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### Economic Impacts of Climate Change Mitigation in the State of Montana

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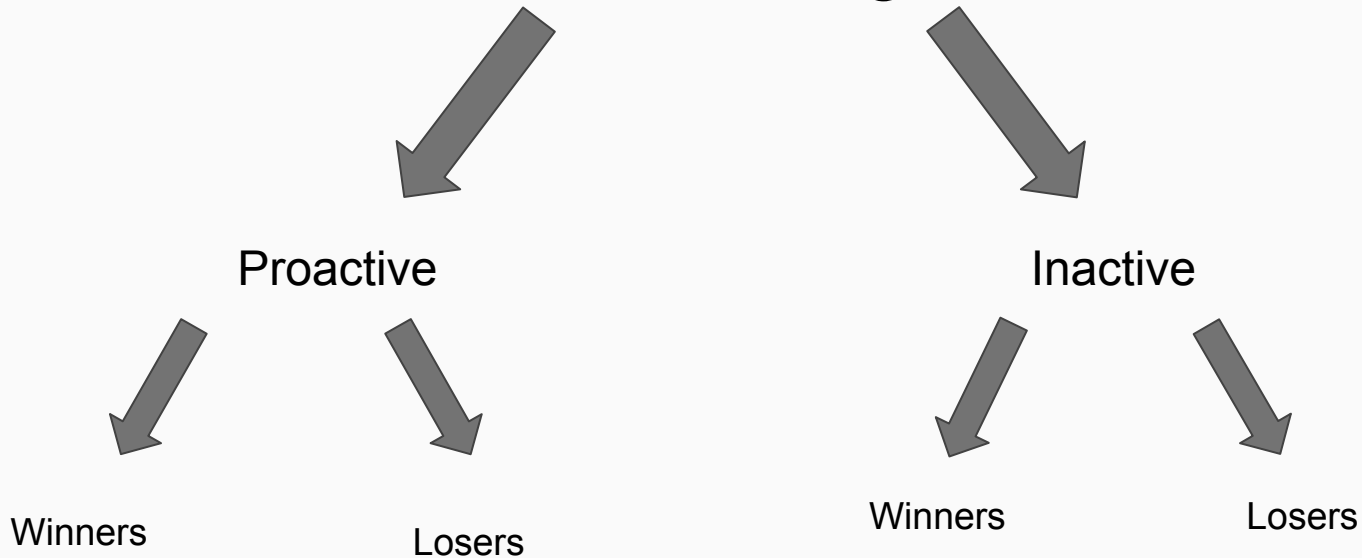
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# *Economic Impacts of Climate Change Mitigation in the State of Montana*

Paul Edlund  
UMCUR Presentation  
4-28-17

# Montana Mitigation



# Methods and Parameters

- Identify “Winners and Losers” of each mitigation scenario
- Establish Net Profit or Net Loss of each scenario
  - Use Climate Models to ensure credibility
- Comparing economic Net Profit or Loss of mitigation scenarios
- Use Net Profit or Loss to establish efficacy of mitigation for each Winner or Loser
  
- ❖ Restricting Research to Montana Economy and Montana Mitigation
- ❖ Restricting Research to Mitigation Methods, exempting Restoration, Preservation, Adaptation Efforts

# Inactive Mitigation Methods



**Projected Economic Losses Due to Climate Change in Components of the Montana Recreation and Tourism Activities**

	Jobs	Labor Earnings (\$millions)
Glacier-Yellowstone NP Visitation	3,331	\$94
Wildlife Watching & Sight-Seeing	2,775	\$61
Hunting	1,560	\$39
Sport Fishing	1,792	\$49
Skiing, Snowboarding, Snowmobiling	1,465	\$37
<b>Total Economic Losses in Recreation and Tourism</b>	<b>10,922</b>	<b>\$281</b>

## Losers

- Tourism/Outdoor Recreation
- Agriculture
- Environmental Quality
- Forest Fire Prevention
- Montana Biodiversity

**Economic Costs Associated with More Destructive Wildfires**

Type of Cost	Cost or Impact (\$millions)
<u>Loss of Homes (replacement cost, 2014\$)</u>	
Annual Loss of Homes 2016-2050	\$53
Cumulative Loss of Homes	\$1,900
<u>Increased Cost of Controlling Wildfire (annual, 2014\$)</u>	\$261
<u>Decreased Rate of In-Migration to Montana</u>	
Average Annual Labor Earnings Reduction 2016-2050 (2014\$)	\$858
	<b>Number of Jobs</b>
Average Annual Employment Reduction 2016-2050	1,700

