



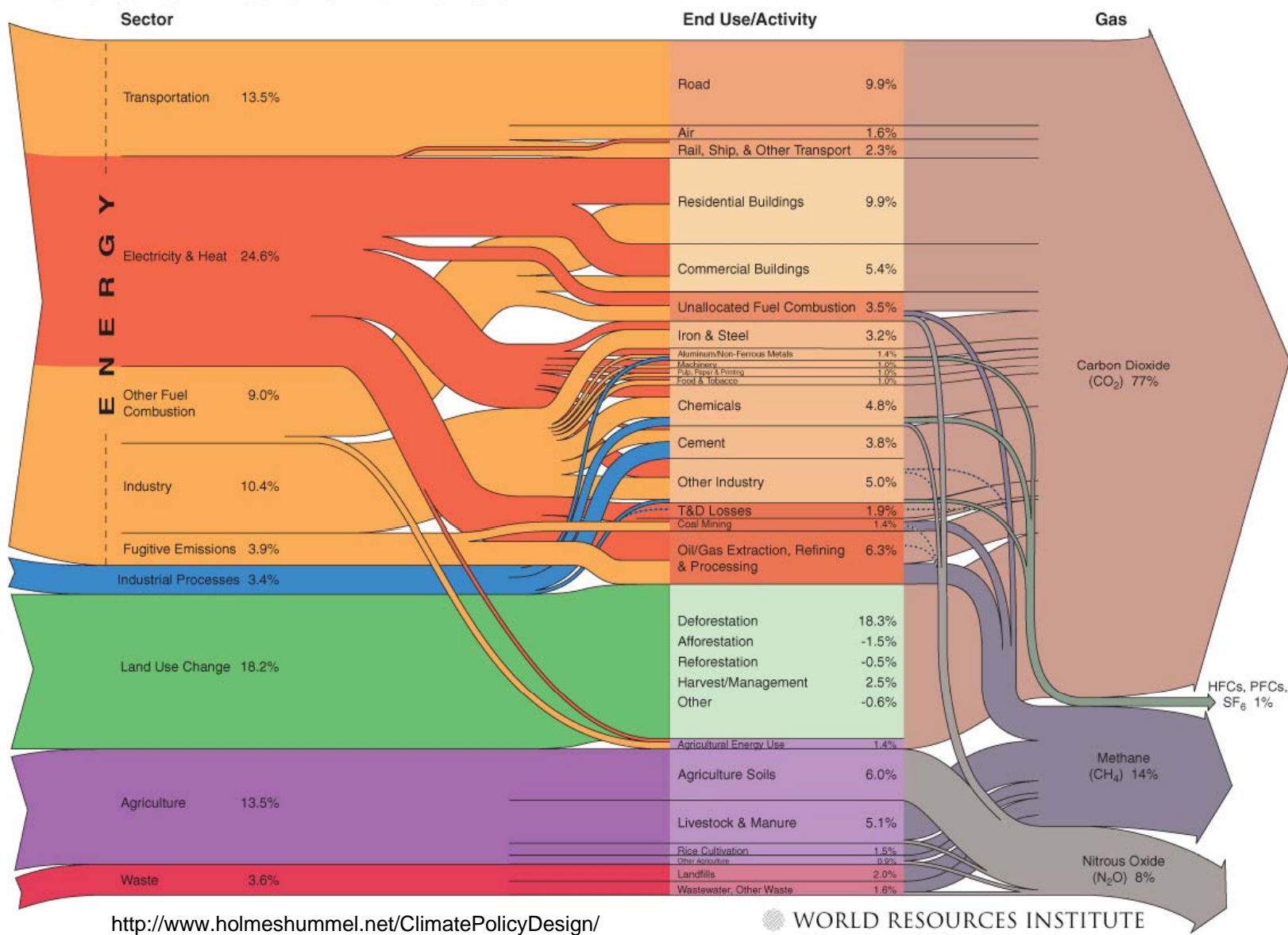
# Climate & Economic Policy: Market Mechanisms & Carbon Pricing

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## World GHG Emissions Flow Chart



<http://www.holmeshummel.net/ClimatePolicyDesign/>

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# AB 32: Global Warming Solutions Act

**AB 32**

In adopting regulations, ARB must:

- “Consider overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, environment, and public health.”
- Any potential **“Market Mechanism”** must:
  1. “consider the potential for direct, indirect, and cumulative emission impacts”
  2. “be designed to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants”
  3. “maximize additional environmental and economic benefits for California, as appropriate”
  4. **“Design the regulations, including distribution of emissions allowances where appropriate, in a manner that is equitable,**  
seeks to minimize costs and maximize total benefits to California, and encourages early action to reduce greenhouse gas emissions.”



## **AB 32 Context**






- AB 32 did not pass by a 2/3 majority and so cannot authorize taxes.
- However, Carbon Fees with 100% Rebate are not taxes.
- Taxes are imposed for revenue purposes, rather than in return for a specific benefit conferred or privilege granted. *Sinclair Paint Co. v. State Bd. Of Equalization*, 15 Cal.4th 866 (1997)



# Available Market Mechanisms

## Carbon Pricing Policies

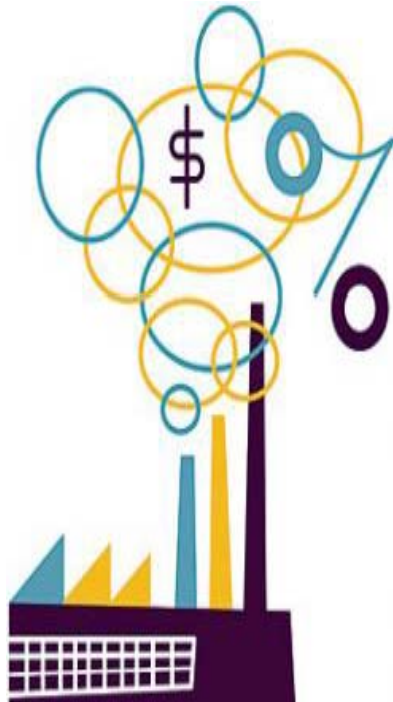
## Proponents

- Carbon Tax  EJ Groups
- Carbon Fee  Enviros
- Cap & Trade  Polluters, some Enviros
- Cap & Auction  Gov't, Enviros, Clean Tech
- Cap & Dividend  Enviros, Econ. Justice

