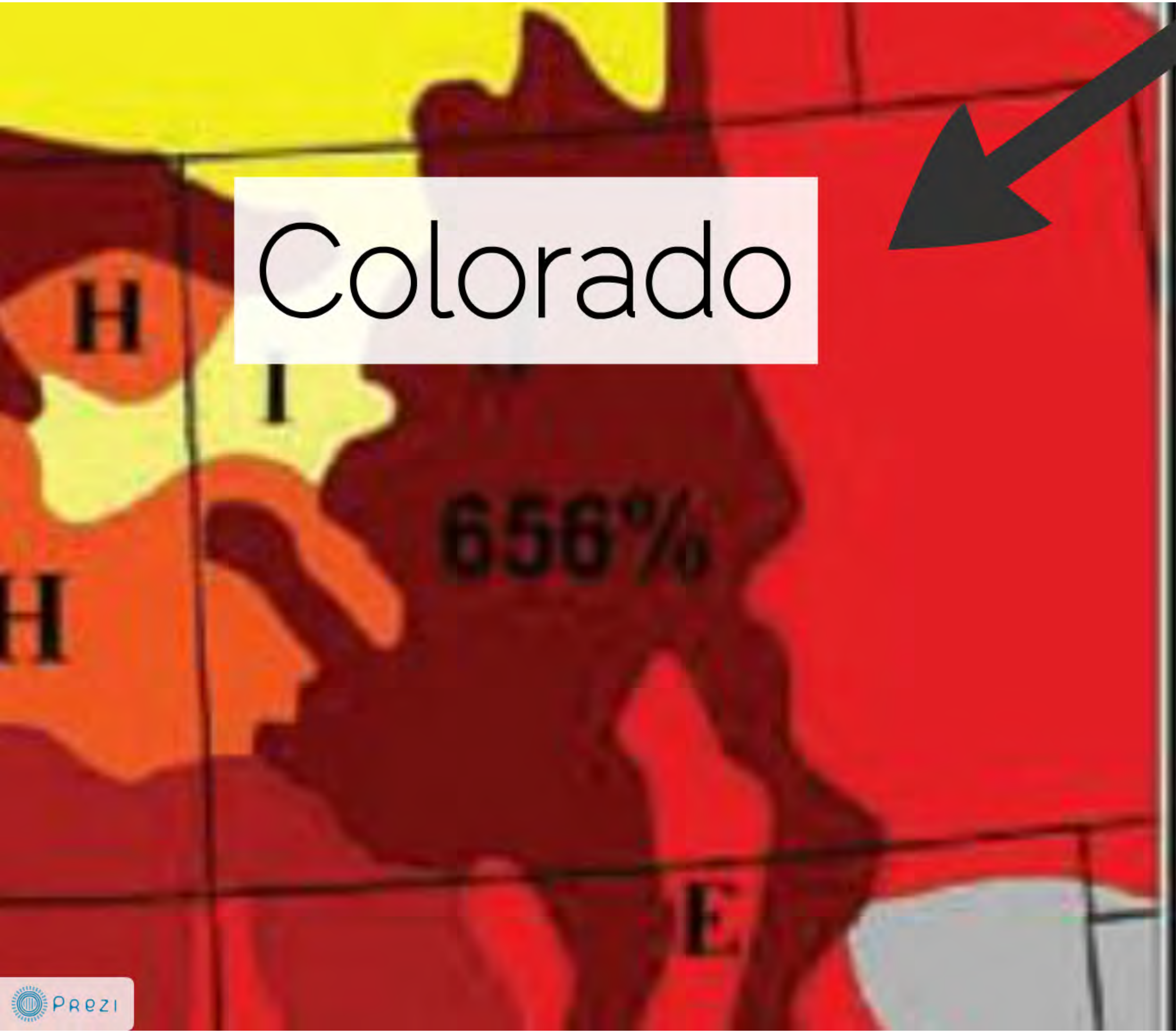
National Academy of Sciences 2011 Assessment

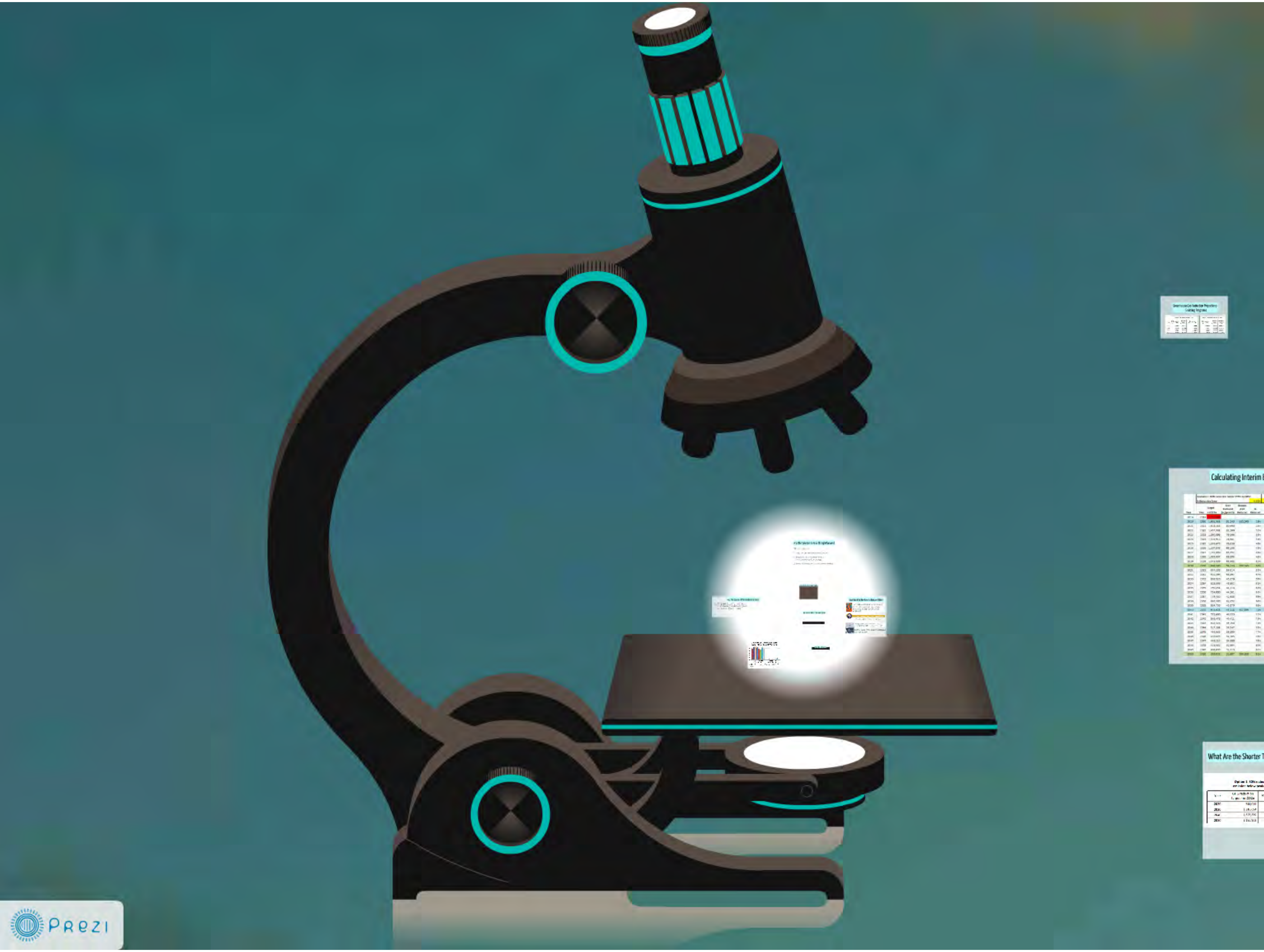


1.8 deg F increase in temperature raises wildfire probability 656% (Front Range)

Prezi

Colorado



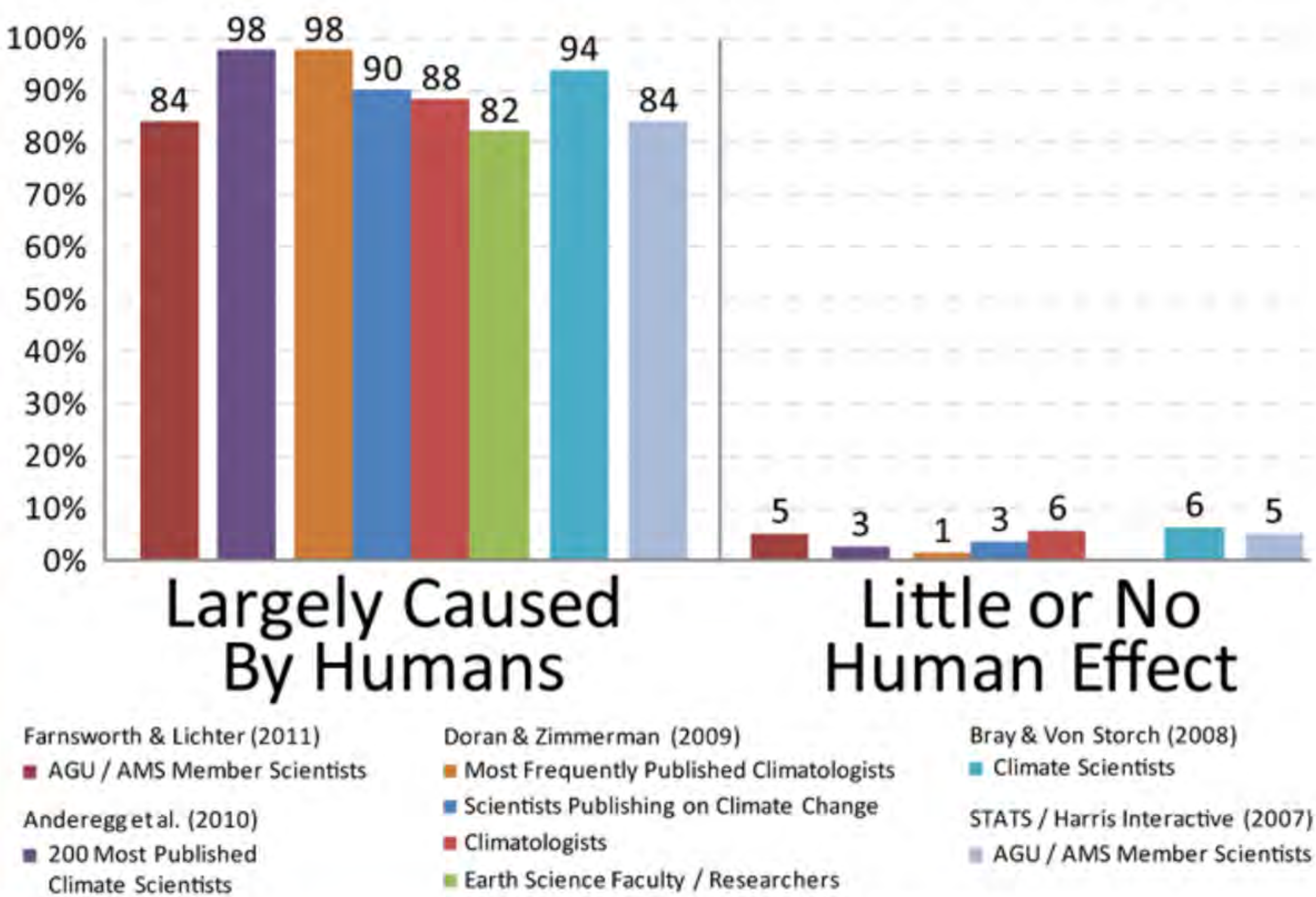

Calculating Interim
What Are the Shorter

#2: The Cause of the Problem is Clear

Burning and releasing fossil fuels

- increases greenhouse gases
- leads to climate change

Opinions of Climate and Earth Scientists on Global Warming



#3: The Solution is Also Straightforward

Three Choices:

1. Reduce carbon-dense energy use

2. Replace carbon-dense energy with low/no-carbon energy

3. Reduce & replace carbon-dense energy

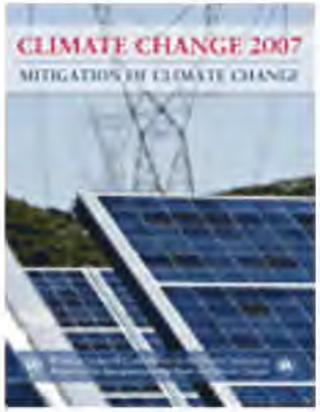
How Much Do We Have to Reduce GHGs?

