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Topic: the FIRST, ESSENTIAL step to mitigate climate change

Policy: Carbon fee and dividend

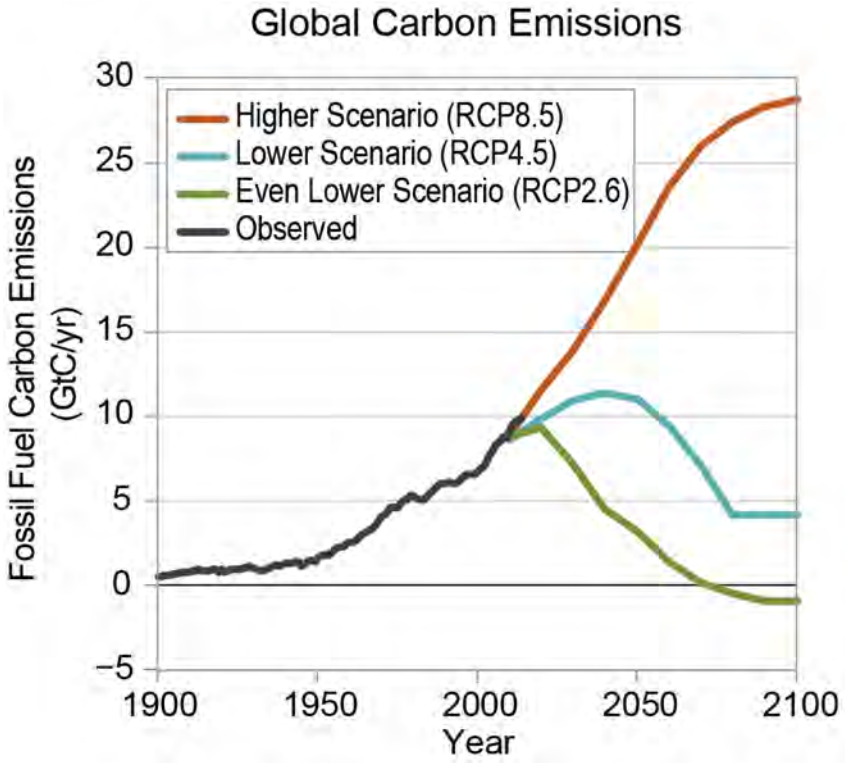
Proposed law: Energy Innovation and Carbon Dividend Act (EICDA)

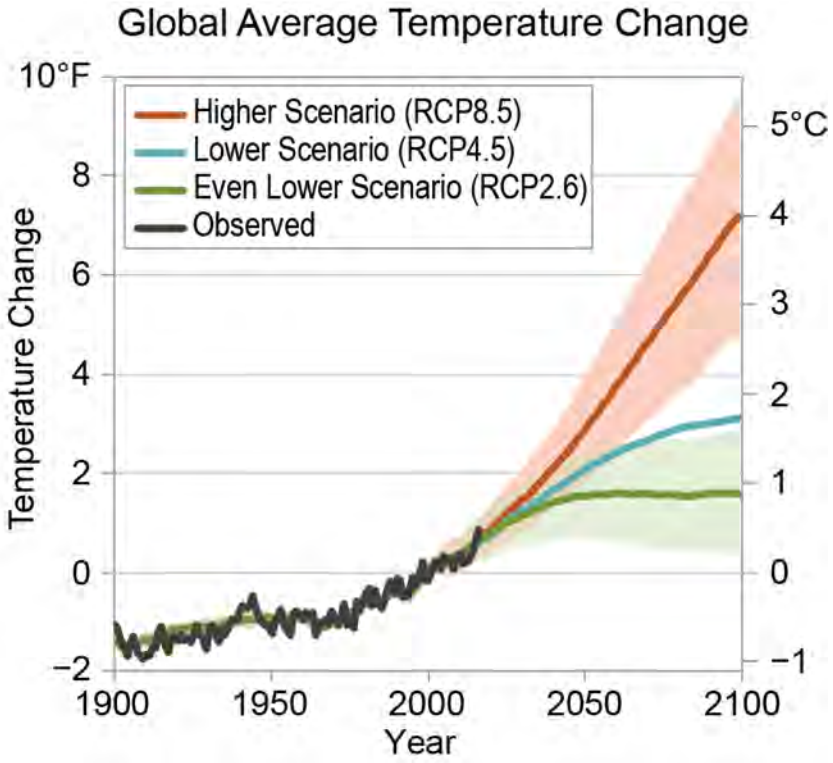
Outline

1. The Problem
2. The First Step: CF&D
3. Why CF&D?
   a. It works (effective)
   b. It minimizes the sacrifice (efficient)
   c. It protects most households (equity)
4. Other strengths of EICDA