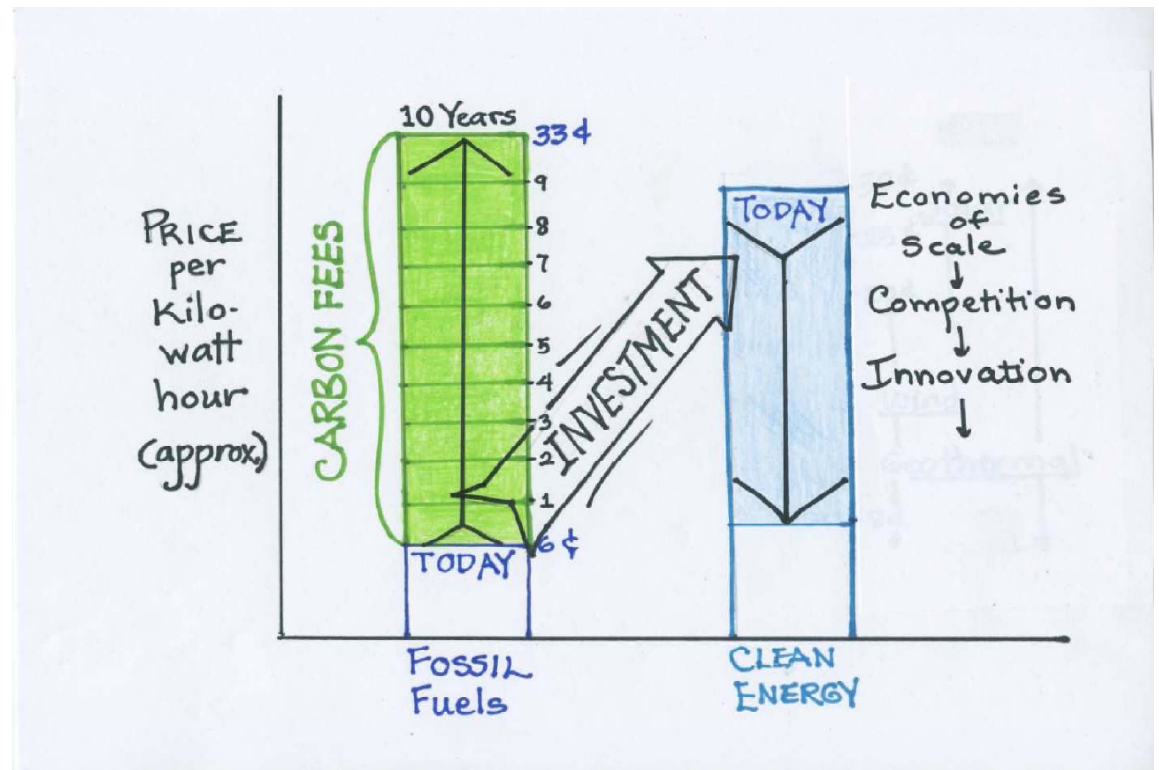


# A Closer Look

## Carbon Tax



## Carbon Fee



Laurie Williams, CarbonFees.org

	<i>Carbon Fee</i>	<i>Carbon Tax</i>	<i>Cap &amp; Trade</i>	<i>Cap &amp; Auction</i>	<i>Cap &amp; Dividend</i>
<b>Price-setting Mechanism</b>	Government sets static carbon price per ton of CO2. (Example: \$50/ton CO2)		Government creates declining number of CO2 Credits. (Example: 400 million tons available in 2012, 300 million tons available in 2020)		
<b>What Influences Price?</b>	Government would need to raise fee or tax by legislation.		Carbon price is driven by scarcity of credits and compliance costs for regulated entities.		
<b>Important Distinctions:</b>	A regulatory agency could be given authority to raise fees as necessary to meet climate goal. Governments may be tied to spending money on CO2 mitigation only.	Requires new legislation to raise which is politically challenging. Administered by IRS. Revenue could be used to offset distortionary taxes, such as income.	Permits are given away free to large polluters resulting in large windfall profits. Carbon offsets from other countries would allow polluters to "outsource" clean air and green jobs.	Some or all permits are auctioned. Government spends revenue at its discretion. Price signal to market is stronger than with cap & trade.	Revenue-neutral option which returns cash to consumers equally.

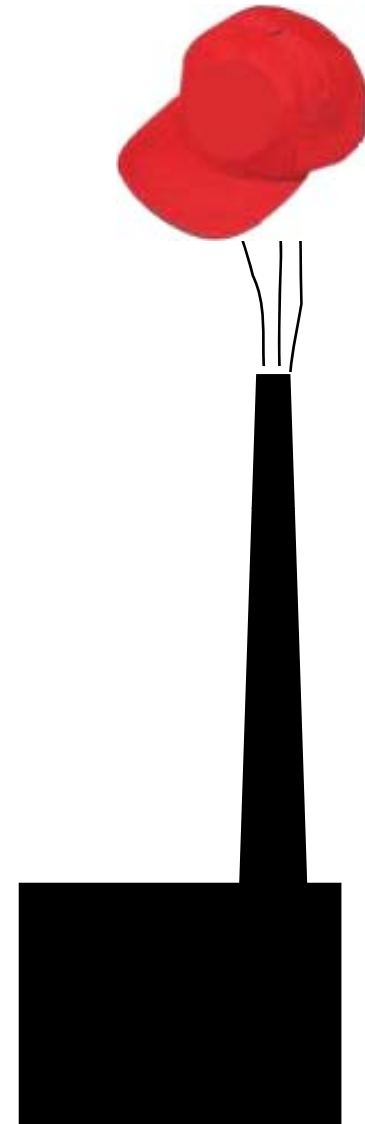
	<i><b>Carbon Fee</b></i>	<i><b>Carbon Tax</b></i>	<i><b>Cap &amp; Trade</b></i>	<i><b>Cap &amp; Auction</b></i>	<i><b>Cap &amp; Dividend</b></i>
<b>Revenue Generation Estimates</b>	<b>Medium</b>	<b>Low</b>	<b>NA</b>	<b>Medium - High</b>	<b>High</b>
<b>Who Really Pays:</b>	Electric utilities and oil companies pass on costs to consumers and businesses.	Electric utilities and oil companies pass on costs to consumers and businesses.	Electric utilities and oil companies pass on costs to consumers and businesses.	Electric utilities and oil companies pass on costs to consumers and businesses.	Electric utilities and oil companies pass on costs to consumers and businesses.
<b>Primary Beneficiaries:</b>	Depends on how funds are spent. Potentially clean tech industries and green businesses.	Depends on how tax funds are redistributed or spent. Tax breaks could be structured to benefit low, middle or high income class.	Large historical polluters such as multinational corporations, electric utilities and oil companies.	Depends on how government decides to spend the money. Legislators may spend money on bad things like pet projects or closing the budget gap. Or, they may spend money on good things like renewable energy and conservation.	Every person with a bank account and a Social Security Number. Lowest 80 percent of income earners would be made whole financially by rebate.
<b>Secondary</b>	Green collar jobs	Unclear	Financial firms	Potentially	About one





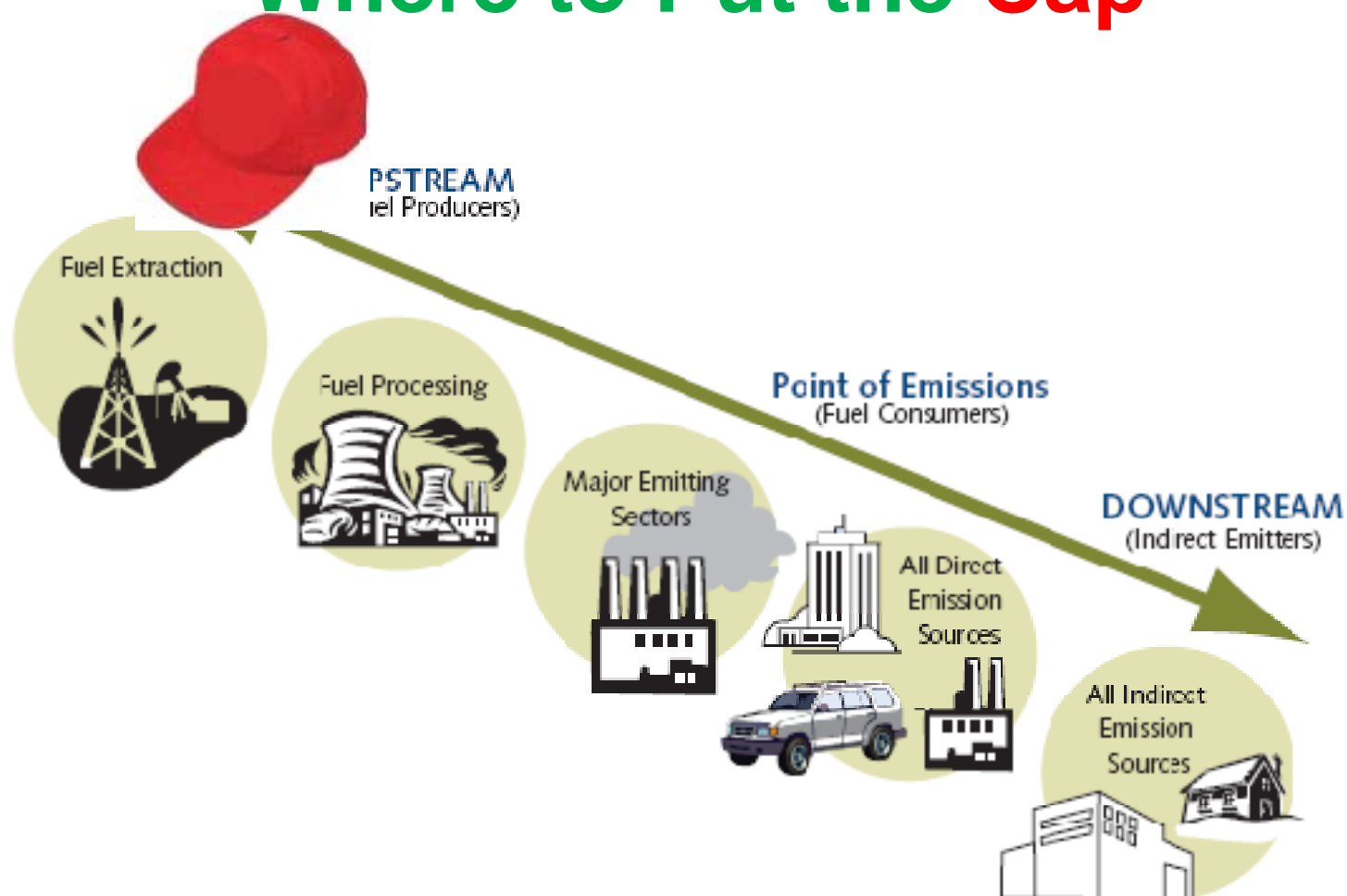
# A **Cap** on Carbon, What does it Mean?