NATIONAL ACADEMY OF SCIENCES (2010)

"Emissions reductions larger than about 80 percent (of peak global emissions)"

PRESIDENTIAL CLIMATE ACTION PROJECT 2012

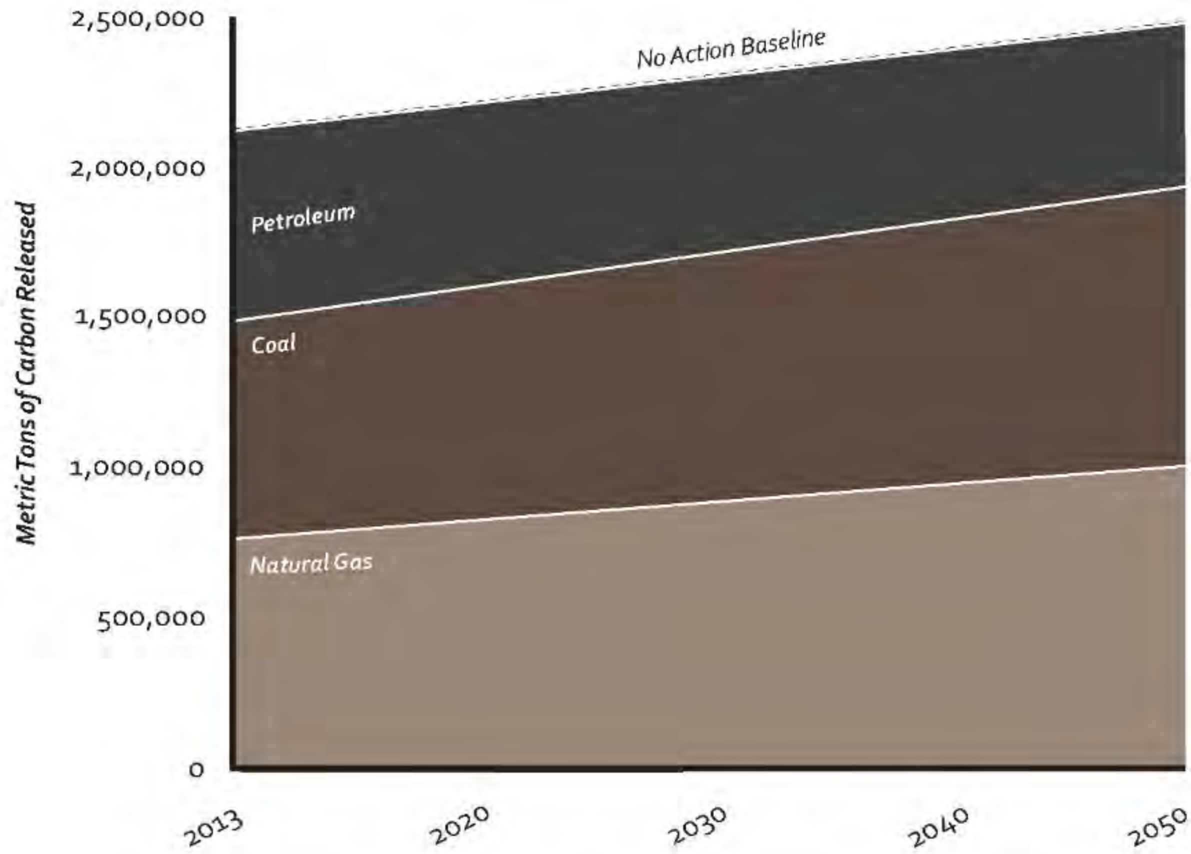
"80% below 2010 levels by 2050"



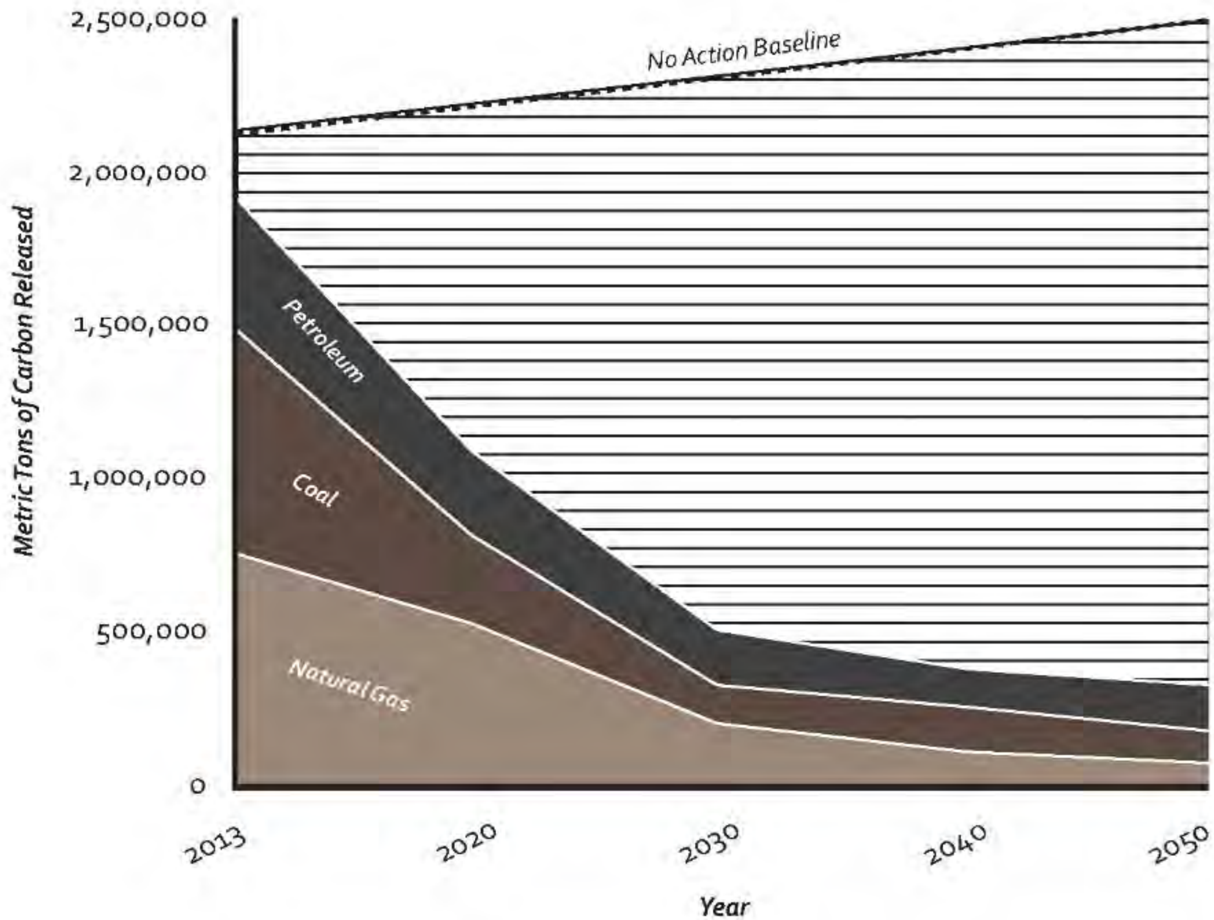
Intergovernmental Panel on Climate Change (IPCC) 4th Assessment (2007)