The Problem

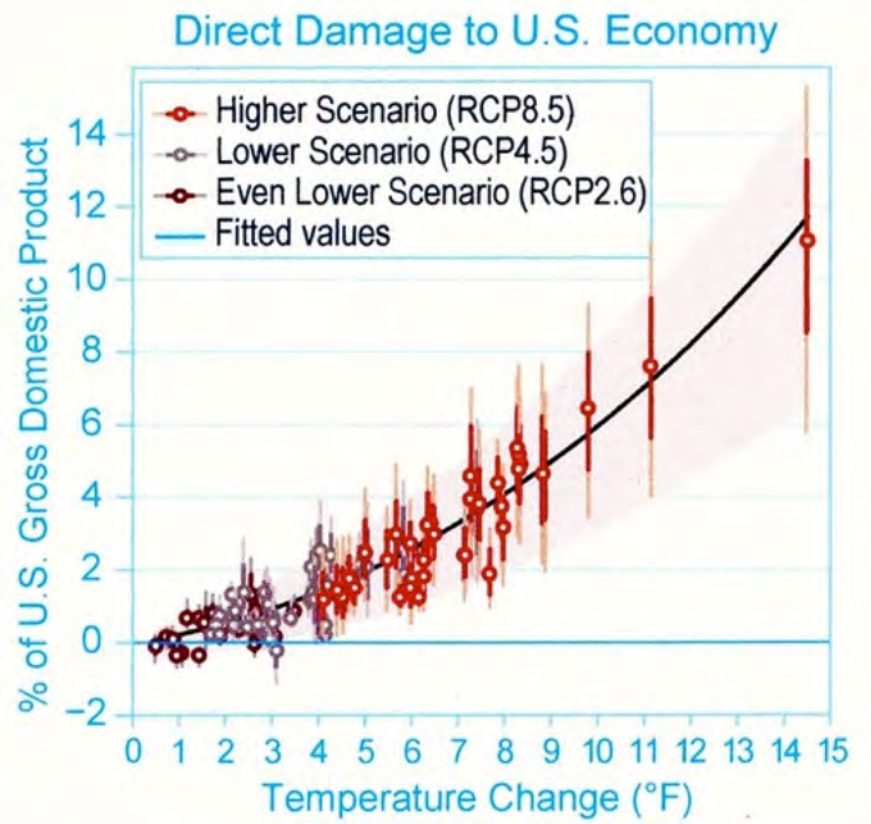
The accumulation of GHG emissions drives climate change





Source: US Gov, Fourth National Climate Assessment, 2018

Climate change causes future $ damages (% of GDP)



Source: US Gov, Fourth National Climate Assessment, 2018

The Need for Action

1. 4th National Climate Assessment: "in the absence of more significant global mitigation efforts, climate change is projected to impose substantial damages on the US economy"

2. How aggressive?
   a. Damage estimates incomplete (eg, no Penguins)
   b. Uncertainty, esp. huge downside risks (eg, tipping points)
   c. Mistakes are irreversible

3. EICDA is aggressive (40% reduction by 2030, 90% by 2050)

How Mitigate?