A cap on carbon means that government sets a limit (puts a cap) on the amount of carbon emissions that are released into the air.





# Where to Put the Cap



NCEP 2007 Allocation rpt

<http://www.holmeshummel.net/ClimatePolicyDesign/3-Carbon-Price-Policy-Designs.ppt>



# Where to Put the Cap

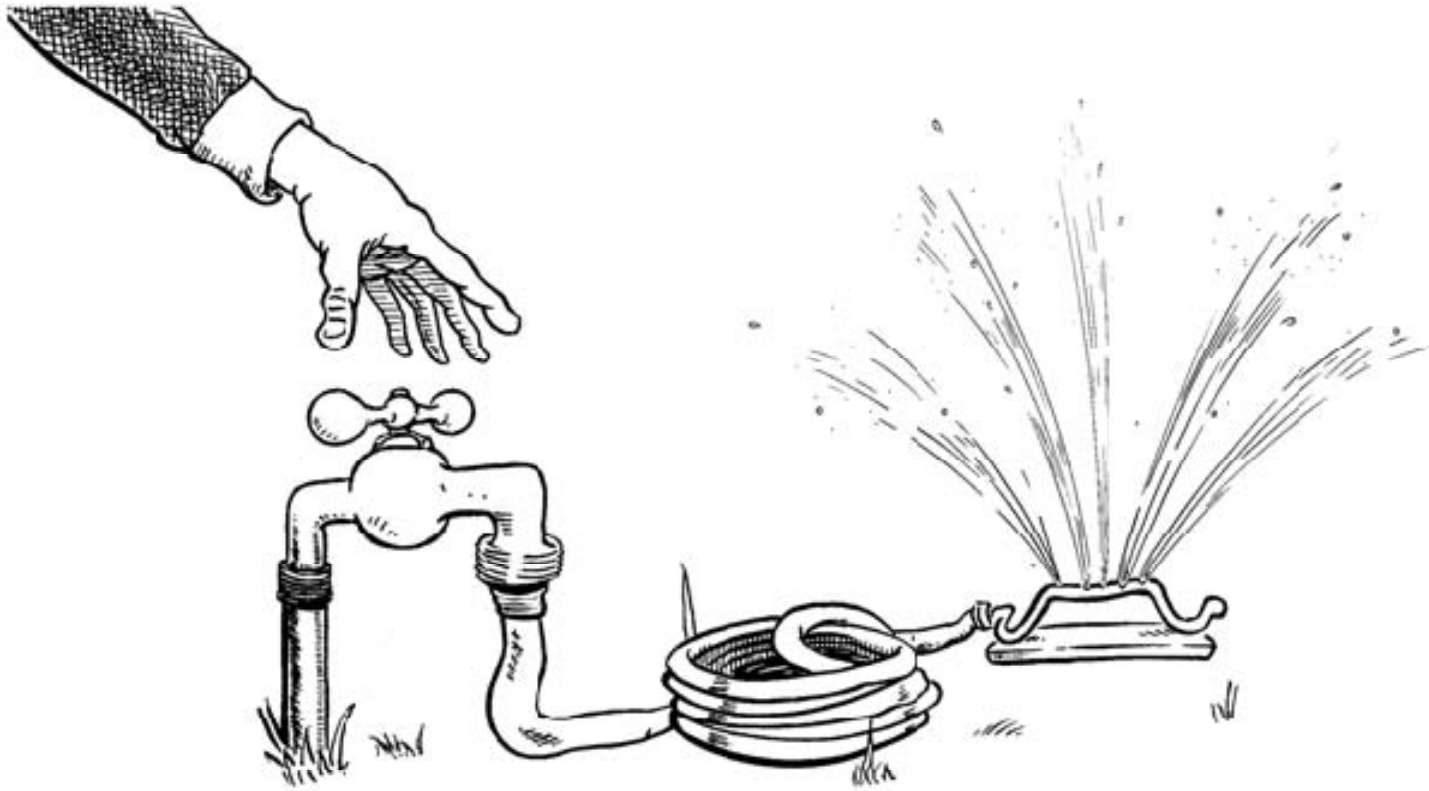


Illustration by Dennis Pacheco

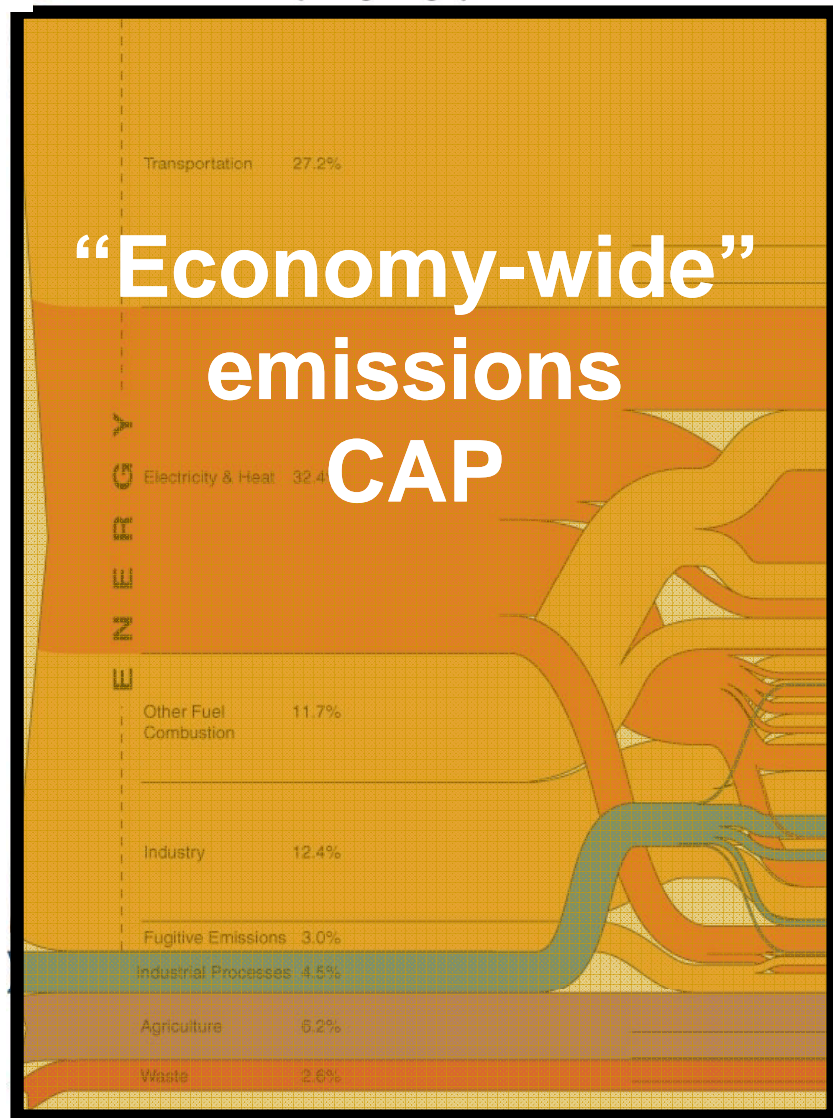


# Scope: “Economy-Wide” vs. Sectoral

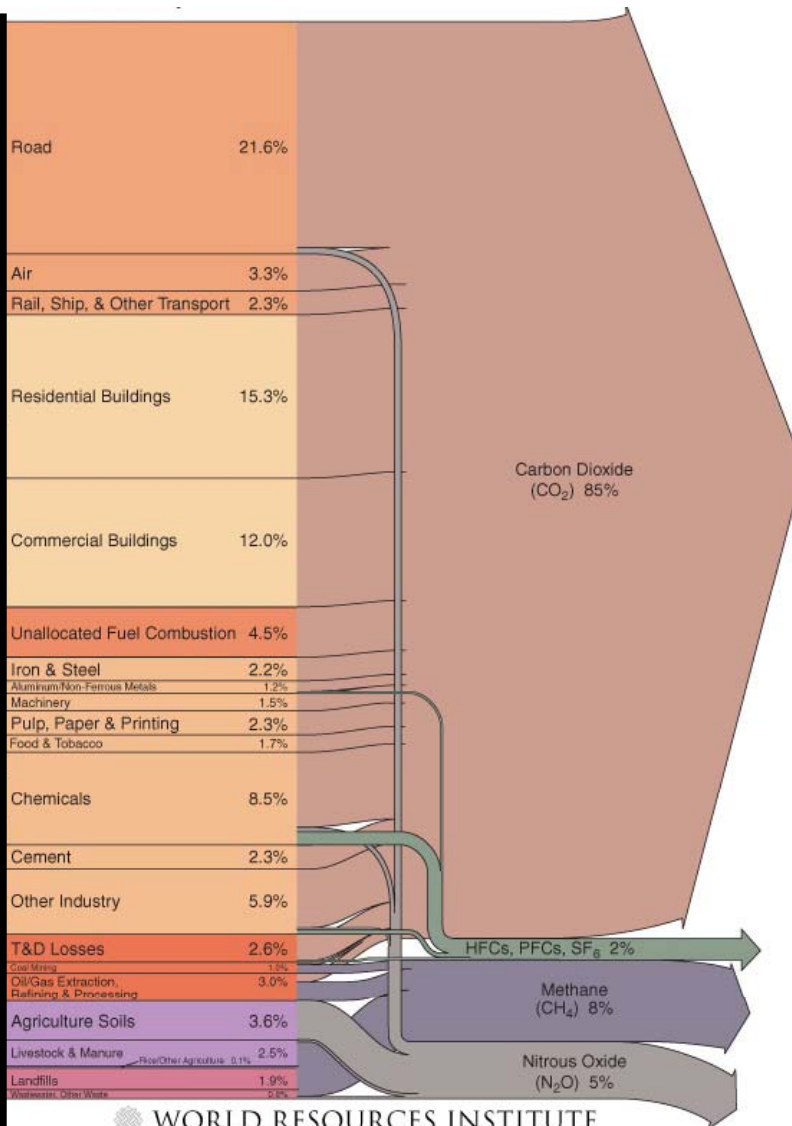
Sectors

End-Use

U.S. GHG Sources



“Economy-wide”  
emissions  
CAP



U.S. GHG Emissions

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<http://www.holmeshummel.net/ClimatePolicyDesign>