80-95% below 1990 levels for developed countries by 2050

Baseline Emissions Growth with No Action

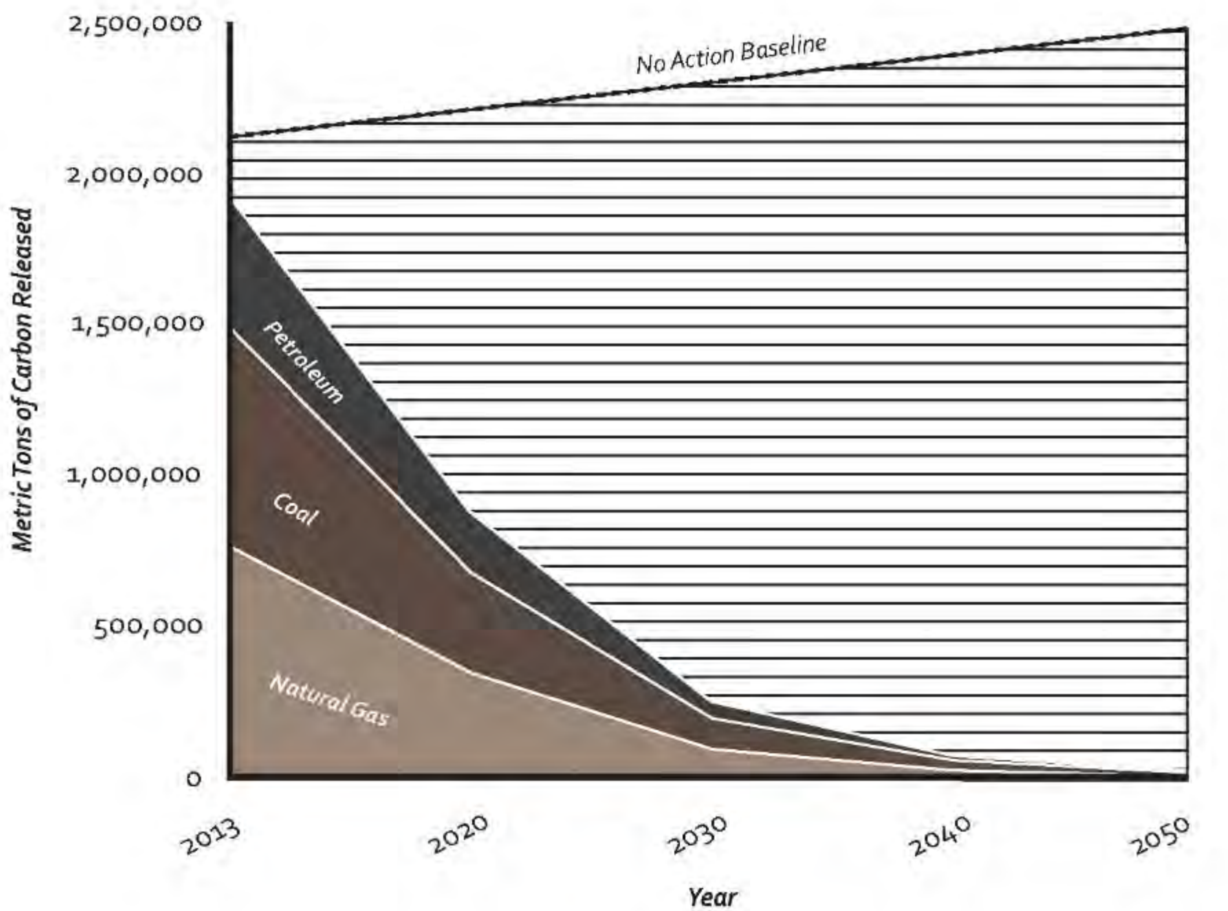


80% below Peak Emissions by 2050



Prezi

Carbon Neutrality by 2050



Calculating Interim Emissions Reduction Targets

	Scenario 1: 80% reduction below 1990 by 2050					Scenario 2: Carbon Neutrality by 2050					Scenario 2: Carbon Neutrality by 2050				
	% Reduction/year				4.60%	% Reduction/year				12.00%	% Reduction/year				28.00%
Year	Year	Target mtCO2e	Amt Reduced (w/growth)	Decade Amt Reduced	% Reduced	Program Year	Target mtCO2e	Amt Reduced (w/growth)	Decade Amt Reduced	% Reduced	Program Year	Target mtCO2e	Amt Reduced (w/growth)	Decade Amt Reduced	% Reduced
2014	2014	2,125,000				1	2,125,000				1	2,125,000			
2020	2020	1,601,951	92,243	611,049	25%	7	986,859	149,572	1,226,141	54%		296,042	115,128	1,828,958	86%
2021	2021	1,528,261	80,690		28%	8	868,436	125,423		59%		213,151	82,892		90%
2022	2022	1,457,961	82,300		31%	9	764,223	116,212		64%		153,468	59,682		93%
2023	2023	1,390,895	79,066		35%	10	672,517	103,707		68%		110,497	42,971		95%
2024	2024	1,326,914	78,981		38%	11	591,815	95,702		72%		79,558	30,939		96%
2025	2025	1,265,876	70,038		40%	12	520,797	80,018		75%		57,282	22,276		97%
2026	2026	1,207,645	69,230		43%	13	458,301	73,496		78%		41,243	16,039		98%
2027	2027	1,152,094	65,552		46%	14	403,305	64,996		81%		29,695	11,548		99%
2028	2028	1,099,097	66,996		48%	15	354,908	62,397		83%		21,380	8,315		99%
2029	2029	1,048,539	56,558		51%	16	312,319	48,589		85%		15,394	5,986		99%
2030	2030	1,000,306	58,233	707,645	53%	17	274,841	47,478	818,018	87%		11,084	4,310	284,959	99%
2031	2031	954,292	56,014		55%	18	241,860	42,981		89%		7,980	3,103		100%
2032	2032	910,395	56,897		57%	19	212,837	42,023		90%					
2033	2033	868,516	45,878		59%	20	187,297	29,540		91%					
2034	2034	828,565	48,952		61%	21	164,821	31,476		92%					
2035	2035	790,451	44,114		63%	22	145,042	25,779		93%					
2036	2036	754,090	44,361		65%	23	127,637	25,405		94%					
2037	2037	719,402	42,688		66%	24	112,321	23,316		95%					
2038	2038	686,309	82,092		68%	25	98,842	62,479		95%					
2039	2039	654,739	43,570		69%	26	86,981	23,861		96%					
2040	2040	624,621	43,118	507,685	71%	27	76,544	23,438	330,298	96%					
2041	2041	595,889	40,733		72%	28	67,358	21,185		97%					
2042	2042	568,478	40,411		73%	29	59,275	21,083		97%					
2043	2043	542,328	39,150		74%	30	52,162	20,113		98%					
2044	2044	517,381	36,947		76%	31	45,903	18,259		98%					
2045	2045	493,581	36,800		77%	32	40,394	18,508		98%					
2046	2046	470,876	34,705		78%	33	35,547	16,847		98%					
2047	2047	449,216	34,660		79%	34	31,281	17,266		99%					
2048	2048	428,552	32,664		80%	35	27,528	15,754		99%					
2049	2049	408,839	32,713		81%	36	24,224	16,303		99%					
2050	2050	390,032	31,807	360,589	82%	37	21,317	15,907	181,226	99%					

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[illegible]	[illegible]	56,897		57%
2033	865,516	45,878		59%

Scenario 2: Carbon Neutrality by 2050				
% Reduction/year				12.00%
Program Year	Target mtCO2e	Amt Reduced (w/growth)	Decade Amt Reduced	% Reduced
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7	986,859	149,572	1,226,141	54%
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	21,380	8,315		99%
	15,394	5,986		99%
	11,084	4,310	284,959	99%
	7,980	3,103		100%

What Are the Shorter Term Targets To Achieve These Goals?

	Option 1: 80% reduction of GHG emission below peak level at 2050			Option 2: Carbon Neutrality by 2050	
Year	GHG reduction target - mtCO2e	% GHG reduced		GHG reduction target - mtCO2e	% GHG reduced
2020	611,049	25%		1,226,141	54%
2030	1,318,694	53%		2,044,159	87%
2040	1,826,379	71%		2,374,457	96%
2050	2,186,968	82%		2,555,683	99%

#4: It's Technically And Technologically Possible

TOWARD A HYDROGEN ECONOMY

REVIEW

Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies

S. Pacala[1]* and R. Socolow[2]*

Humanity already possesses the fundamental scientific, technical, and industrial know-how to solve the carbon and climate problem for the next half-century. A portfolio of technologies now exists to meet the world's energy needs over the next 50 years and limit atmospheric CO_2 to a trajectory that avoids a doubling of the preindustrial concentration. Every element in this portfolio has passed beyond the laboratory bench and demonstration project; many are already implemented somewhere at full industrial scale. Although no element is a credible candidate for doing the entire job (or even half the job) by itself, the portfolio as a whole is large enough that not every element has to be used.

RESEARCH ARTICLE

CORRECTED 20 APRIL 2012; SEE LAST PAGE

The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity

James H. Williams,[1,2] Andrew DeBenedictis,[1] Rebecca Ghanadan,[1,3] Amber Mahone,[1] Jack Moore,[1] William R. Morrow III,[4] Snuller Price,[1] Margaret S. Torn[3]*

Several states and countries have adopted targets for deep reductions in greenhouse gas emissions by 2050, but there has been little physically realistic modeling of the energy and economic transformations required. We analyzed the infrastructure and technology path required to meet California's goal of an 80% reduction below 1990 levels, using detailed modeling of infrastructure stocks, resource constraints, and electricity system operability. We found that technically feasible levels of energy efficiency and decarbonized energy supply alone are not sufficient; widespread electrification of transportation and other sectors is required. Decarbonized electricity would become the dominant form of energy supply, posing challenges and opportunities for economic growth and climate policy. This transformation demands technologies that are not yet commercialized, as well as coordination of investment, technology development, and infrastructure deployment.

#4: Its Technically And

SPECIAL SECTION

REVIEW

Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies

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The debate in the current literature about stabilizing atmospheric CO_2 at less than a doubling of the preindustrial concentration has led to needless confusion about current options for mitigation. On one side, the Intergovernmental Panel on Climate Change (IPCC) has claimed that "technologies that exist in operation or pilot stage today" are sufficient to follow a less-than-doubling trajectory "over the next hundred years or more" [(1), p. 8]. On the other side, a recent review in *Science* asserts that the IPCC claim demonstrates "misperceptions of technological readiness" and calls for "revolutionary changes" in mitigation technology, such as fusion, space-based solar electricity, and artificial

(BAU) trajectory], the quantitative details of the stabilization target, and the future behavior of natural sinks for atmospheric CO_2 (i.e., the oceans and terrestrial biosphere). We focus exclusively on CO_2, because it is the dominant anthropogenic greenhouse gas; industrial-scale mitigation options also exist for subordinate gases, such as methane and N_2O.

Very roughly, stabilization at 500 ppm requires that emissions be held near the present level of 7 billion tons of carbon per year (GtC/year) for the next 50 years, even though they are currently on course to more than double (Fig. 1A). The next 50 years is

and climate problem over the next half-century" means to deploy the technologies and/or lifestyle changes necessary to fill all seven wedges of the stabilization triangle.

Stabilization at any level requires that net emissions do not simply remain constant, but eventually drop to zero. For example, in one simple model (9) that begins with the stabilization triangle but looks beyond 2054, 500-ppm stabilization is achieved by 50 years of flat emissions, followed by a linear decline of about two-thirds in the following 50 years, and a very slow decline thereafter that matches the declining ocean sink. To develop the revolutionary technologies required for such large emissions reductions in the second half of the century, enhanced research and development would have to begin immediately.

Policies designed to stabilize at 500 ppm would inevitably be renegotiated periodically to take into account the results of research and development, experience with specific wedges, and revised estimates of the size of the stabilization triangle. But not filling the

nologically Possible

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In 2004, Pacala and Socolow (*1*) proposed a way to stabilize climate using existing greenhouse gas (GHG) mitigation technologies, visualized as interchangeable, global-scale "wedges" of equivalent emissions reductions. Subsequent work has produced more detailed analyses, but none combines the sectoral granularity, physical and resource constraints, and geographic scale needed for developing realistic technology and policy roadmaps (*2*–*4*). We addressed this gap by

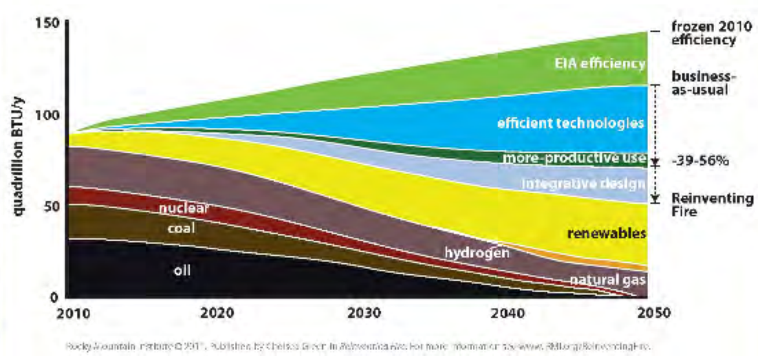
sistent with an Intergovernmental Panel on Climate Change (IPCC) emissions trajectory that would stabilize atmospheric GHG concentrations at 450 parts per million carbon dioxide equivalent (CO_2e) and reduce the likelihood of dangerous anthropogenic interference with climate (*10*). Working at both time scales, we found a pressing need for methodologies that bridge the analytical gap between planning for shallower, near-term GHG reductions based entirely on existing commercialized

bility, resource availability, and historical uptake rates rather than relative prices of technology, energy, or carbon as in general equilibrium models (*14*). Technology penetration levels in our model are within the range of technological feasibility for the United States suggested by recent assessments (table S20) (*15*, *16*). We did not include technologies expected to be far from commercialization in the next few decades, such as fusion-based electricity. Mitigation cost was calculated as the difference between total fuel and measure costs in the mitigation and baseline scenarios. Our fuel and technology cost assumptions, including learning curves (tables S4, S5, S11, and S12, and fig. S29), are comparable to those in other recent studies (*17*). Clearly, future costs are very uncertain over such a long time horizon, especially for technologies that are not yet commercialized. We did not assume explicit life-style changes (e.g., vegetarianism, bicycle transportation), which could have a substantial effect on mitigation requirements and costs (*18*); behavior change in our model is subsumed within conservation measures and energy efficiency (EE).

To ensure that electricity supply scenarios met the technical requirements for maintaining reliable service, we included an electricity system dispatch algorithm that tested grid operability. Without a dispatch model, it is difficult to determine whether a generation mix has infeasibly high levels of intermittent generation. We developed an electricity demand curve bottom-up from sectoral demand, by season and time of day. On