Start with one simple, transparent policy

Put a PRICE on CO2 pollution that makes us recognize the future damage we cause

Energy Innovation AND Carbon Dividend Act

How It Works

Carbon Fee

Carbon Border Adjustment

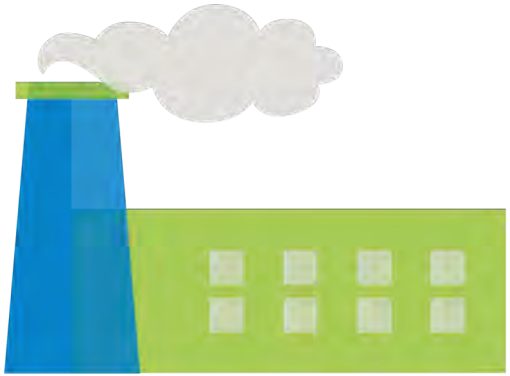
Carbon Dividend

Limited Regulatory Adjustment

Energy Innovation AND Carbon Dividend Act

1. Carbon Fee

Congress places a fee on coal, oil, and gas. The fee starts low ($15/ton CO2), and grows over time ($10/year) until the 90% reduction target is met.



Energy Innovation AND Carbon Dividend Act

2. Carbon Dividend

The net revenue collected from the carbon fee is allocated in equal shares every month to the American people.

Energy Innovation AND Carbon Dividend Act

3. Border Carbon Adjustment

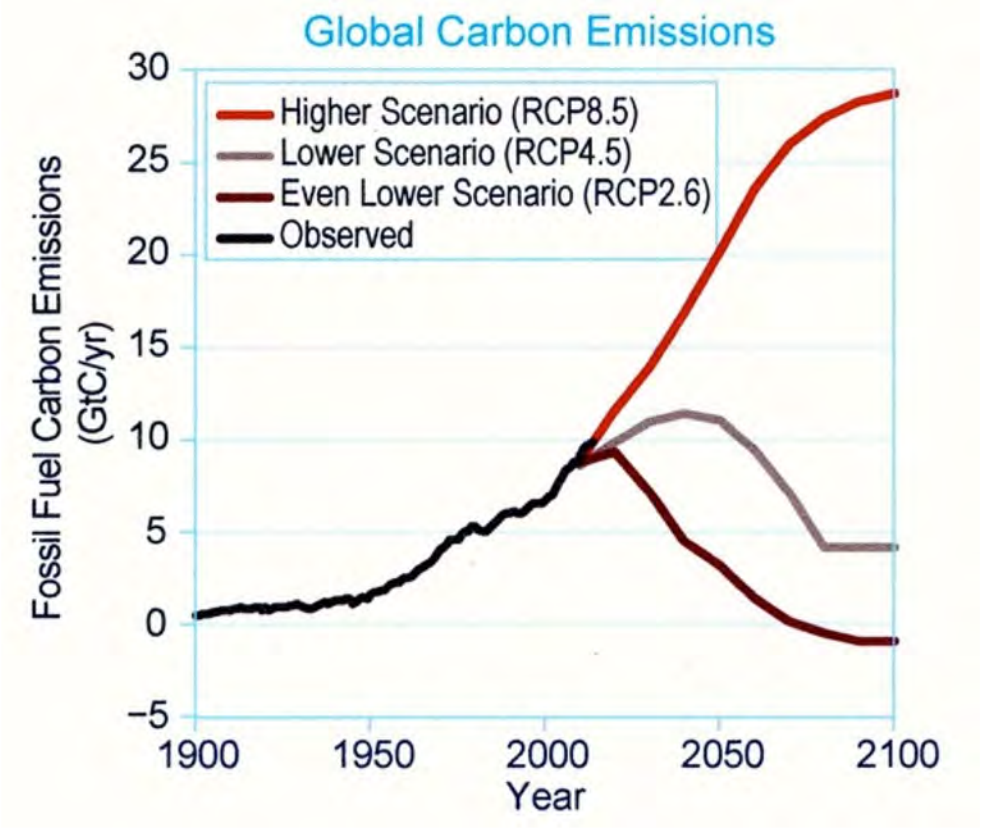
Protection for US businesses who use fossil fuels and compete with countries who do not have comparable carbon prices.

Energy Innovation AND Carbon Dividend Act

4. Limited Regulatory Adjustment

Prevents additional Federal (EPA) regulations on CO_2 emissions as long as emission targets are being met. (Federal regulations based on other pollutants won't be affected.)

Why CF&D? It WILL lower emissions




If we want less of this…
Make it more expensive.

What Would the Fee Accomplish?