World Resources Institute; 2003 data



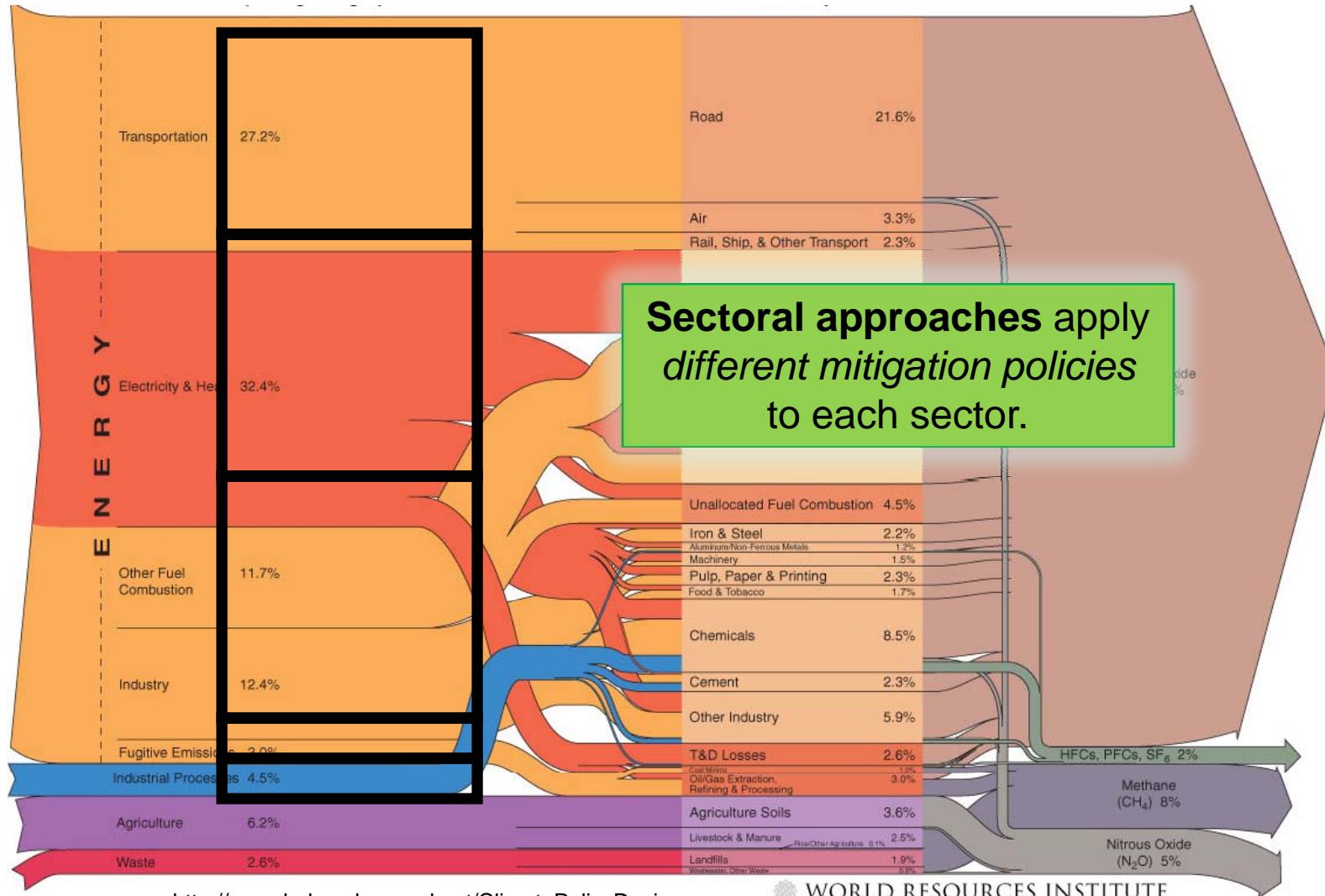
# Scope: Economy wide vs. Sectoral

Sectors

End-Use

U.S. GHG Sources

U.S. GHG Emissions



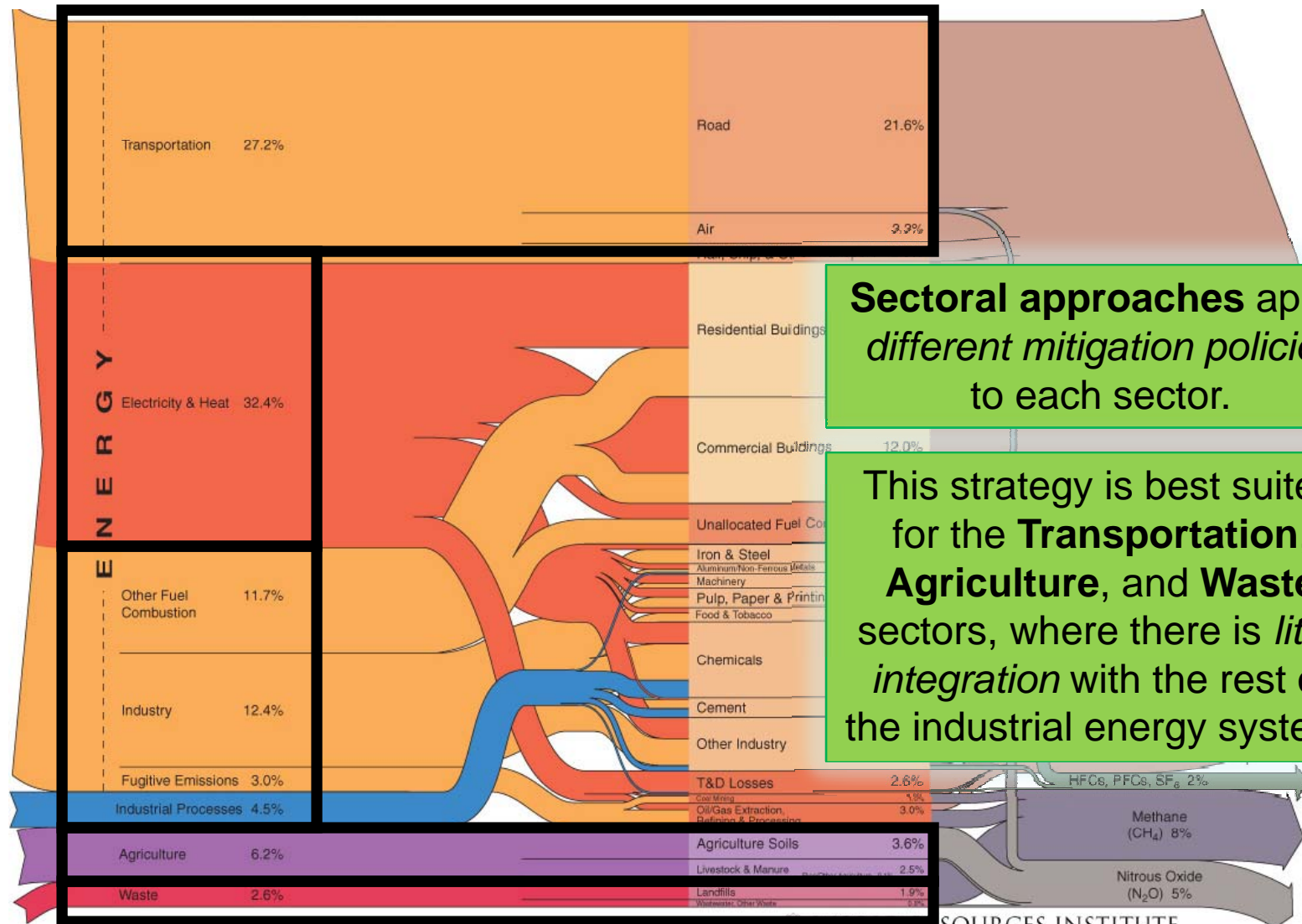


# Scope: “Economy-Wide” vs. Sectoral

Sectors

End-Use

U.S. GHG Sources