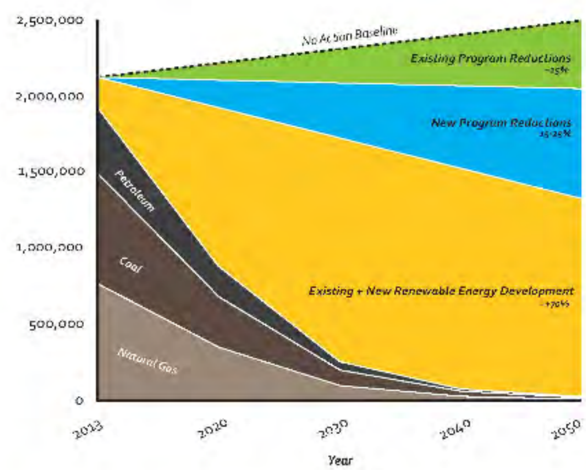
Two Scenarios for Deep Reductions

80% Reduction below 2010 by 2050



Rocky Mountain Institute--"Reinventing Fire" 2012

Carbon Neutrality by 2050



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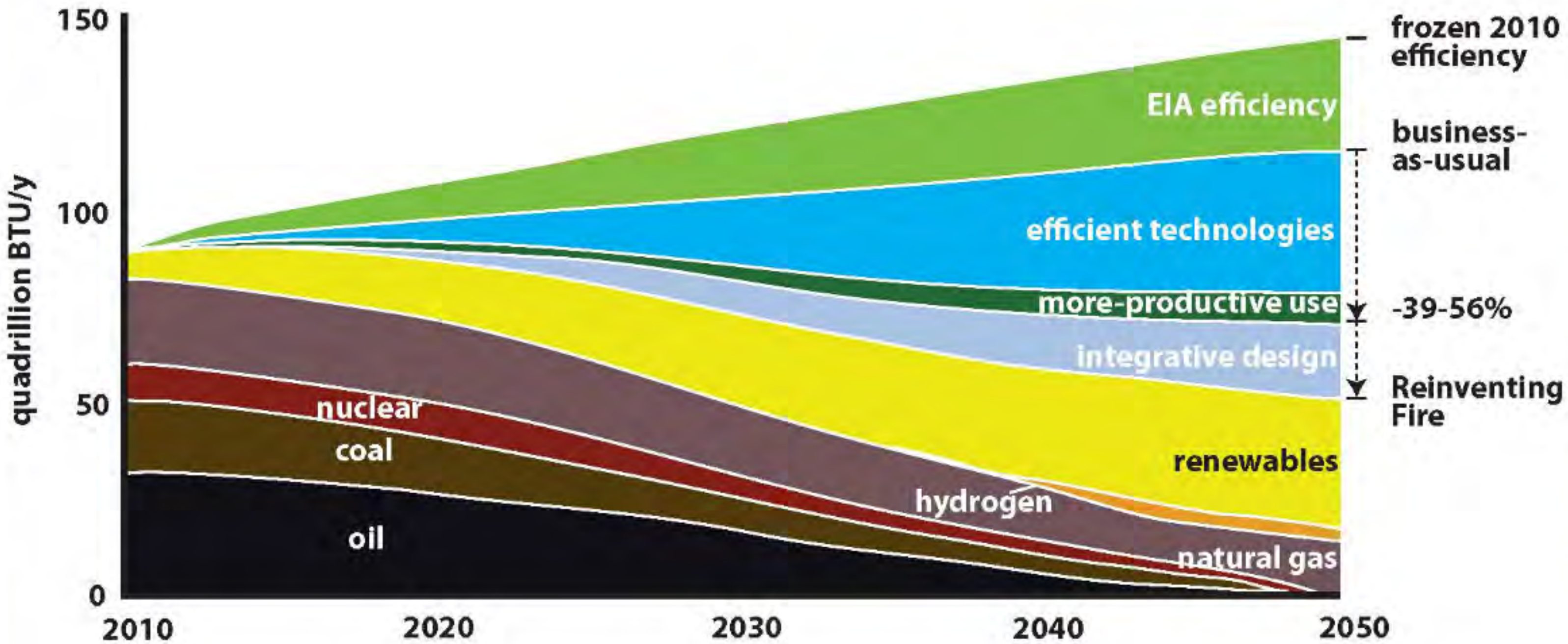

Rocky Mountain Institute © 2011. Published by Chelsea Green in *Reinventing Fire*. For more information see www. RMI.org/ReinventingFire.

Rocky Mountain Institute--"Reinventing Fire" 2012

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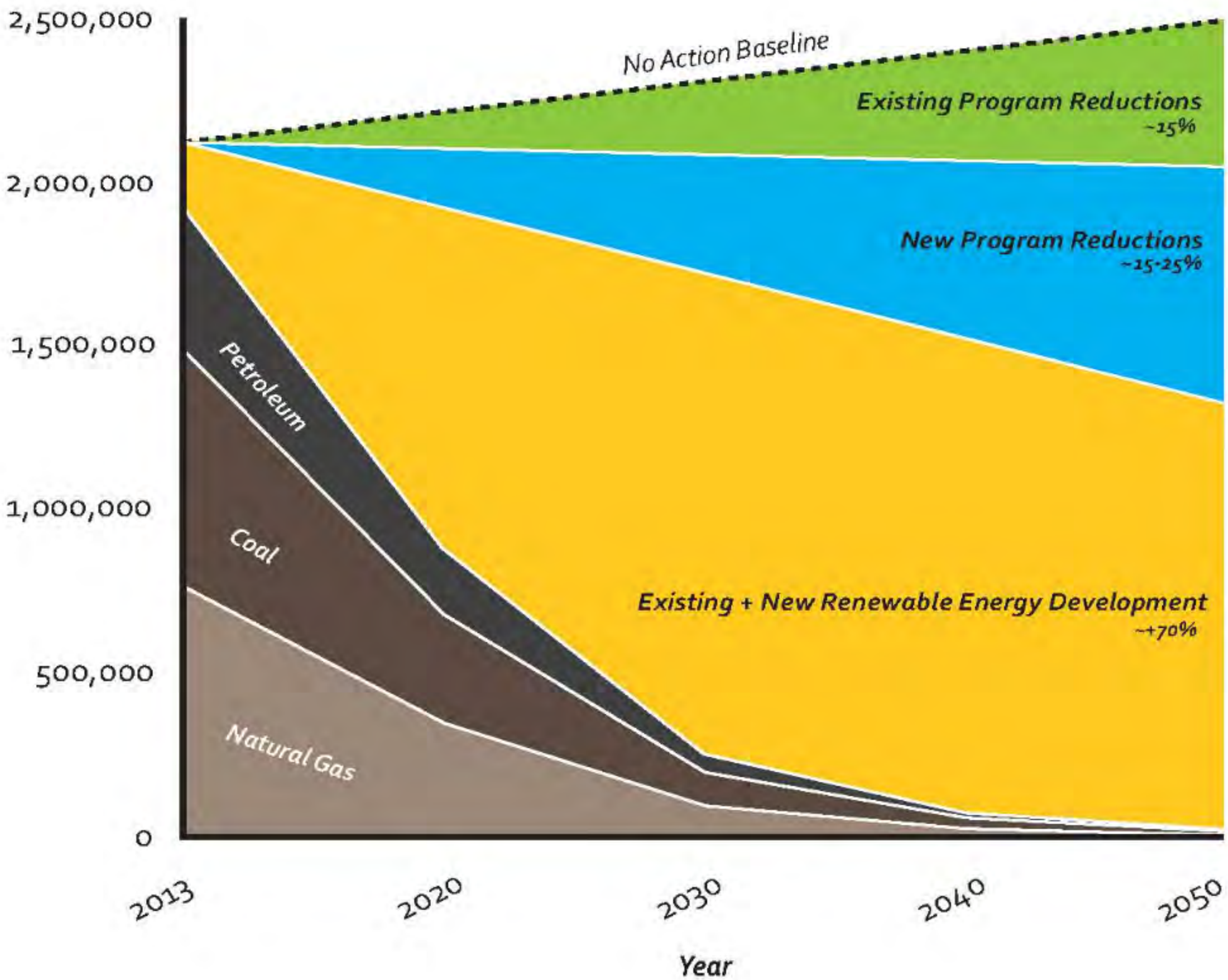


Germany - Case Study in Transition to Renewables

4% of land area
50% less sun
500% more solar - 30 GW vs US ~ 6.4 GW

- Increased renewables from 6% to 25% in 12 years. Projects doubling again by 2025. Some states over 50% already
- 65% of renewables community or co-op owned (US - 2%)
- Closed 8 nuclear plants, last 9 by 2022
- Over 390,000 employed in renewables--doubled since 2004.
- July 21, 2013: 50% of energy from solar

Aarhus, Denmark-Carbon Neutral by 2030

Strategies

1. Aggressive Public-Private Partnerships
2. Creation of an Energy Technology Innovation Center.
3. Light Rail
4. Municipal employee "climate ambassadors"
5. Extensive energy efficiency programs

District heating system serving 95% of community

Boulder's Extra Challenge--The Carbon Intensity of Our Energy Source

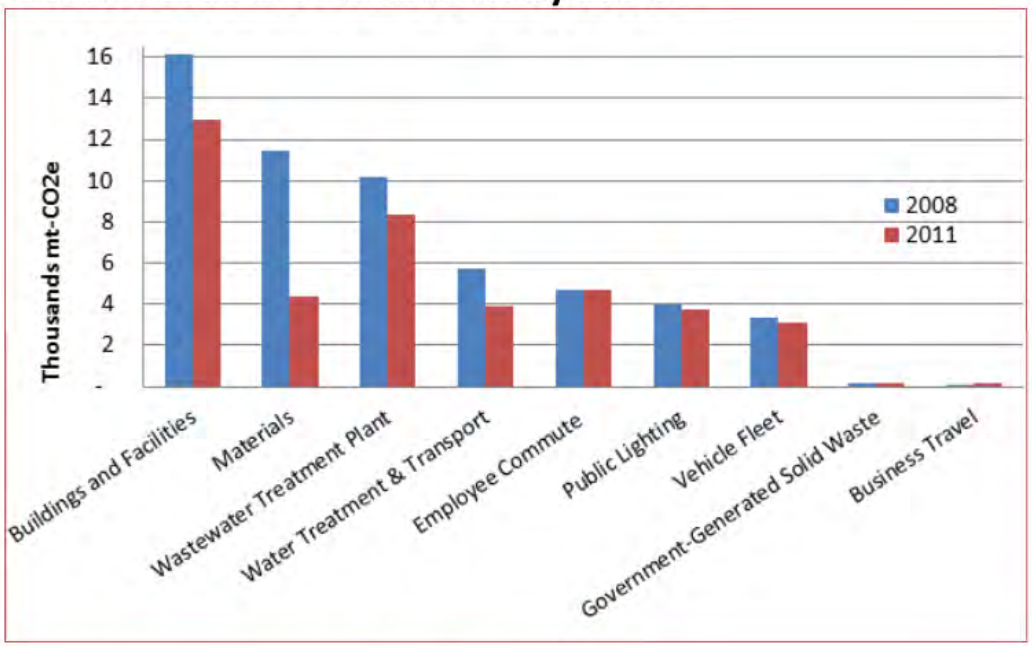
CITY	Per capita CO2e
Aarhus, Denmark	7.1
Portland, OR	11.9
Austin, TX	14.6
Fort Collins, CO	15.8
Burlington, VT	9.5
Munich, Germany	7
York, England	6
Zurich, Switzerland	5.5
Boulder, Colorado	20

Boulder's Climate Commitment

Significant Accomplishments in the City Organization

City Facilities – Other Emission Sources

2008 & 2011 GHG Emissions by Sector



Reductions
Buildings – 20%
Materials – 62%
Wastewater – 19%
Water – 32%
Public Lights – 6%
Fleet – 5%

Overall: 26% decrease from 2008 to 2011

OSMP Facilities are NET PRODUCERS of energy!