Fossil Fuels and carbon intensive products: more expensive, diminshed use

Renewables, energy efficiency, and low carbon intensive goods: less expensive, increased use

OPEC: crude oil prices rose 5x, then 3x

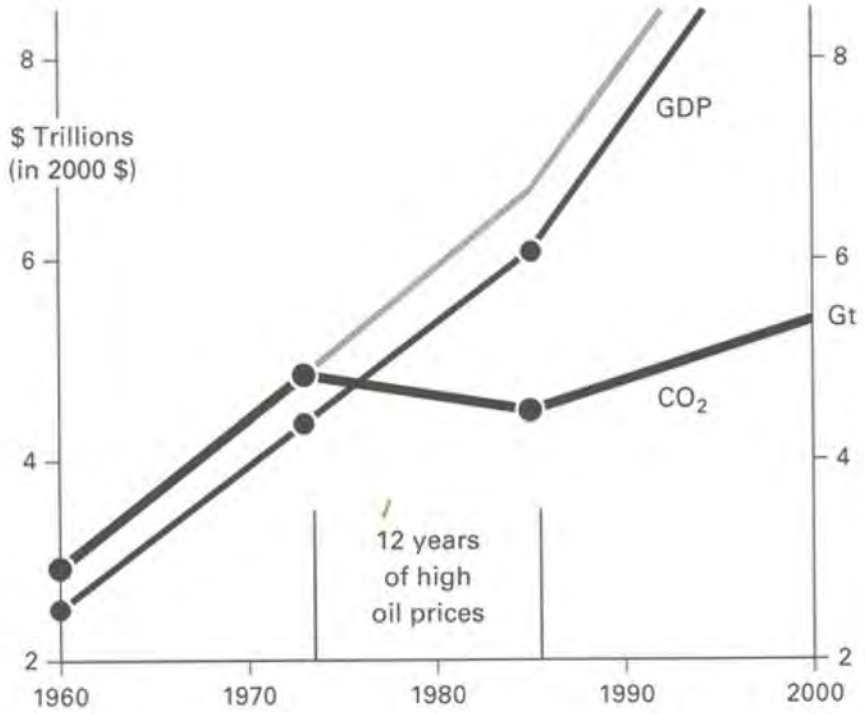


Figure 4.1
Oil price impact on US CO_2 emissions

Three kinds of incentives

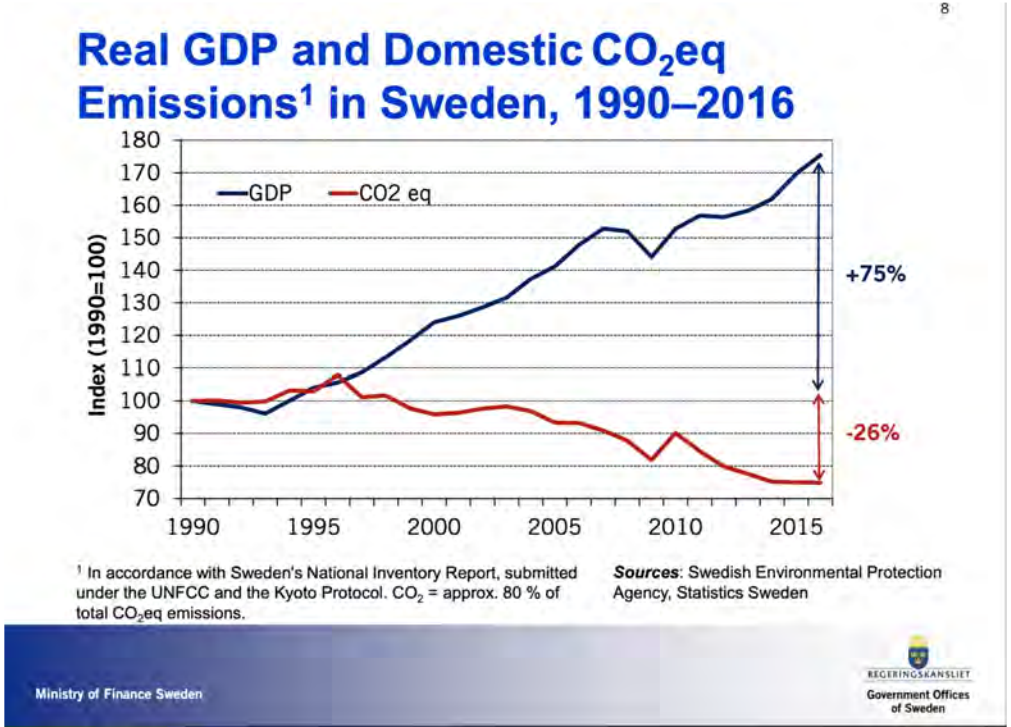
1. Higher gas prices induced conservation (eg, carpools)