Sectoral approaches apply different mitigation policies to each sector.

This strategy is best suited for the **Transportation, Agriculture, and Waste** sectors, where there is *little integration* with the rest of the industrial energy system.

U.S. GHG Emissions



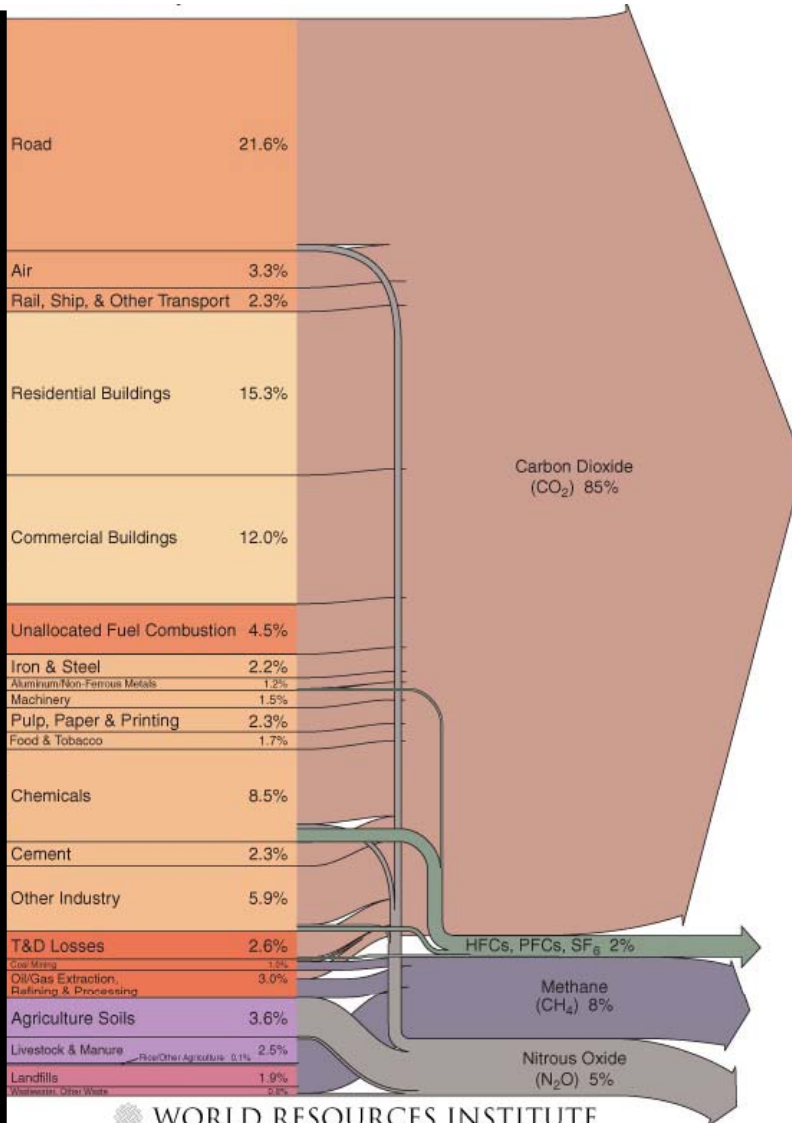
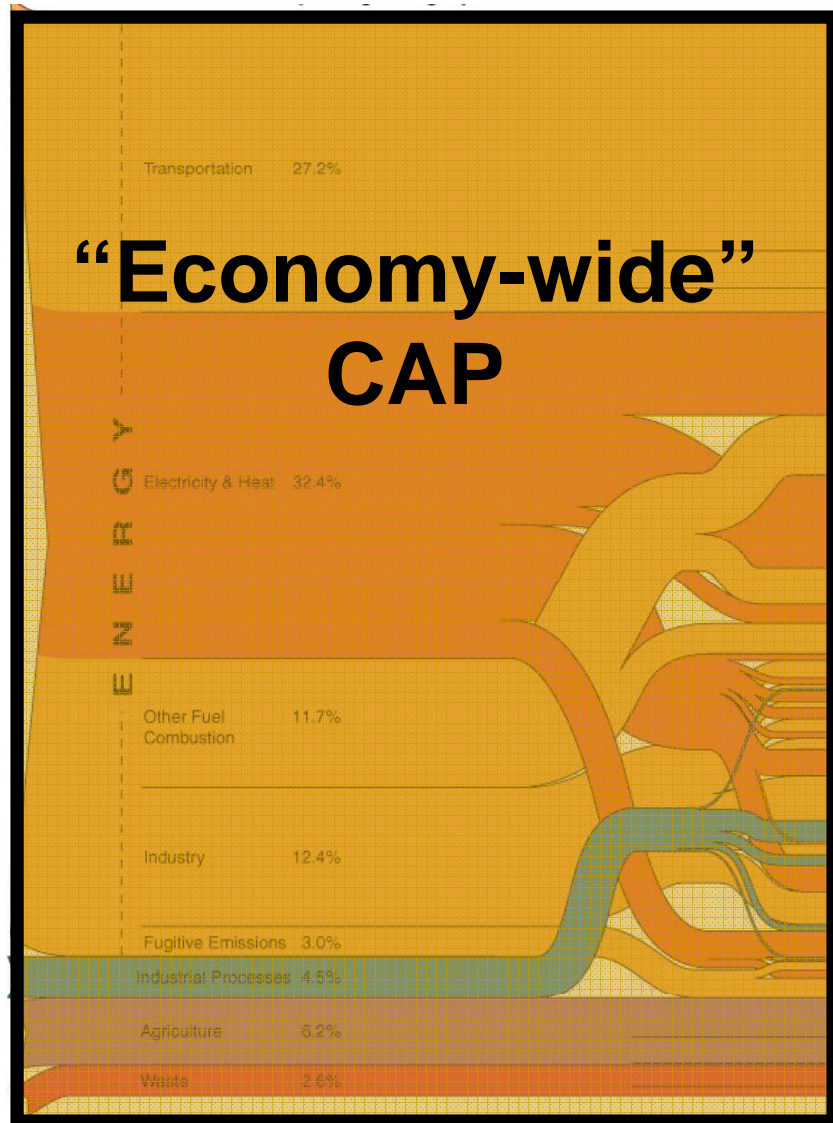


