


Climate Change Economics

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CCL, Marin Chapter

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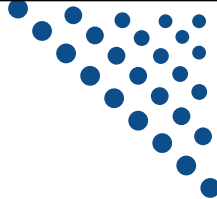
1


National Economic Education Delegation

- **Vision**
 - One day, the public discussion of policy issues will be grounded in an accurate perception of the underlying economic principles and data.

- **Mission**
 - NEED unites the skills and knowledge of a vast network of professional economists to promote understanding of the economics of policy issues in the United States.

- **NEED Presentations**
 - Are **nonpartisan** and intended to reflect the consensus of the economics profession.





2

2

Who Are We?

- **Honorary Board: 48 members**

- 2 Fed Chairs: Janet Yellen, Ben Bernanke
- 6 Chairs Council of Economic Advisers
 - o Furman (D), Rosen (R), Bernanke (R), Yellen (D), Tyson (D), Goolsbee (D)
- 3 Nobel Prize Winners
 - o Akerlof, Smith, Maskin

- **Delegates: 500+ members**

- At all levels of academia and some in government service
- All have a Ph.D. in economics
- Crowdsource slide decks
- Give presentations

- **Global Partners: 45 Ph.D. Economists**

- Aid in slide deck development

3

Available NEED Topics Include:

- **Coronavirus Economics**
- **US Economy**
- **Climate Change**
- **Economic Inequality**
- **Economic Mobility**
- **Trade and Globalization**
- **Trade Wars**
- **Immigration Economics**
- **Housing Policy**
- **Federal Budgets**
- **Federal Debt**
- **2017 Tax Law**
- **Autonomous Vehicles**
- **US Social Policy**

4

Credits and Disclaimer

- **This slide deck was authored by:**
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- **Disclaimer**
 - NEED presentations are designed to be nonpartisan.
 - It is, however, inevitable that the presenter will be asked for and will provide their own views.
 - Such views are those of the presenter and not necessarily those of the National Economic Education Delegation (NEED).



5

How Can Economists Contribute to Thinking about Climate Change?

- **By measuring the damage and estimating the economic costs of fighting climate change.**
- **By designing smart policies that minimize costs.**
 - Balance economic growth with GHG emission mitigation.



6

Electricity Is Different From Oranges

- **Human activity creates pollution.**
 - Electricity generation, transportation, industrial production...
- **Pollution is an EXTERNALITY.**
 - There is a cost or benefit that affects someone outside of the market.
- **Some effects may not be felt by the buyers and sellers.**
 - Too much pollution results.
 - There are costs to society: **social costs.**



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7

Social Cost of Carbon

- **Cost above price paid.**
- **The expected cost of damages from each unit of greenhouse gas emissions.**
- **Current EPA estimate: ~\$40 per metric ton of CO₂.**
 - About \$123/car per year.
 - \$26 Billion for all vehicles in the US.



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8

Addressing a Negative Externality

\$.16/kwh

Social cost = \$.03/kwh

\$.19/kwh

Set thermostat to: 70 degrees

Set thermostat to: 75 degrees

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9

9

Total U.S. Greenhouse Gas Emissions by Economic Sector in 2016

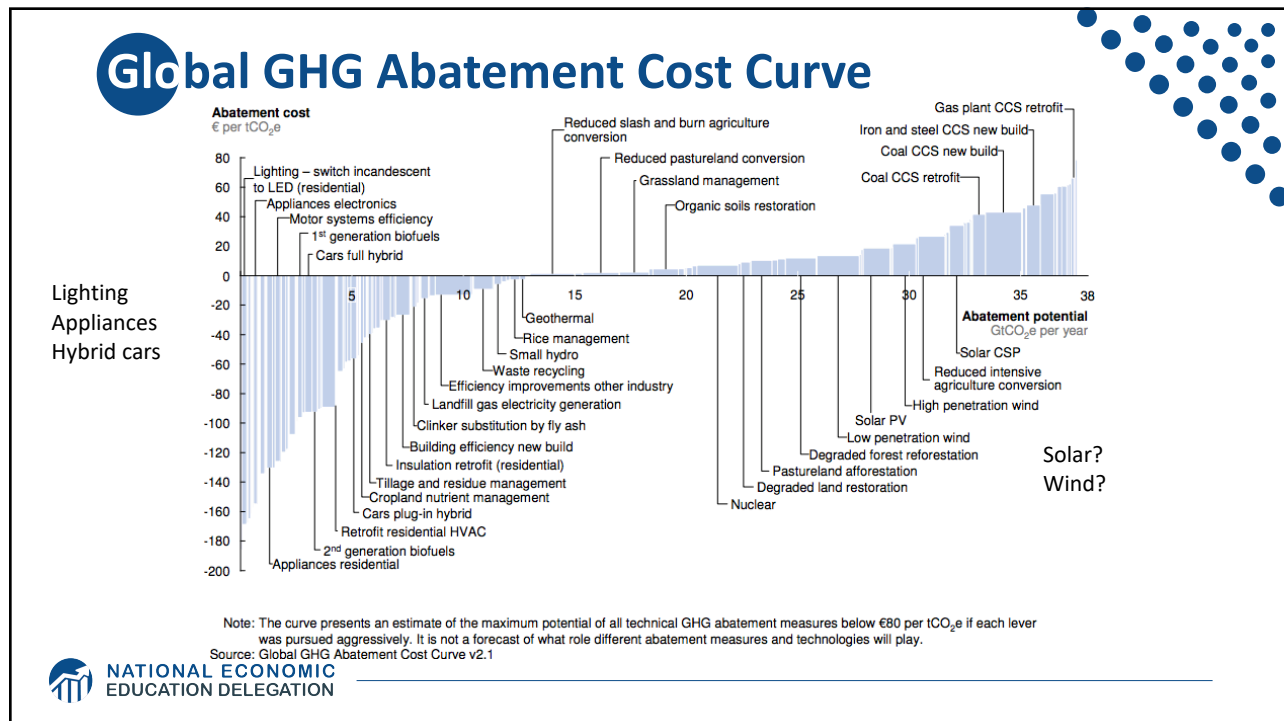
Economic Sector	Percentage
Transportation	28%
Electricity	28%
Industry	22%
Commercial & Residential	11%
Agriculture	9%