1. Higher expected future gas prices induced investment (eg, mopeds and Honda civics)

1. Higher expected future prices spurred innovations in car design and fuel efficiency (eg, transformation of US auto industry)

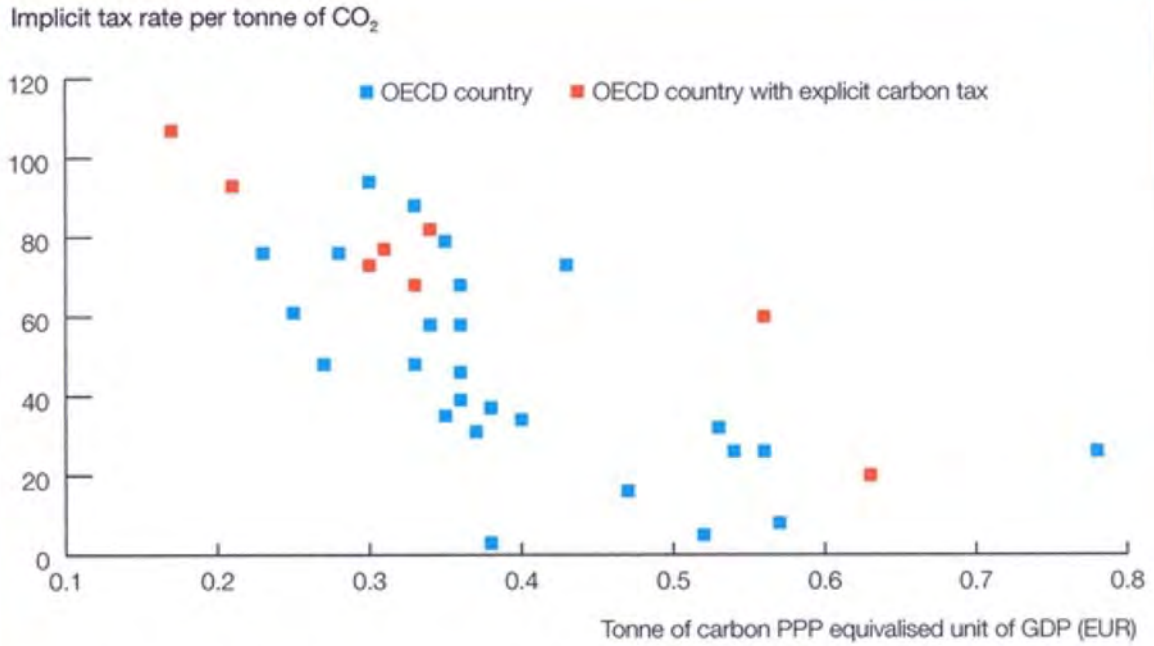
Sweden

- Carbon tax introduced in 1991 and now approximately $140 has decreased emissions 26%



Higher CO2 taxes yield a smaller carbon intensity throughout the world

Figure 4 | **Average effective tax rates on CO_2 and carbon efficiency in OECD countries**