Boulder's Climate Action History - 2006-2013

Reduce

Residential Energy Smart - 6,000 of ~45,000 households served

- Owner-Occupied Energy Smart Services (30%)
- Smart-Regs Rental Property Program (70%)

Commercial Energy Smart - 1,753 of 3,280 business served

- Energy Smart for Businesses
- Rating and Reporting/Efficiency Ordinance Exploration

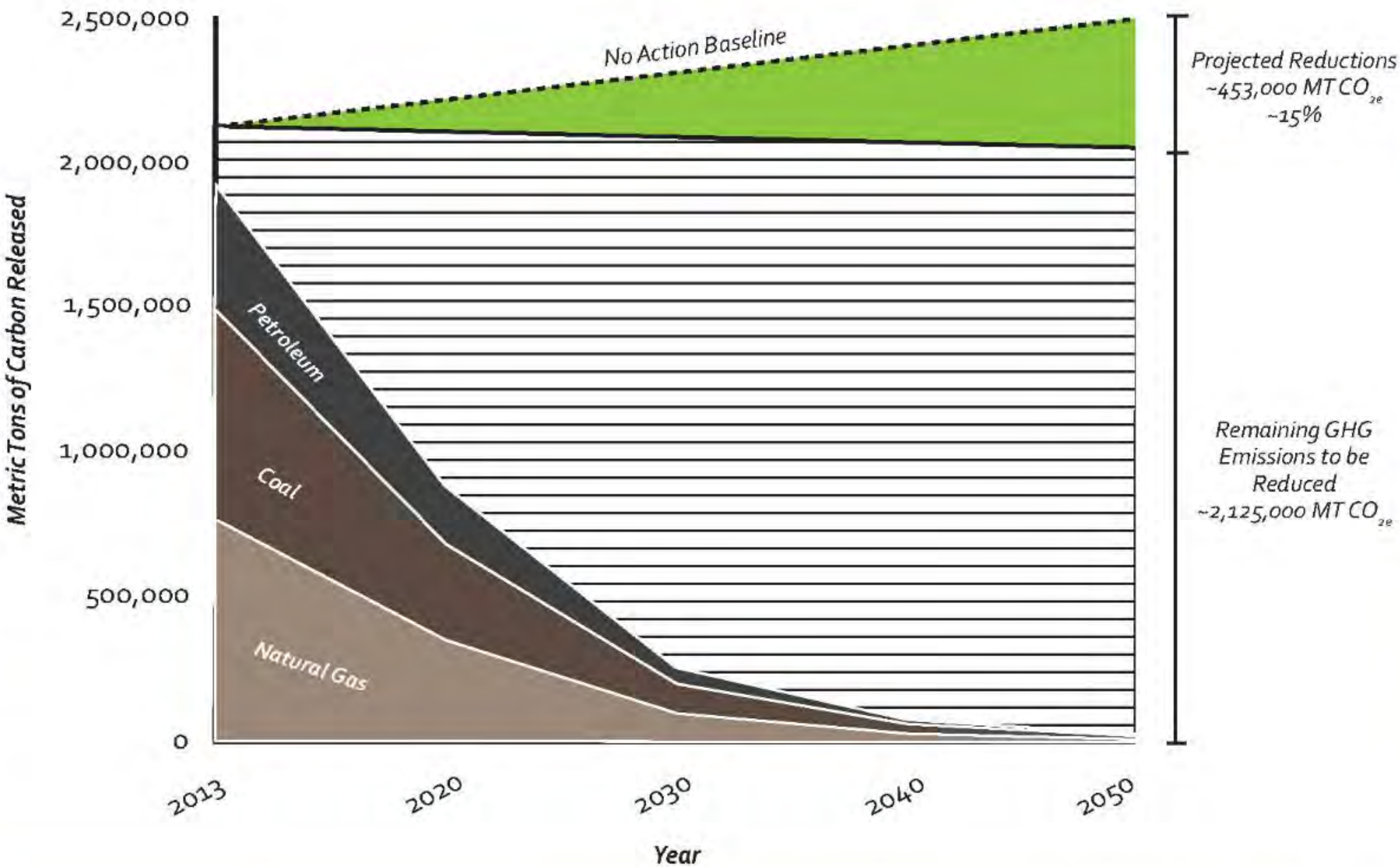
Transportation

- Ecopass Program
- Transportation mode change programs
- Transportation & parking management

Replace

- Solar Grants Program
- Solar Rebates Program
- Municipalization analysis

Carbon Neutrality and Existing Program Reductions



PREZI

New Programs and Strategies to Further Reduce GHG Emissions

Transportation

Community Design

Energy Demand Management

Market Innovations

to

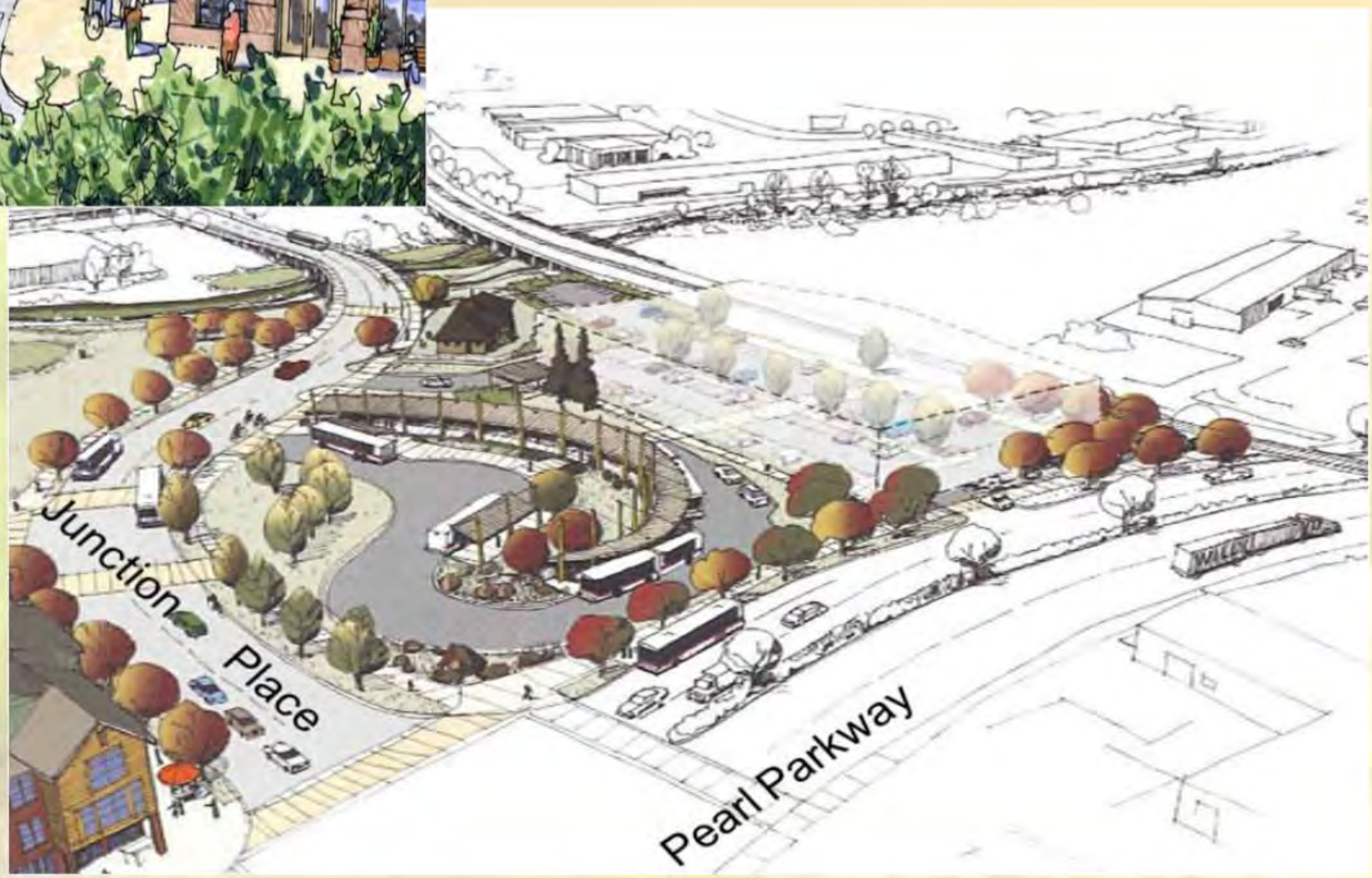
Transportation


C2


15
MPH

Transportation

Community Design


Junction Place
Pearl Parkway

Community Design

Energy Demand Management

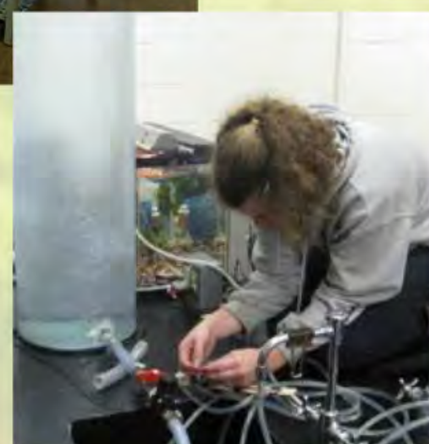
2013 Ma

Market Innovations

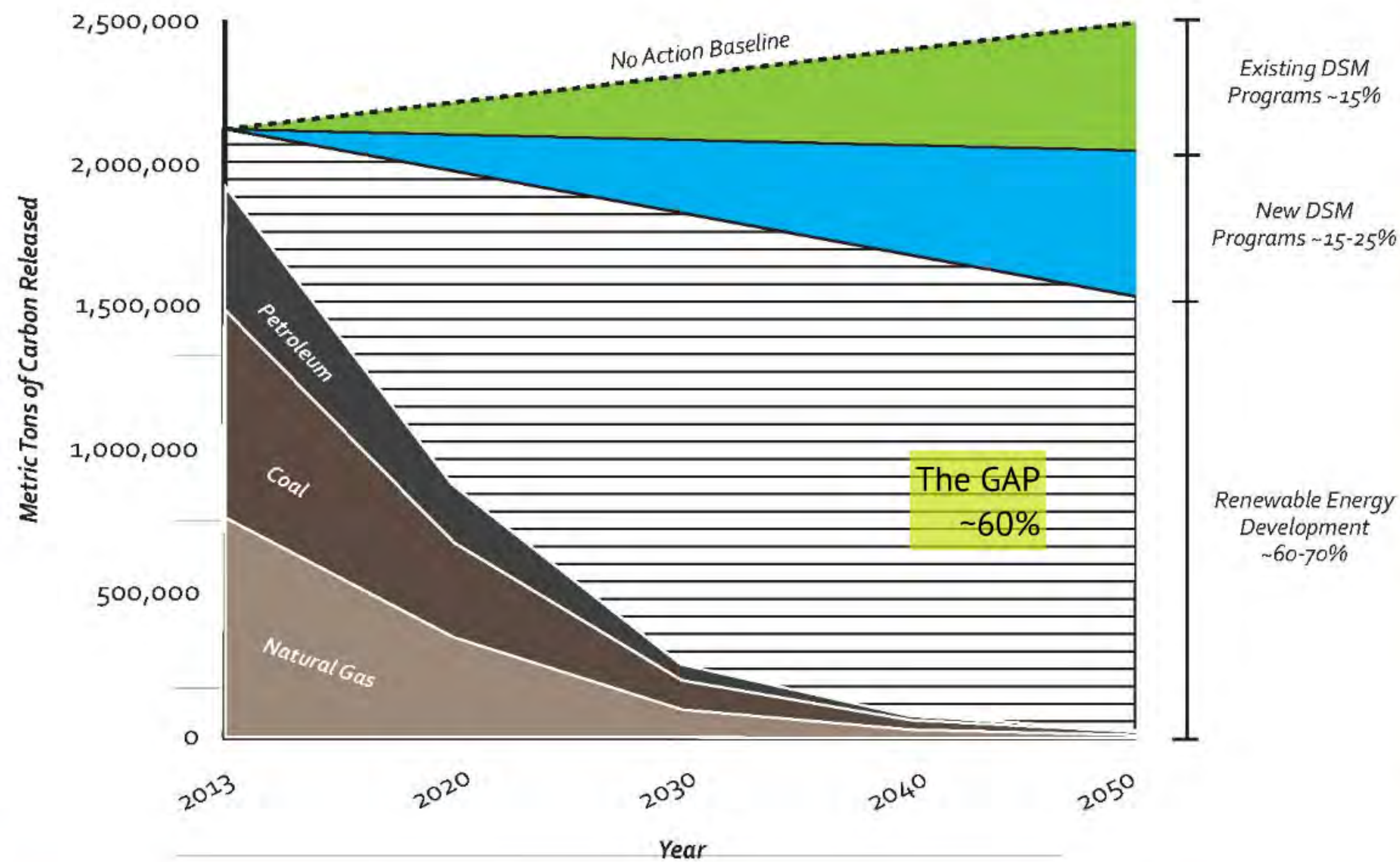

plotwatt
Houses
bkencaim
Wembley's House
11:08 AM
Overview
Trends
Budgets
Settings
My Usage
feedback
30 Days
7 Days
Day
$1.81
Real-time
0.87 kW
HIGH
4.49 kW
LOW
-0.00 kW
AVERAGE
1.40 kW
Appliance Status
LAST 30 DAYS
$19
$0
$40
$15
$4
$9
Appliances
LAST 30 DAYS
Heating & A/C
Other
Always On
Refrigeration
Water and Septic
Dryer
Zip Code
Dollars ($)
You
Trends
Dollars ($)
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
June
July
Total for Period
$1106.53
Biggest Day of Week
Wednesdays
Average Per Month
$85
Home Size
Dollars ($)