U.S. Environmental Protection Agency (2018). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016

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5

10



11

Policies That Reduce Emissions: Directly

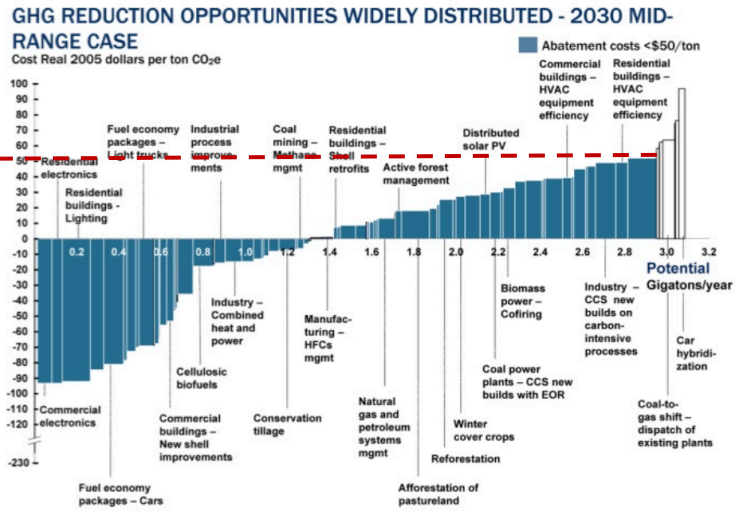
- **Regulation**
 - Emissions standards or limits
 - E.g., CAFE standards
- **Market-oriented policies**
 - Putting a price on emissions
 - Subsidizing green energy (e.g., feed-in tariffs)
 - Tax or cap & trade