# Scope: “Economy-Wide” vs. Sectoral

Sectors

End-Use

U.S. GHG Sources



U.S. GHG Emissions

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# Scope: “Economy-Wide” vs. Sectoral

Sectors

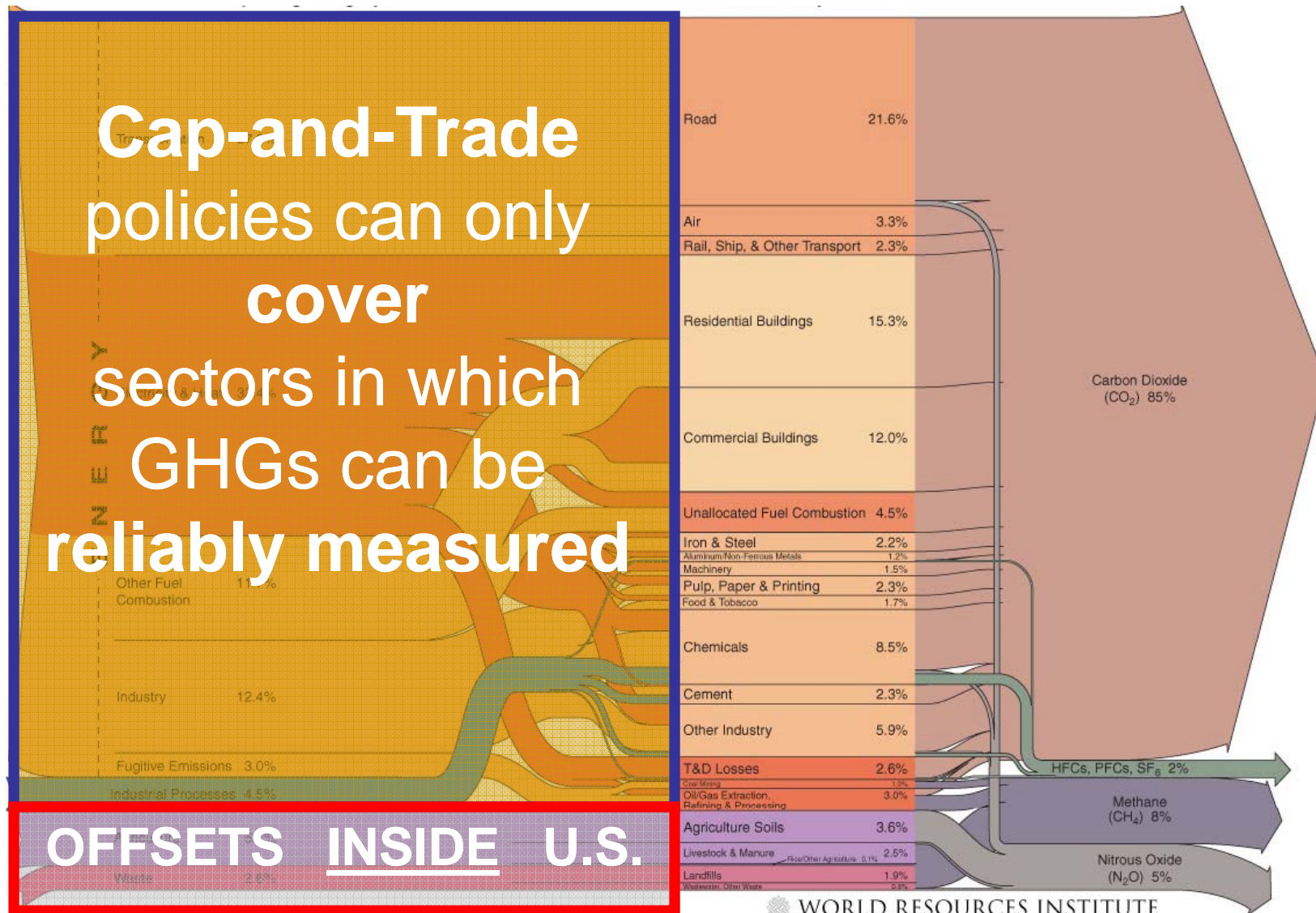
End-Use

U.S. Sources

**Cap-and-Trade policies can only cover sectors in which GHGs can be reliably measured**

**OFFSETS INSIDE U.S.**

U.S. GHG Emissions



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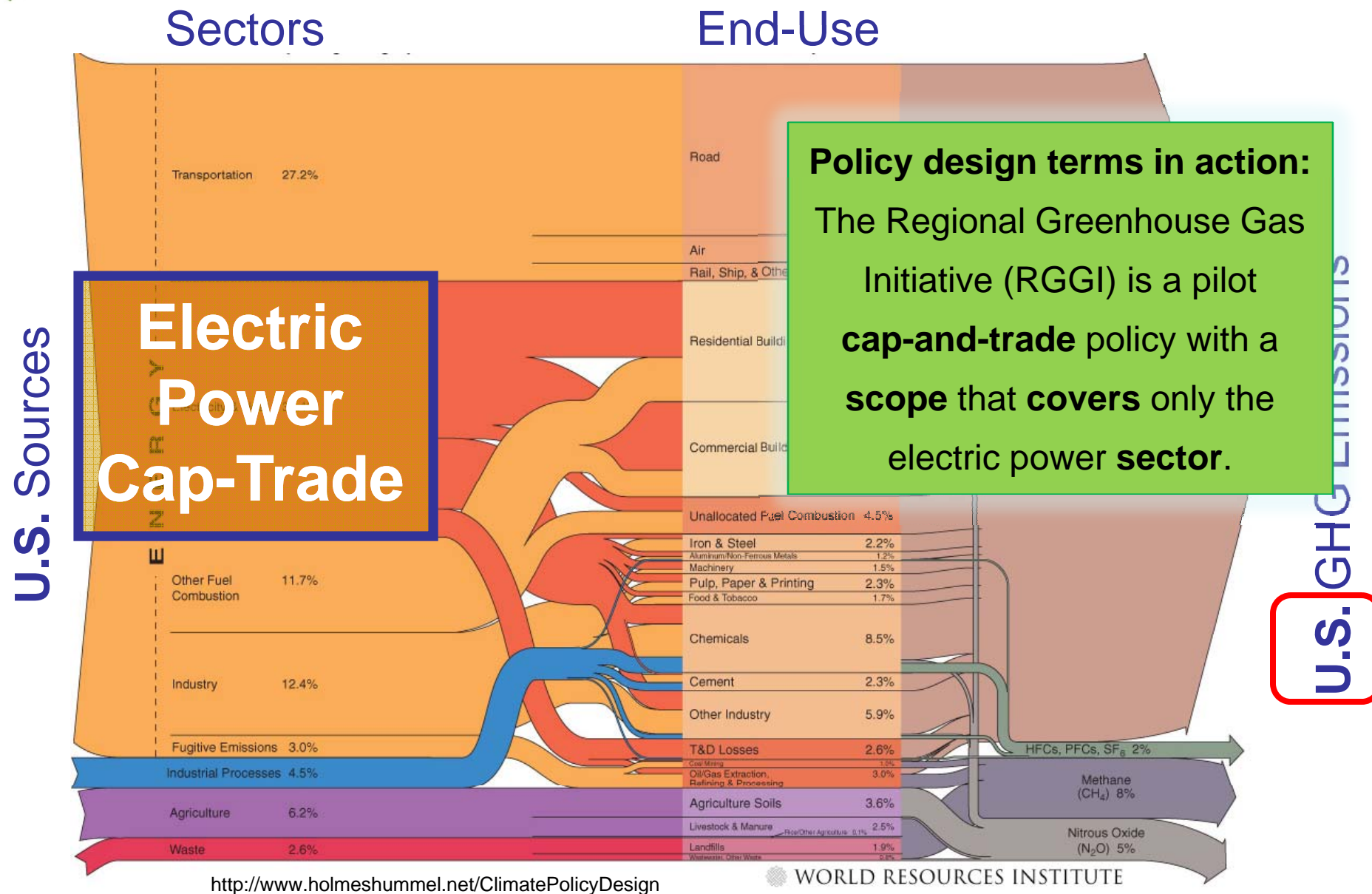
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World Resources Institute; 2003 data