# Inactive Mitigation Methods

*That is, Business as Usual*

## Winners

- Montana Mining Economy
- Coal-Fired Power Plants
- Avoiding costs of energy grid renewal
- Possibility of outsourcing coal to China

	Number of Employees	Estimated Payroll
Signal Peak Energy	239	\$23,531,000
Decker Coal Co.	132	10,305,000
Cloud Peak Energy	229	20,600,000
Western Energy Co.	407	34,533,000
Westmoreland Resources	131	9,100,000
Westmoreland Savage	13	751,000
<b>Total</b>	<b>1,151</b>	<b>\$ 98,820,000</b>

*Payroll from Montana Mining Companies to Montana Employees*

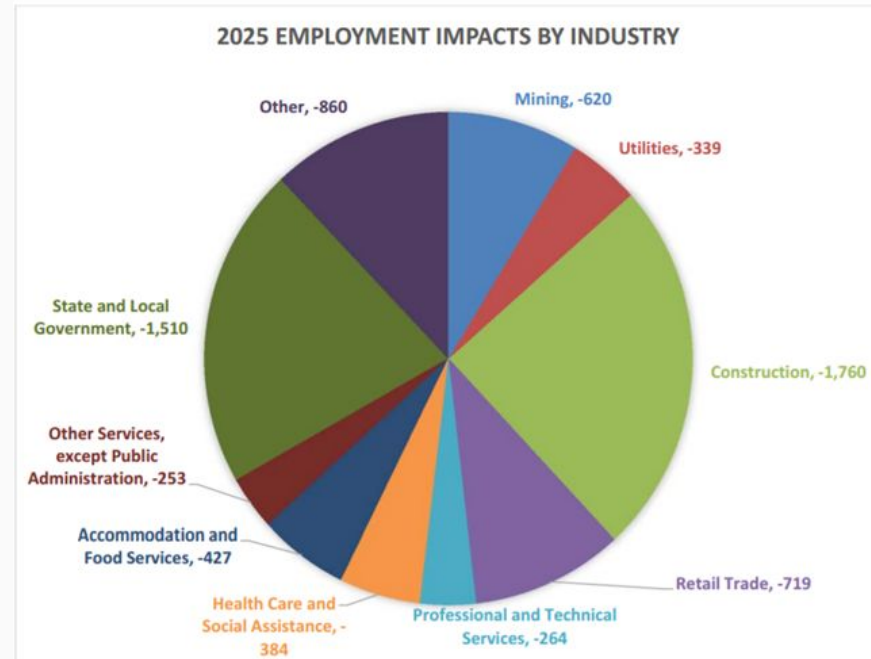


# Proactive Mitigation Methods

## Losers

- Montana Mining Economy
- Coal-Fired Power Plants
- NorthWestern Energy
  
- Small Business Owners?

Employee Total  
7,136



The Economic Implications of Implementing the EPA Clean Power Plan in Montana

BBER  
Report

Impacts Summary		Impacts by Year		
Category	Units	2025	2035	2045
Total Employment	Jobs	-7,137	-5,381	-3,715
Personal Income	\$ Millions	-515.9	-556.3	-482.2
Disposable Pers. Income	\$ Millions	-440.6	-481.2	-417.7
Selected State Tax Revenues	\$ Millions	-145.6	-165.8	-152.0
Property Tax Revenues	\$ Millions	-44.4	-74.5	-78.5
Output	\$ Millions	-1,511.7	-1,407.4	-1,268.0
Population	People	-5,211	-10,731	-9,207

# Proactive Mitigation Methods

## Winners

- Improved Community Health
- Public Health around pollution sites
- Independent Sources of Energy
  
- What about the Industries?