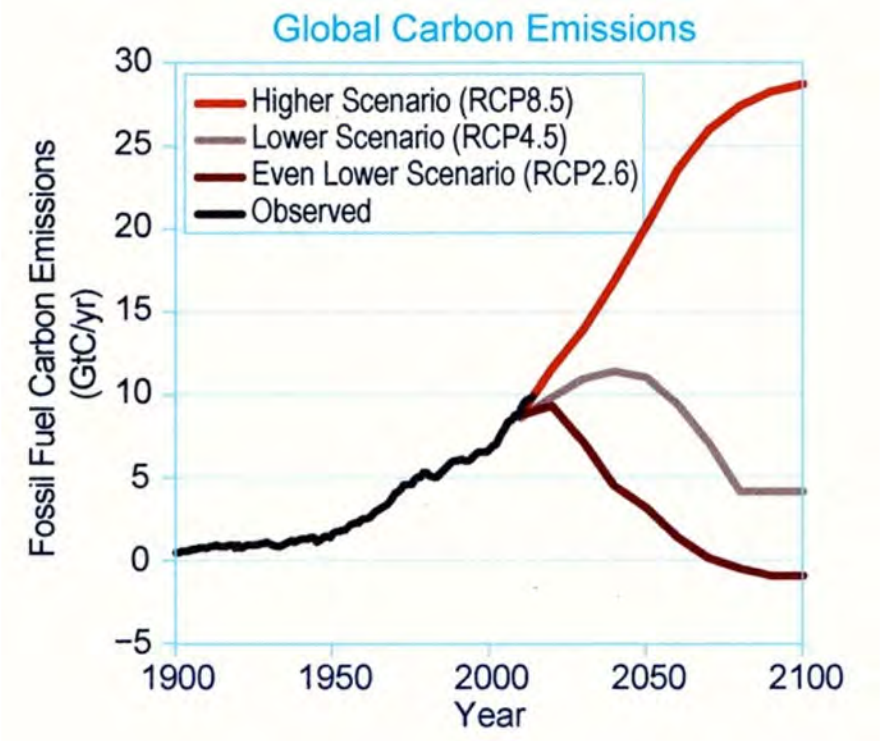
Note: OECD calculations. Tax rates are as of 1 April 2012 (except 1 July 2012 for Australia); energy use data for 2009 is from IEA (2010). Figures for Canada and USA include only federal taxes.

Source: OECD (2013a), ***Taxing Energy Use: A Graphical Analysis***, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264183933-en.

Economic models show that an aggressive carbon fee ($50/ton to start, increasing at 5%/year) can reduce emissions by 27 to 46 per cent by 2030.

Source: EMF 34 Studies, Climate Change Economics, Issue 1, 2018

Why CF&D? Costs of mitigation as small as possible



Will it wreck the economy?

Virtually no impact on aggregate demand and unemployment, because the fees are returned immediately as dividends

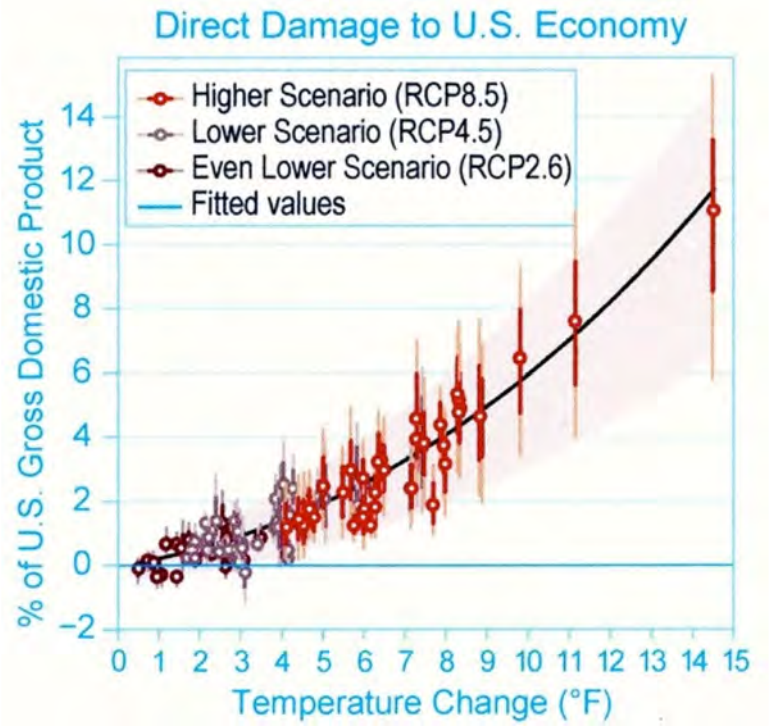
An enormously complex problem: how, who, and when should billions of people reduce their carbon footprint?