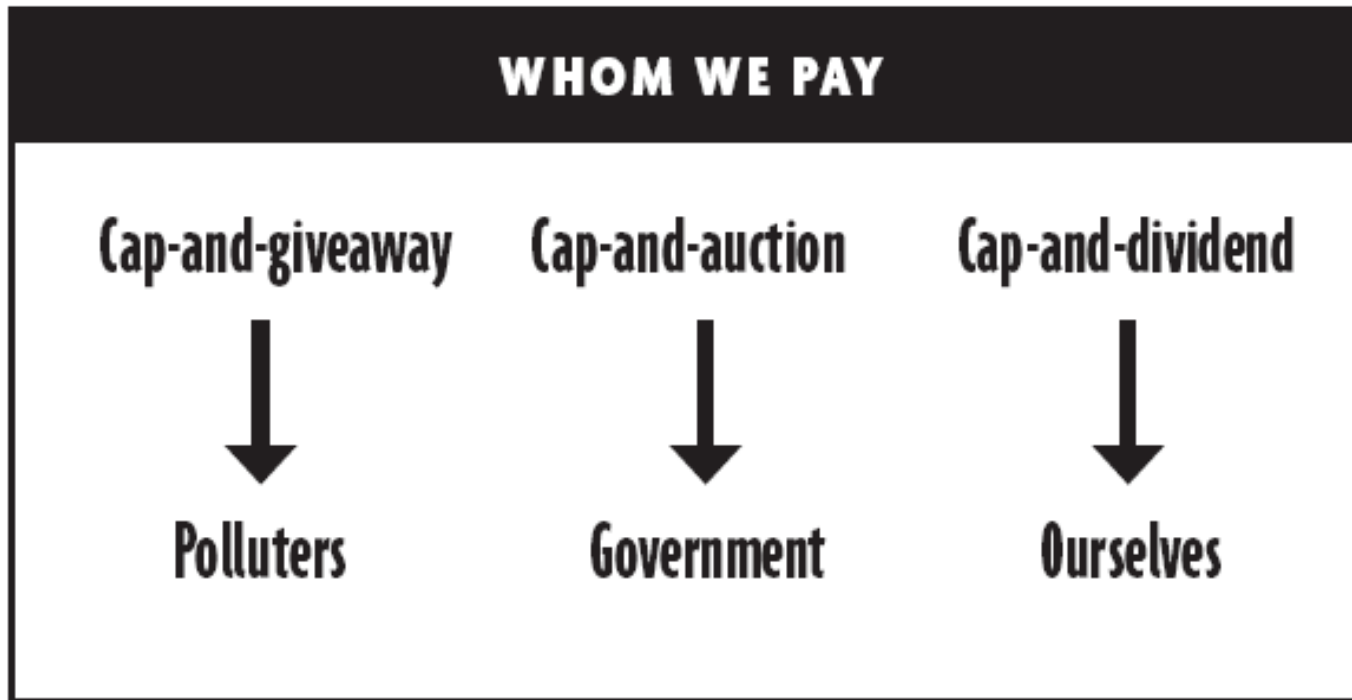


# Scope: “Economy-Wide” vs. Sectoral





# Where does the \$\$ go?





# CA Carbon Pricing Estimates

CA Cap & Dividend Estimates	2012	2015	2020	2050
Per-Capita Dividends (Annual)	\$ 125.02	\$ 409.52	\$ 569.65	\$ 365.00
Dividends per household (State Avg. = 2.8 persons)	\$ 350.04	\$ 1,146.67	\$ 1,595.01	\$ 1,022.00
State Tax Revenue (From Dividends Only)	\$ 299,700,000	\$1,161,000,000	\$1,642,500,000	\$1,314,000,000
Total Tax Revenue from Taxes on Dividends (24.2%)	\$ 805,860,000	\$ 3,121,800,000	\$ 4,416,500,000	\$ 3,533,200,000

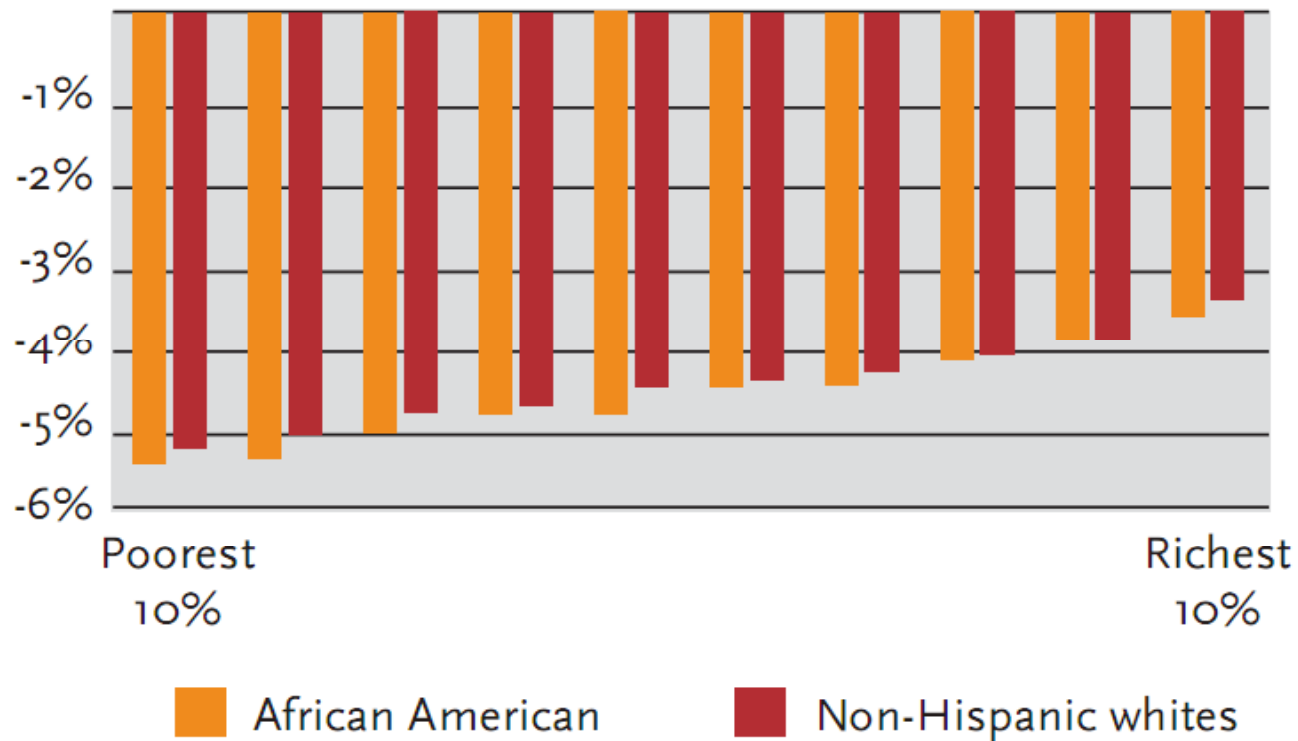
## Variables

\$/Ton Charge (Auction, or Fee)	\$15	\$ 30	\$ 50	\$ 200
# of Tons subject to fee / auction	222,000,000	430,000,000	365,000,000	73,000,000
Total Carbon Revenue (Annual)	\$ 3,330,000,000	\$12,900,000,000	\$ 18,250,000,000	\$ 14,600,000,000
State Population (Over 18)	26,636,590	31,500,000	32,037,472	40,000,000
Tax Rate (State Income, excludes Federal Income Tax and Sales Tax Revenues)	9.00%	9.00%	9.00%	9.00%