Market Innovations

2013 Market Innovations Grant Program



Existing and Projected Demand Side (Reduction) Potential



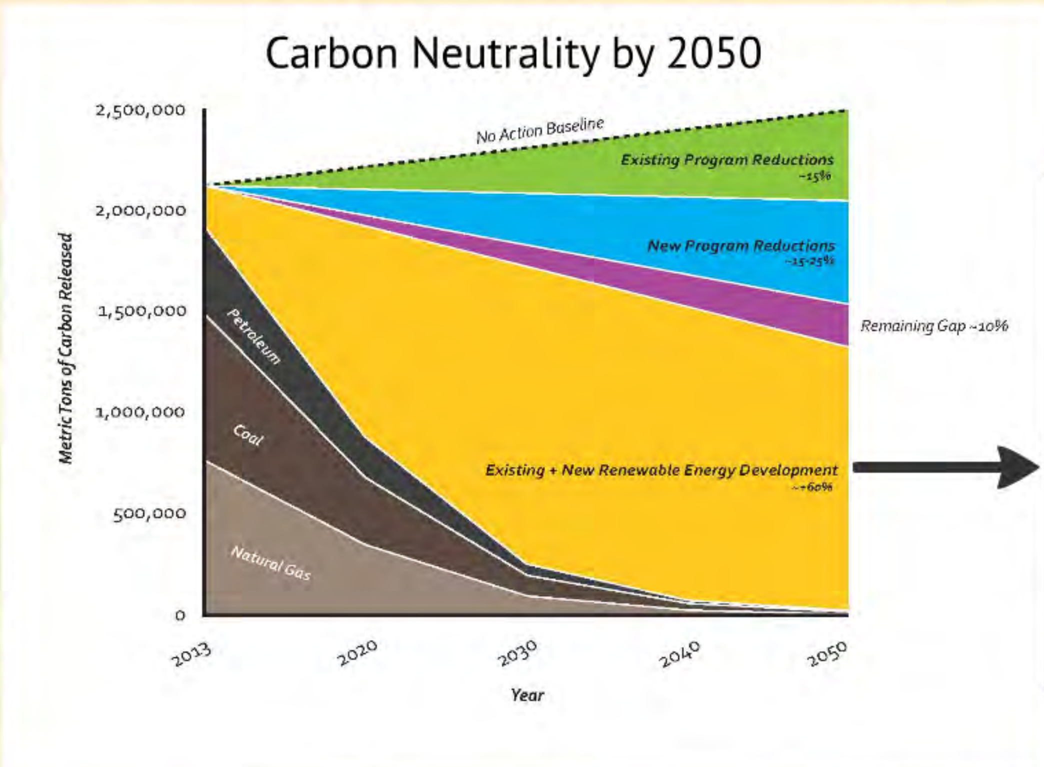
Prezi

The GAP

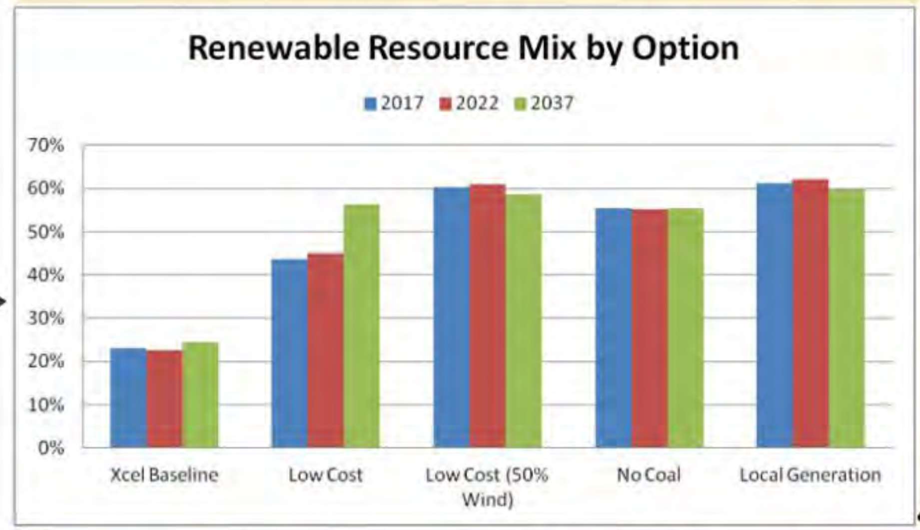
~60%

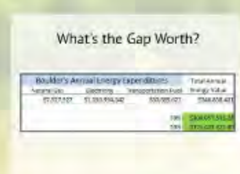
Filling The Gap

Carbon Neutrality by 2050 Pathway

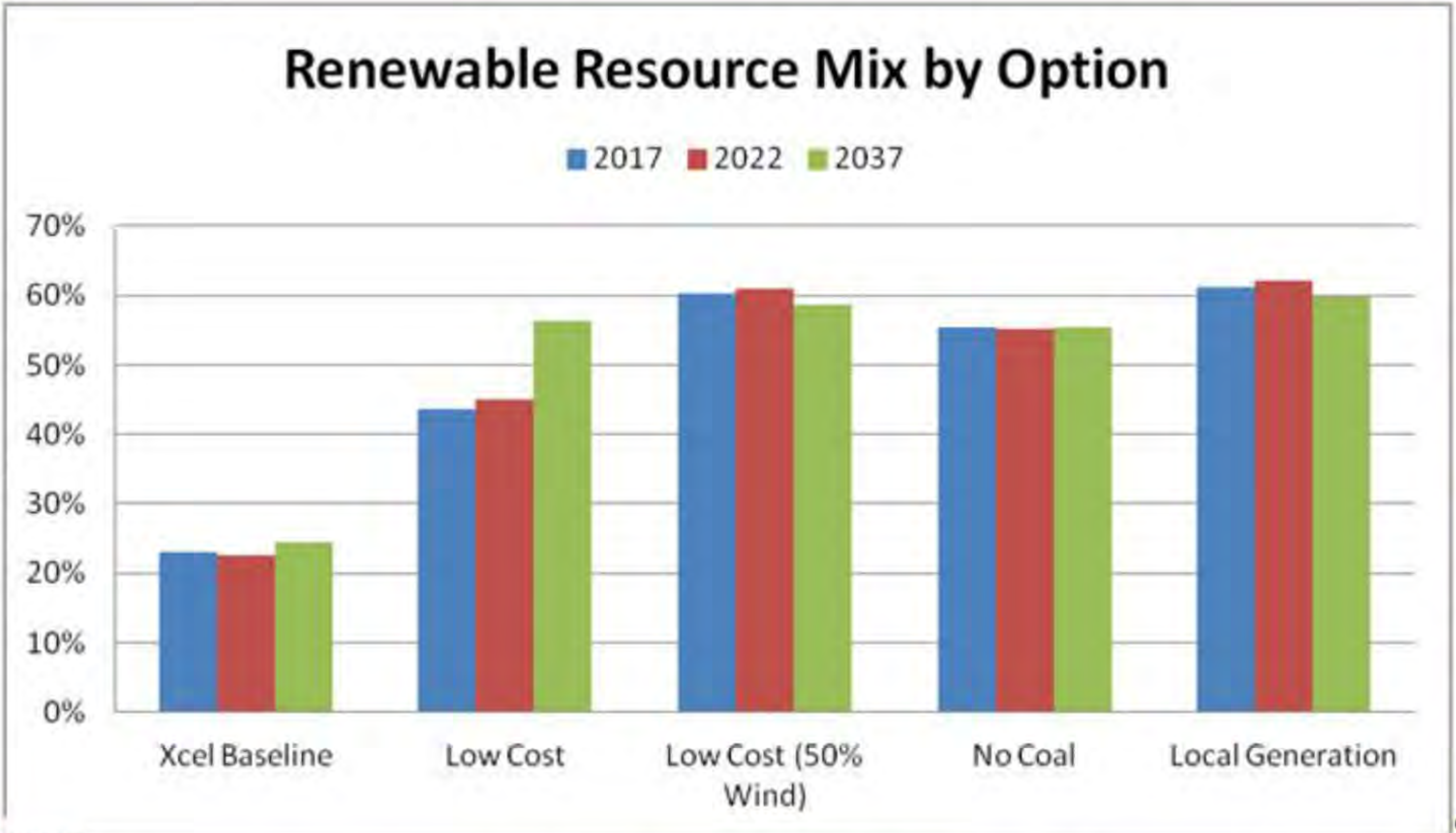


Municipalization Analysis of Renewable Energy Options

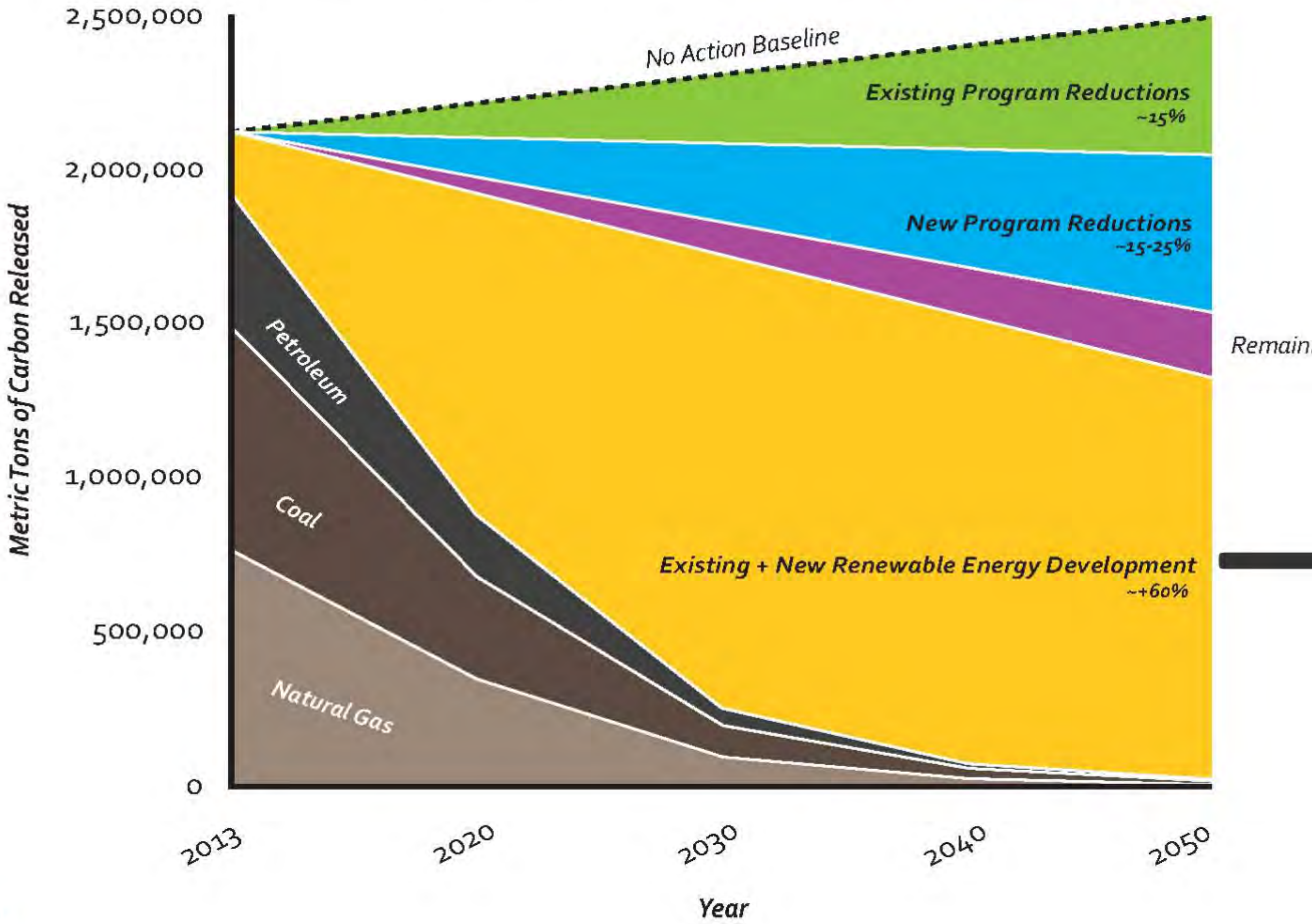




Municipalization Analysis of Renewable Energy Options



Carbon Neutrality by 2050

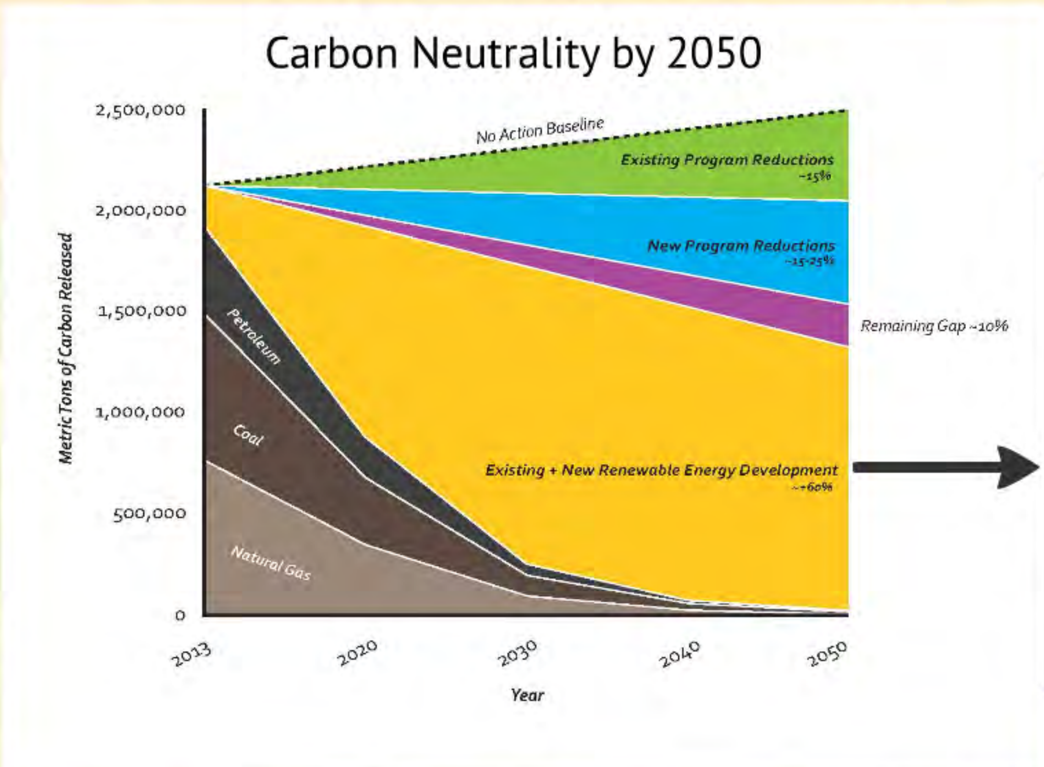


What's the Gap Worth?

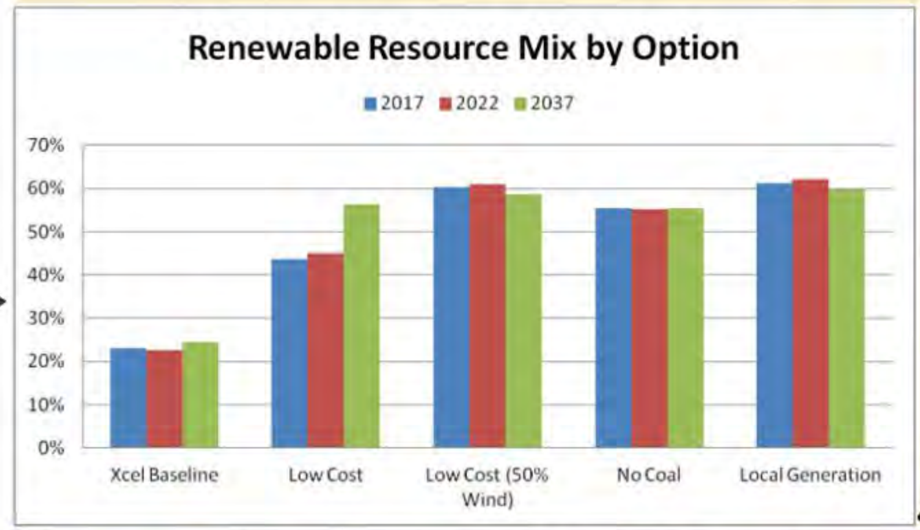
Boulder's Annual Energy Expenditures			Total Annual
Natural Gas	Electricity	Transportation Fuel	Energy Value
$7,527,927	$1,350,994,542	$50,889,621	$346,858,451
		30%	$104,057,535.24
		50%	$173,429,225.40

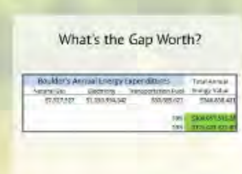
Filling The Gap

Carbon Neutrality by 2050 Pathway



Municipalization Analysis of Renewable Energy Options





Prezi

Summary & Next Steps

Why? Boulder's commitment to do our part to limit climate change AND the enormous economic and social opportunity this represents

Who? Its all about collaboration and partnerships--from the individual to the institutional levels

Community Engagement Next Steps

What? The process and timeline for developing strategies and the consultation process with the community

Climate Commitment Next Steps

How? The 7 Principles guiding the Climate Commitment

Community Engagement Next Steps

1. Restarting the discussion in the community

2. Securing professional support to effectively summarize key issues

3. Translate abstract scientific terms into meaningful, actionable community measures.

4. Create a technical working group of community climate specialists

5. Engage our partners--institutions, businesses, other gov't entities

Summary & Next Steps

Why? Boulder's commitment to do our part to limit climate change AND the enormous economic and social opportunity this represents