How manage it?

Use THE INVISIBLE HAND of the price system:

facing a common price of carbon, each of us selects our cheapest way of reducing our carbon footprint; and these individual decisions insure that the total cost of reducing emissions is as small as possible

Using this single, transparent policy, the cost of aggressive mitigation 2020-2040 can be limited to 0.6-0.7 per cent of GDP*



*Source: EMF 34 Models, Climate Change Economics, Issue 1, 2018

- Other techniques of mitigation, such as

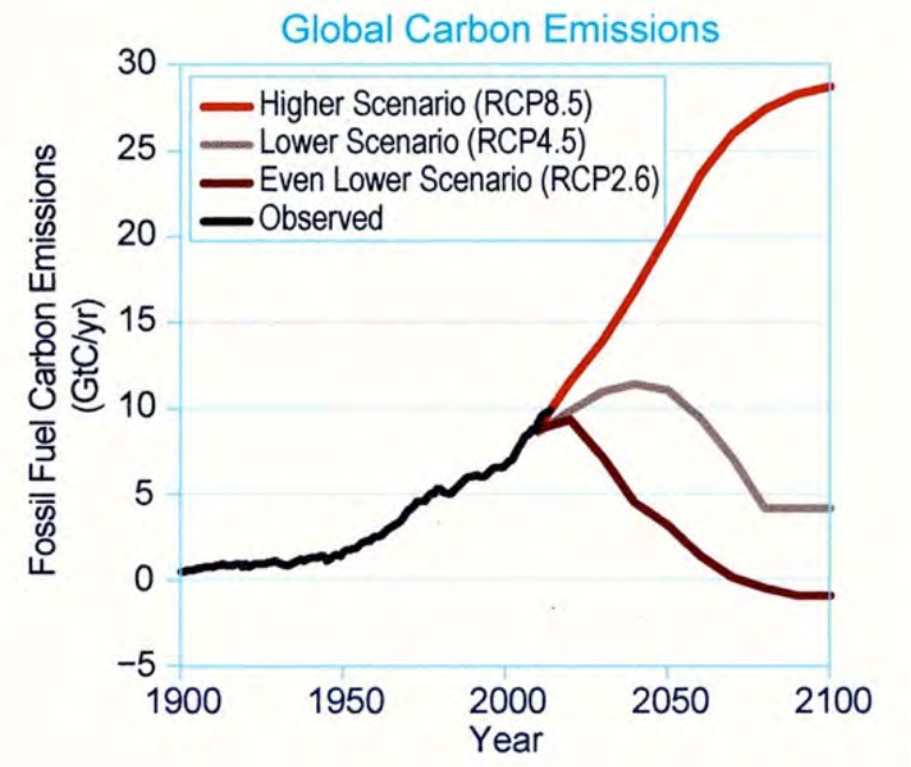
    a. Subsidies of renewables
    b. Quantity controls (quotas)
    c. Product standards

    - Inevitably cost more, because they pick winners and losers and create a mish-mash of incentives.

Policy	Cost of reducing 1 ton CO2
Behavioral modification	-$190
Reforestation	$1-$10
Wind energy subsidies	$2-$260
CAFÉ standards	$48-$310
Renewable fuel subsidies	$100
Solar panel subsidies	$140-$2,100
Biodiesel	150-$250
Weatherization assistance	$350
Vehicle electric battery subsidy	$350-$640