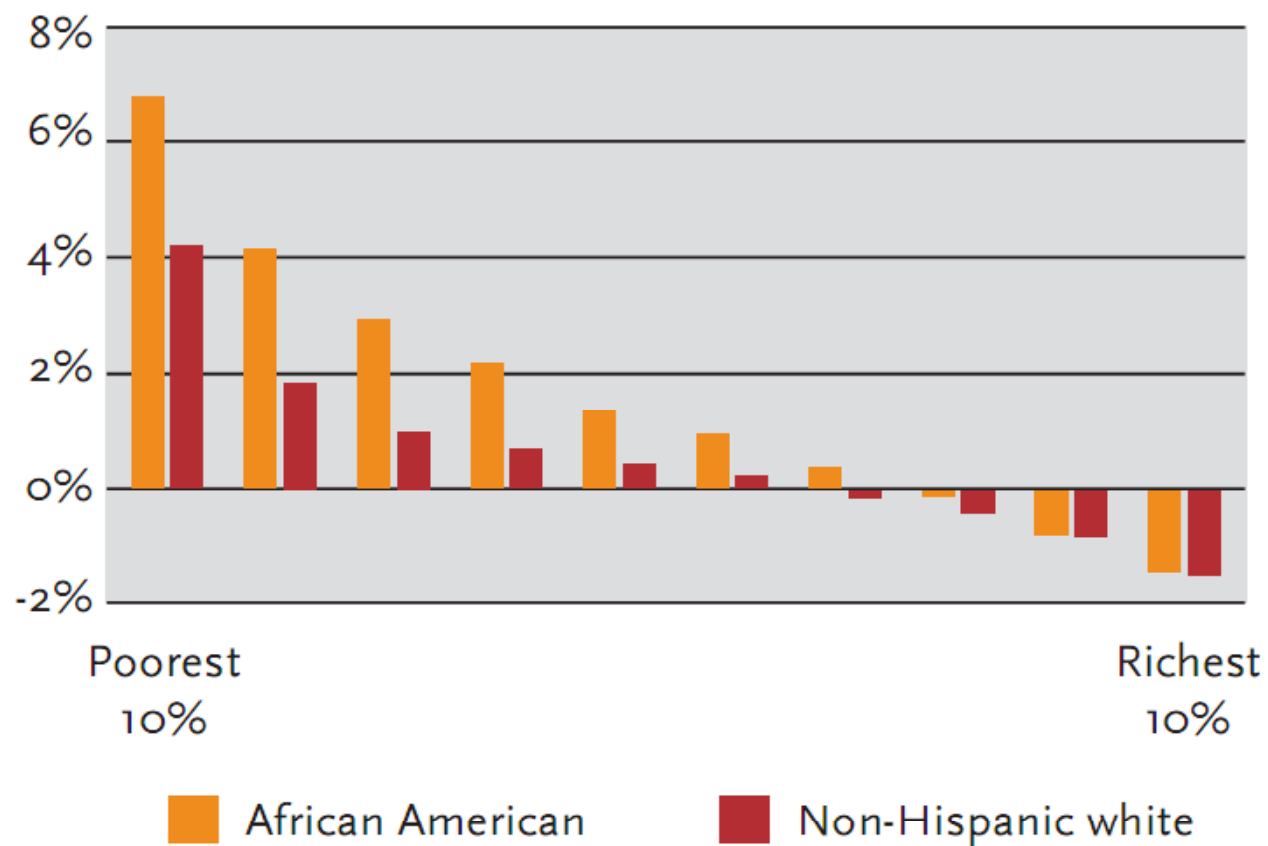
# Carbon Pricing Implications

**FIGURE ES 1: Cap and Trade Scenario: The Burden of a \$50/tonne CO<sub>2</sub> Charge as a Share of Expenditures by Race and Income**





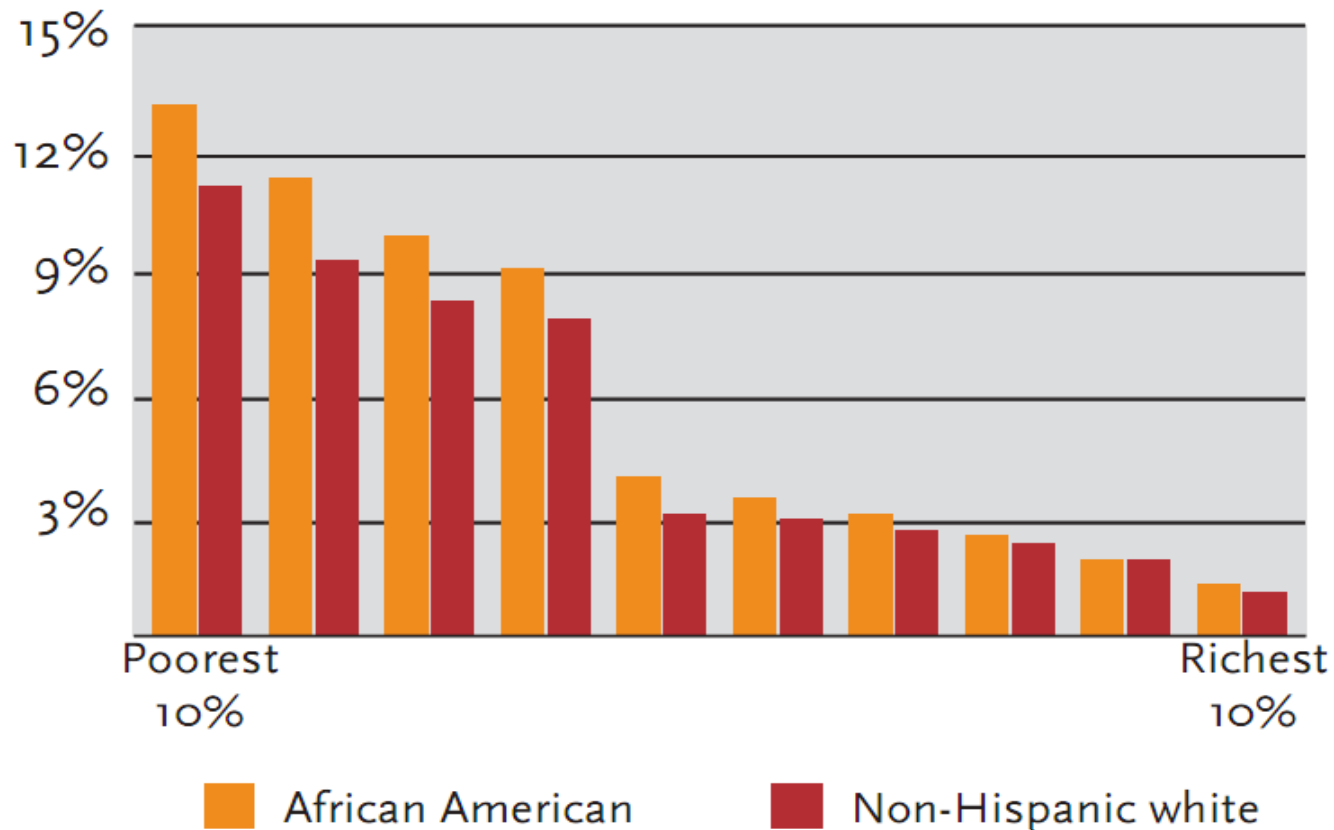
**FIGURE ES 2: Equal Per Capita Payment Scenario:  
Benefits and Burdens of \$50/tonne CO<sub>2</sub> Charge**





# A Mixed Bag Approach

**FIGURE ES 3: Climate Asset Plan Scenario:  
Benefits of a \$50/tonne CO<sub>2</sub> Charge**





# ¡Gracias!

Questions?

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