Who? Its all about collaboration and partnerships--from the individual to the institutional levels

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How? The 7 Principles guiding the Climate Commitment

Climate Commitment: Next Steps

1. Finish the GHG/Data management tool Aug--Sept. 2013

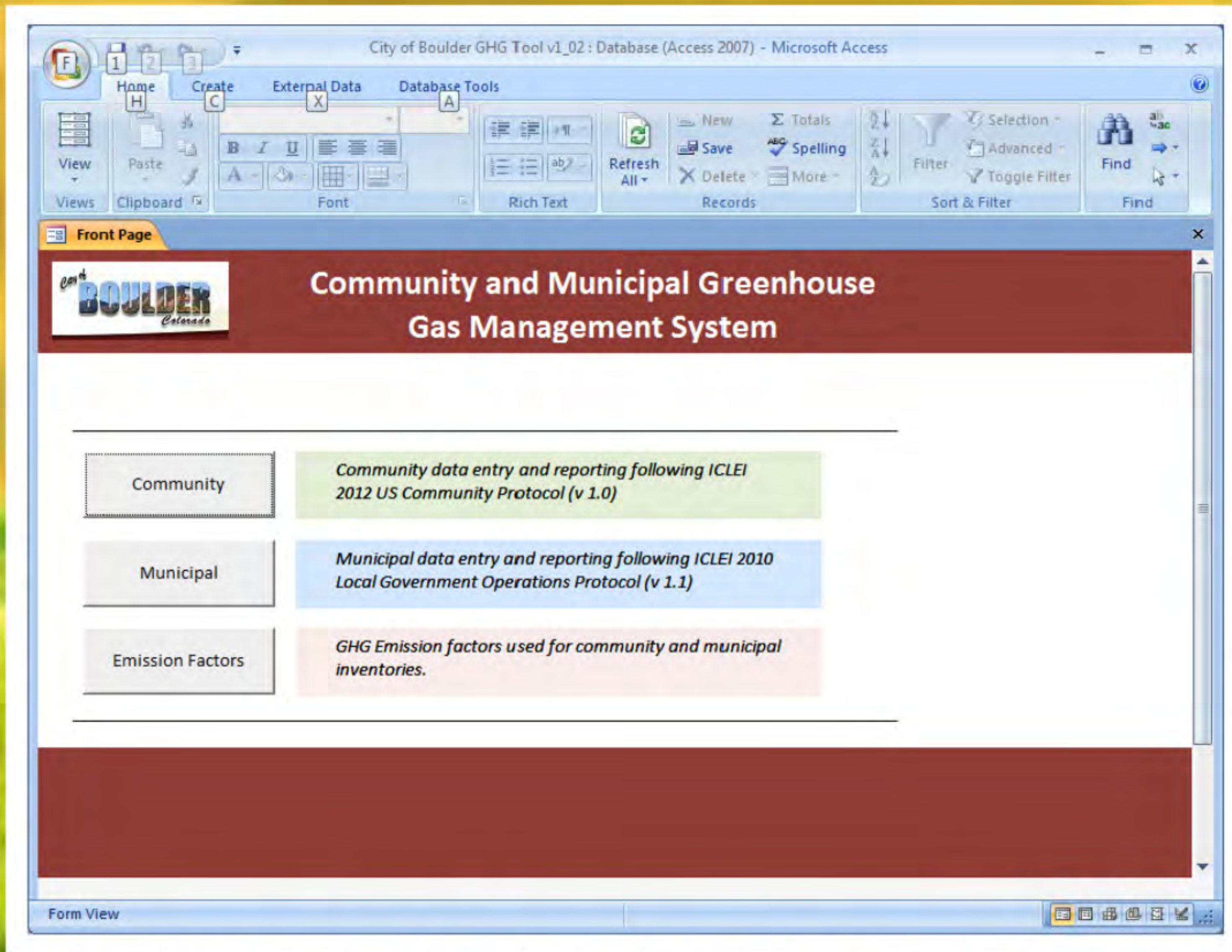
2. Strategy refinement and analysis - August-Oct 2013

3. Technical Working Group formation and review: Aug-Dec 2013

4. Community outreach and engagement: August - Nov 2013

5. Draft plan development: Nov '13-Jan '14

6. Council review: Q1 2014


City of Boulder GHG Tool v1_02 : Database (Access 2007) - Microsoft Access
Home
Create
External Data
Database Tools
View
Paste
Views
Clipboard
Font
Rich Text
Refresh All
New
Save
Delete
Totals
Spelling
More
Records
Filter
Selection
Advanced
Toggle Filter
Sort & Filter
Find
Front Page
Community and Municipal Greenhouse Gas Management System
Community
Community data entry and reporting following ICLEI 2012 US Community Protocol (v 1.0)
Municipal
Municipal data entry and reporting following ICLEI 2010 Local Government Operations Protocol (v 1.1)
Emission Factors
GHG Emission factors used for community and municipal inventories.
Form View

Municipal GHG Report
2011

Scope 1

Built Environment				
Facilities Natural Gas Use	643,354.7	therms	3,419.82	$mtCO_2e$
Water-related Natural Gas Use	186,522.0	therms	991.48	$mtCO_2e$
Fleet - Conventional Fuels*				
Gasoline Consumption	148,473	gallons	1,333.65	$mtCO_2e$
Diesel Consumption	118,501	gallons	1,210.95	$mtCO_2e$
Propane Consumption	1,006	gallons	5.62	$mtCO_2e$
Fleet - Biogenic Fuels (CH_4 and N_2O only)**				
Biodiesel (B100) Consumption	6,862	gallons	0.06	$mtCO_2e$
Ethanol (E100) Consumption	38,748	gallons	8.88	$mtCO_2e$
Wastewater Treatment Process Emissions				
Process emissions from combustion of digestor gasses		ft3	0.00	$mtCO_2e$
Process emissions from nitrification and dentrification		persons	0.00	$mtCO_2e$
Effluent discharge fugitive nitrous oxide emissions		kg N/year	0.00	$mtCO_2e$
Scope 1 Subtotal			**6,970.45**	**$mtCO_2e$**