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12

Putting a Price on Emissions

Suppose a Social Cost Of Carbon of \$50



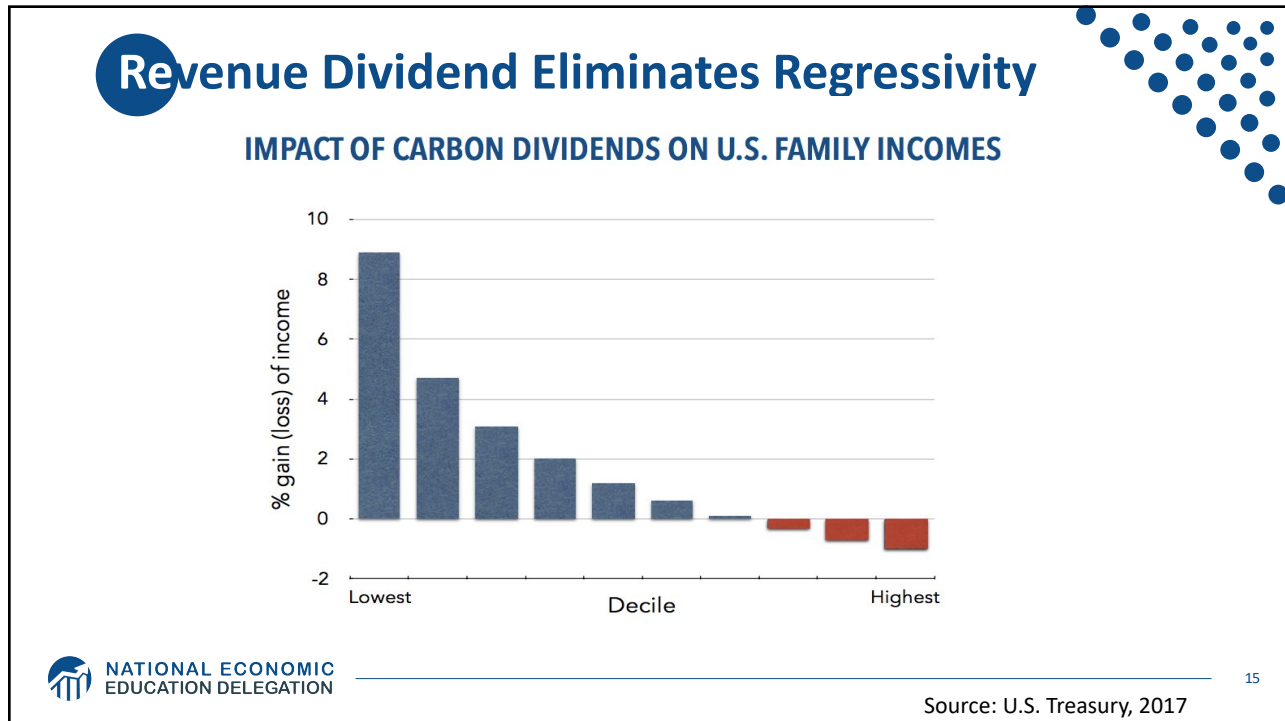
13

Carbon Prices: the Good and Bad (in Theory)

- **Good:**
 - Provide price signal to lower emissions.
 - They yield low-cost reductions in emissions.
 - They spur innovation in clean technologies.
- **Bad:**
 - Firms might leave to flee regulation.
 - It is necessary to monitor emissions.
 - Potentially regressive.
 - Wont affect all related decisions.



14



15

Important Categories of Differences

Cap & Trade v. Carbon Tax/Fee

- Price Stability
- Administrative complexity
- Design complexity
- Policy interactions

16

Policy Interactions: Cap and Trade vs. Carbon Tax

- **Emissions regulations and Cap and Trade can work at cross purposes.**
 - Regulations can undermine the effectiveness of Cap and Trade.
- **The same is not true of a carbon tax.**
 - Though regulations might cut tax revenue, revenue is not the goal of the carbon tax.



17

Thoughts on Regulation vs Market-Oriented

- **Equity.**
 - Both types of policies may be regressive.
 - Cap and Trade and a Carbon Tax can offset the regressivity.
 - Regulations – no obvious mechanism.
- **Efficiency.**
 - A given level of emission reductions **costs 3-14 times more with CAFÉ** standards than under a comparable carbon tax.
 - Why?

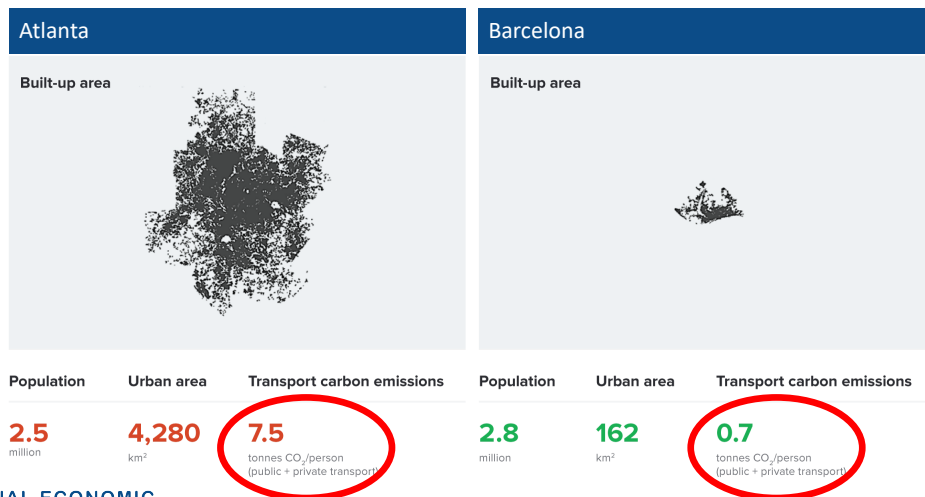


18

Policies That Reduce Emissions: INDirectly

- Subsidizing R&D
- Grid / infrastructure
- Energy efficiency mandates and subsidies
- Mandating renewable energy (e.g., renewable portfolio standards)
- Land use policies

Atlanta and Barcelona Have Similar Populations but Very Different Carbon Productivity



Summary

- **There are a wide variety of ways to reduce emissions.**
 - Regulations, price mechanisms, land use, etc.
- **Their degrees of efficiency vary wildly.**
 - Where they work, price mechanisms are **highly efficient**.
 - Where they don't, other means may be necessary.
- **Super important point:**
 - All methods of reducing greenhouse gases **COME WITH A COST!**
 - Price increases, higher taxes, sacrificing other policy options.
- **Carbon tax/fee and dividend is:**
 - Elegant, Easy, Efficient, Effective, and Equitable



21

House Report: Solving the Climate Crisis

- **Focus on:**
 - Emissions reductions
 - Resilience
 - Environmental Justice
- **Primary tools:**
 - Taxes and subsidies
 - Research & Development
 - Regulations
- **Notes:**
 - Carrots over sticks:
 - Tax credits, subsidies, R&D
 - But also regulations & pricing (but secondary).
 - Extremely comprehensive.
 - Goes well beyond scope of carbon tax & dividend.



22

Thank you!

Any Questions?

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23