Source: Gillingham and Stock, Cost of Reducing GHG Emissions, JEP, Fall 2018

Why CF&D? Dividend Protects the Most Vulnerable



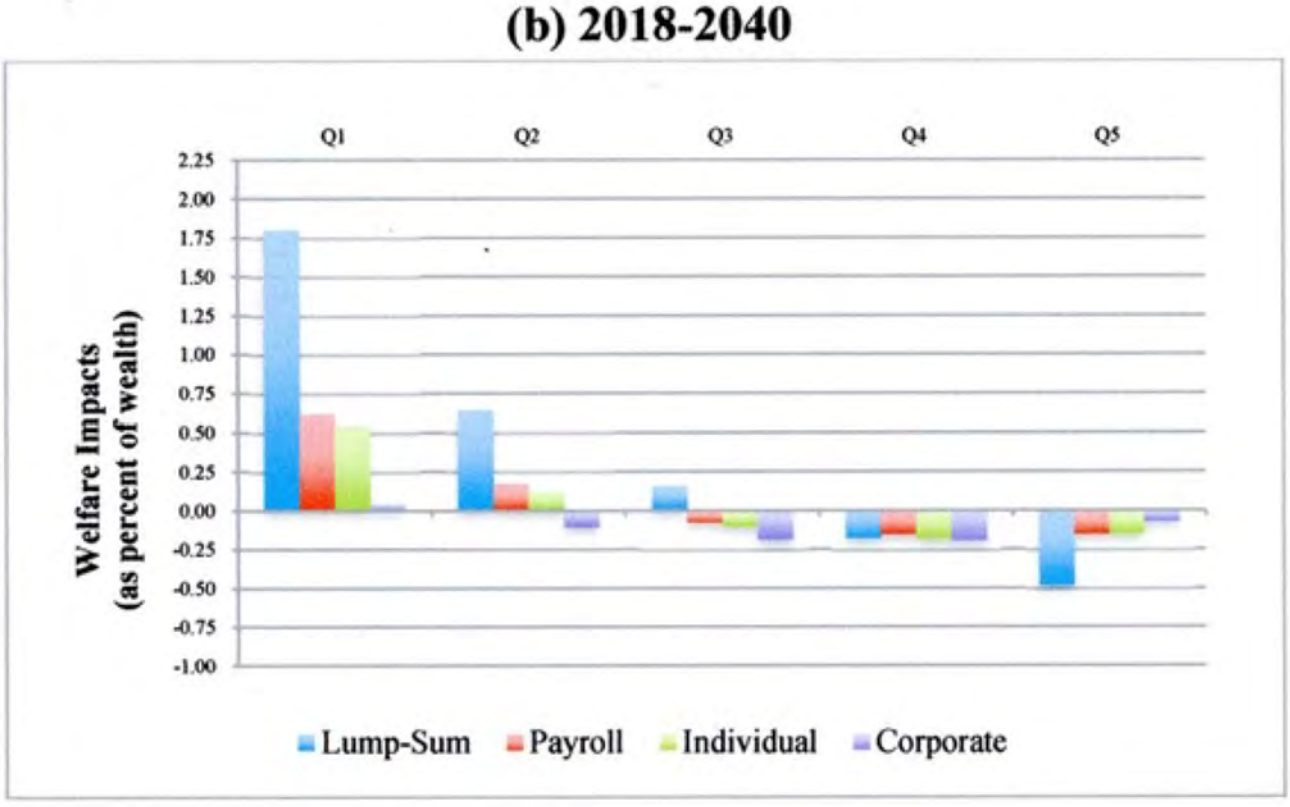
Economists' models* predict that an aggressive fee ($50 per ton, rising gradually) will:

Raise revenue 2020-2030 sufficient to fund an annual dividend of approx. $3,000 per year for a typical family of four, and

Pay at least 60 per cent of US families MORE than their increased costs due to the carbon fee

*Source: EMF 34 Studies, Climate Change Economics, Issue 1, 2018

Dividend (blue) is most progressive of revenue-neutral options



Source: Goulder et al, Impacts of a Carbon Tax across US Income Groups, July 2018

- OTHER ADVANTAGES OF EICDA (HR 763)

Broad based support

a. Progressives: dividend, aggressive climate goal

b. Conservatives: price mechanisms rather than regulations; business protections at the border; revenue neutrality prevents growth of government

c. Bi-partisan sponsorship; CF&D endorsed by groups across the spectrum (including 3500 economists!)

Flexible responses to changing circumstances

a. Fee increase is adjusted in light of emissions targets

b. Moratorium on EPA regulations is reviewed in light of emissions targets

c. Complete review by National Academy of Science after 10 years

This is the FIRST, ESSENTIAL step

Mitigation will require:

a. Public investment

b. Basic research in technology and geo-engineering

c. International cooperation

Putting a price on carbon complements all of these other necessary steps

Carbon Fee and Dividend

- It Works
- It is Efficient
- It is Fair

THANK YOU!