Scope 2

Built Environment				
Facilities Electricical Consumption	1,187,229	kWh	9,553.84	$mtCO_2e$
Water-related Electricical Consumption	1,086,479	kWh	9,243.23	$mtCO_2e$
Streetlight Electrical Consumption	1,084,685	kWh	2,711.27	$mtCO_2e$
Traffic Signal Electrical Consumption	74,498	kWh	798.88	$mtCO_2e$
Other Outdoor Lighting Electrical Consumption	32,084	kWh	221.54	$mtCO_2e$
Scope 2 Subtotal	**27,089,769**	**kWh**	**22,528.75**	**$mtCO_2e$**

Scope 3

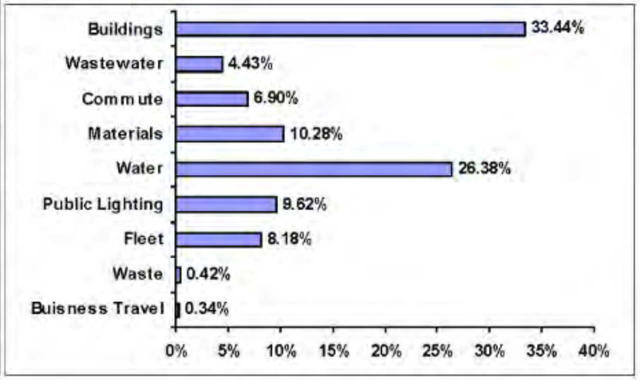
Transportation-Related Sources				
Business Air Travel	284,500.0	miles	72.01	$mtCO_2e$
Business Vehicle Travel (fuel use + well-to-wheels)	5,235.3	gallons	59.7	$mtCO_2e$
Employee Commute (fuel use + well-to-wheels)	237,586.3	gallons	2,676.92	$mtCO_2e$
Fleet - Well-to-wheels life-cycle emissions	266,974.4	kWh	614.04	$mtCO_2e$
Solid Waste				
Solid Waste	952.6	short tons	163.37	$mtCO_2e$
Materials				
Asphalt	30,346.60	short tons	1,128.14	$mtCO_2e$
Computers-Hardware	732,570.72	dollars	241.75	$mtCO_2e$
Concrete	7,985.35	cubic yards	2,202.58	$mtCO_2e$
Copy Paper	51,399.41	dollars	25.70	$mtCO_2e$
Fertilizer	56,786.02	pounds	50.50	$mtCO_2e$
Food	225,855.04	dollars	338.78	$mtCO_2e$
Scope 3 Subtotal			**7,573.48**	**$mtCO_2e$**

Total	**37,072.68 $mtCO_2e$**

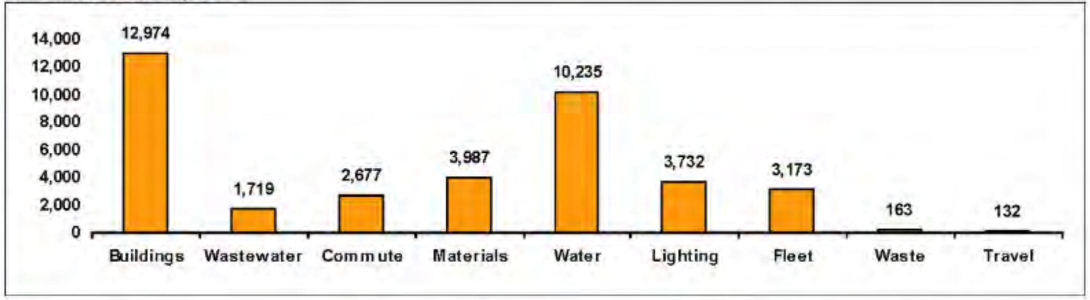
Emission Breakdown-Sector

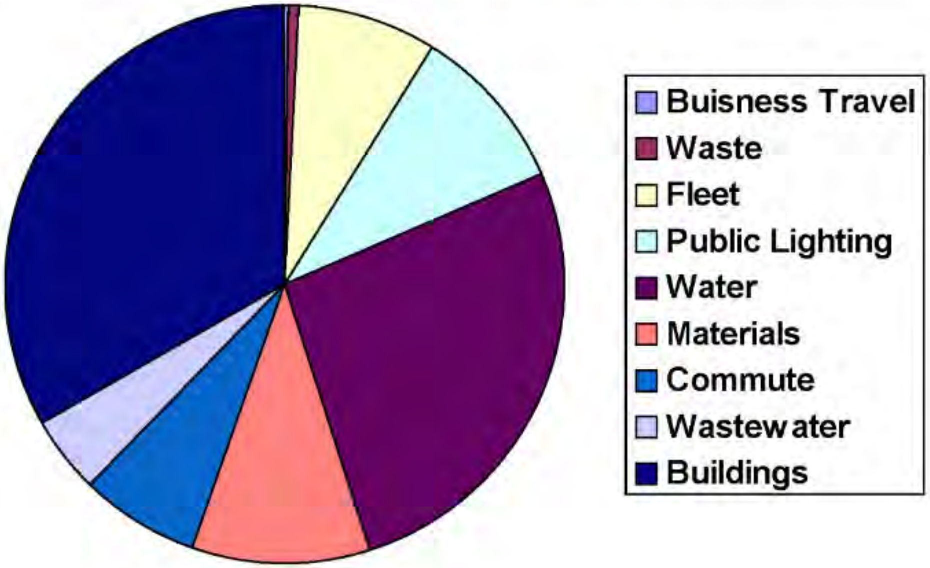
Emissions by Sector

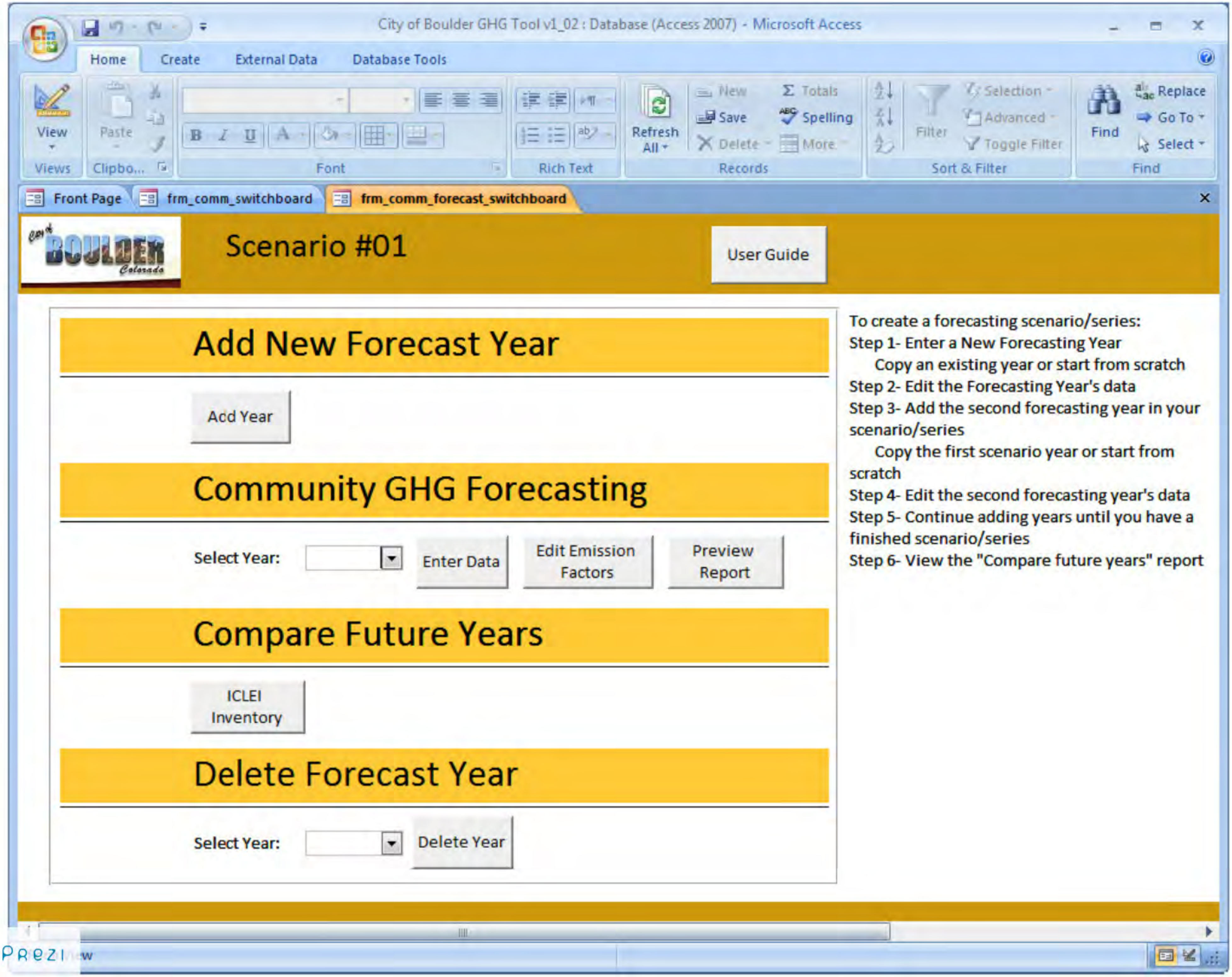
Sector	metric tons CO_2e
Buildings and Facilities	12,973.65
Wastewater Treatment Plant	1,718.96
Employee Commute	2,676.92
Materials	3,987.46
Water Treatment / Transpor	10,234.70
Public Lighting	3,731.69
Vehicle Fleet	3,173.20
Solid Waste	163.37
Business Travel	131.71
TOTAL:	**38,791.66**



Emission $mtCO_2e$ by Sector






City of Boulder GHG Tool v1_02 : Database (Access 2007) - Microsoft Access
Home
Create
External Data
Database Tools
View
Paste
Refresh All
New
Save
Delete
Totals
Spelling
More
Filter
Selection
Advanced
Toggle Filter
Find
Replace
Go To
Select
Views
Clipbo...
Font
Rich Text
Records
Sort & Filter
Find
Front Page
frm_comm_switchboard
frm_comm_forecast_switchboard
BOULDER
Colorado
Scenario #01
User Guide
Add New Forecast Year
Add Year
Community GHG Forecasting
Select Year:
Enter Data
Edit Emission Factors
Preview Report
Compare Future Years
ICLEI Inventory
Delete Forecast Year
Select Year:
Delete Year
To create a forecasting scenario/series:
Step 1- Enter a New Forecasting Year
Copy an existing year or start from scratch
Step 2- Edit the Forecasting Year's data
Step 3- Add the second forecasting year in your scenario/series
Copy the first scenario year or start from scratch
Step 4- Edit the second forecasting year's data
Step 5- Continue adding years until you have a finished scenario/series
Step 6- View the "Compare future years" report
Prezi

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Seven Guiding Principles to Climate Commitment Implementation

1. Be strategic, but opportunistic

2. Take calculated risks

3. Avoid analysis-paralysis

4. Partner

5. Demonstrate ethical leadership

6. Focus on system change

7. Harness the economic benefits of climate leadership

Questions for Council

1. Does City Council have feedback on the magnitude and timeframe for the city's long-term goal for GHG reduction?

2. Does council have feedback on the related near-term GHG reduction targets?

3. Does council have feedback on this presentation and the proposed outreach and engagement strategy?

4. Does council have comments or questions regarding the energy efficiency program updates and proposed direction on the work plan items?

5. Specifically, does council agree with staff's recommendation to focus current commercial energy efficiency strategies on further collaboration and pilot projects to refine the strategies that may be utilized in designing a commercial rating and reporting requirement?

Boulder's Climate Commitment
Path to a Healthy and Sustainable Future

Key Messages

1. Climate change is impacting us now and it could intensify.

2. The causes and necessary responses are clear.

3. There are viable technical and technological options now.

4. Boulder has learned an enormous amount that it can use to leverage a rapid shift to a low-carbon future.

5. Developing early leadership in the transition to a low-carbon economy is the safest and most dynamic investment Boulder can make in its long-term health and prosperity.

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