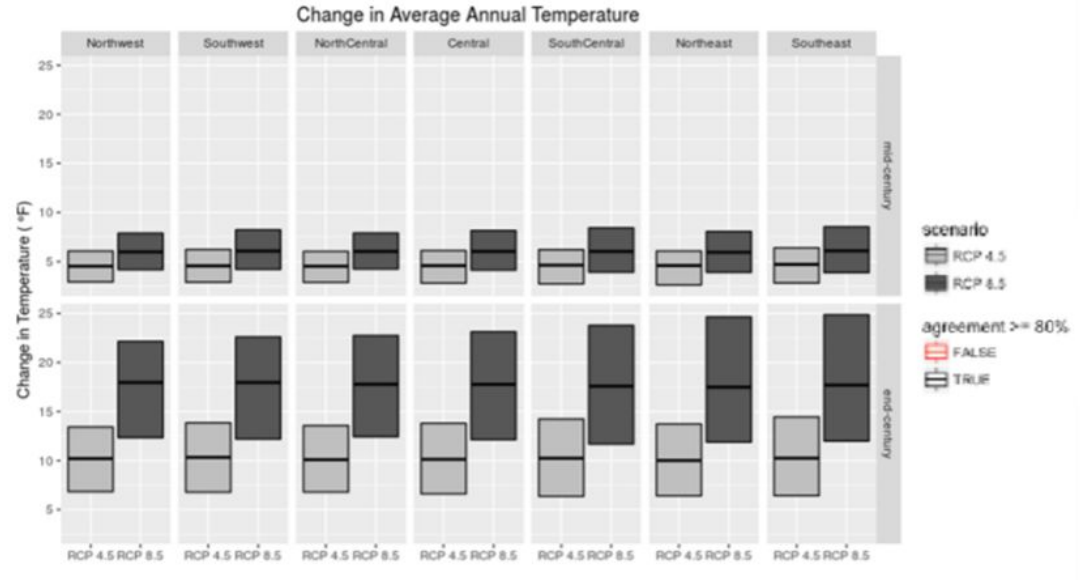
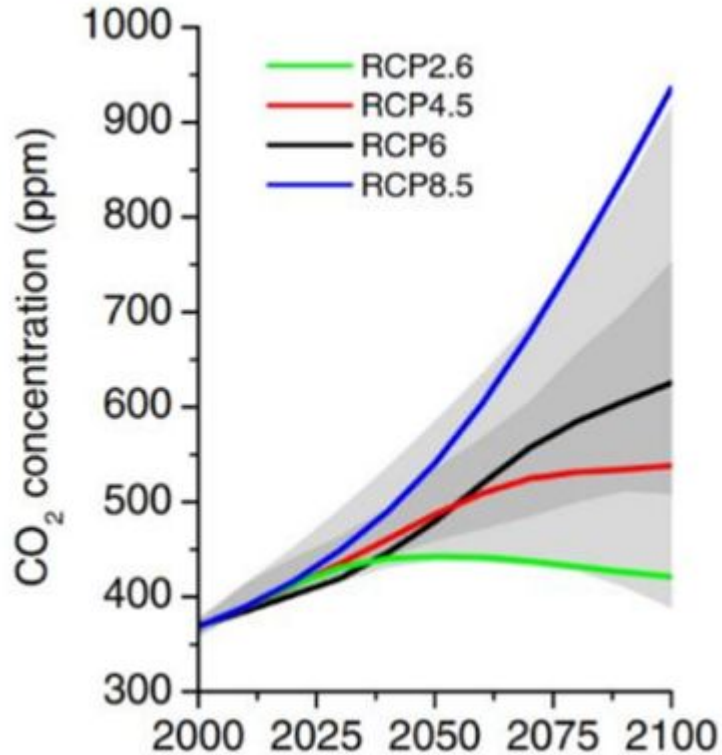




# These are still at Risk!

- Tourism/Outdoor Recreation
- Agriculture
- Environmental Quality
- Forest Fire Prevention
- Biodiversity

# How does Global CO2 impact the limitations of Local Mitigation?



*Taken from the recent Montana Climate Assessment*

# Industries are still at Risk!

- Tourism/Outdoor Recreation
- Agriculture
- Environmental Quality
- Forest Fire Prevention

## In addition, the State of Montana loses...

- Mining Jobs
- Coal Plant Jobs
- The Prospect of Developing Fossil Fuel Economy
- Costs associated with switching to Renewable Energy Sources
- Business from strict Federal Government Regulations



# So, What?

- Mitigation or Distraction?
- How do environmental advocates simultaneously protect the environment, AND the livelihoods of Montana workers?
  - Should they be considerate of both?
- How does Adaption play into protecting our Montana environment/industries?

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