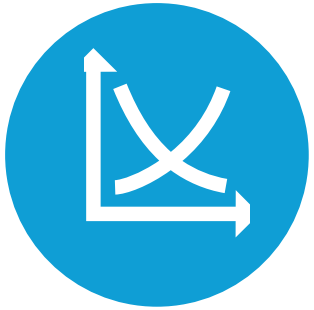
Agenda

CLIMATE CHANGE AND THE COST

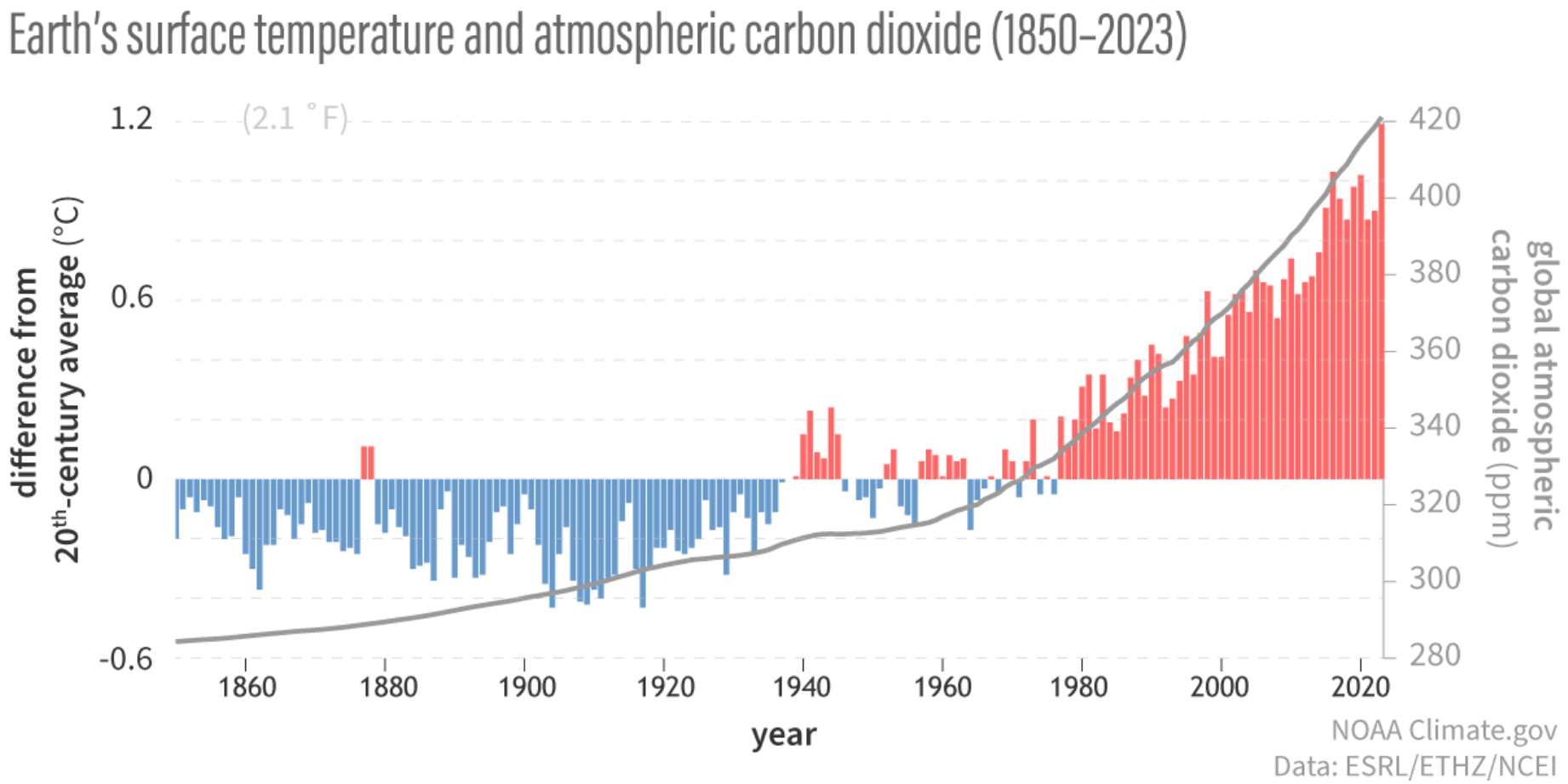
CANDIDATE POLICIES AND INITIATIVES



A STORY OF EXTERNALITIES

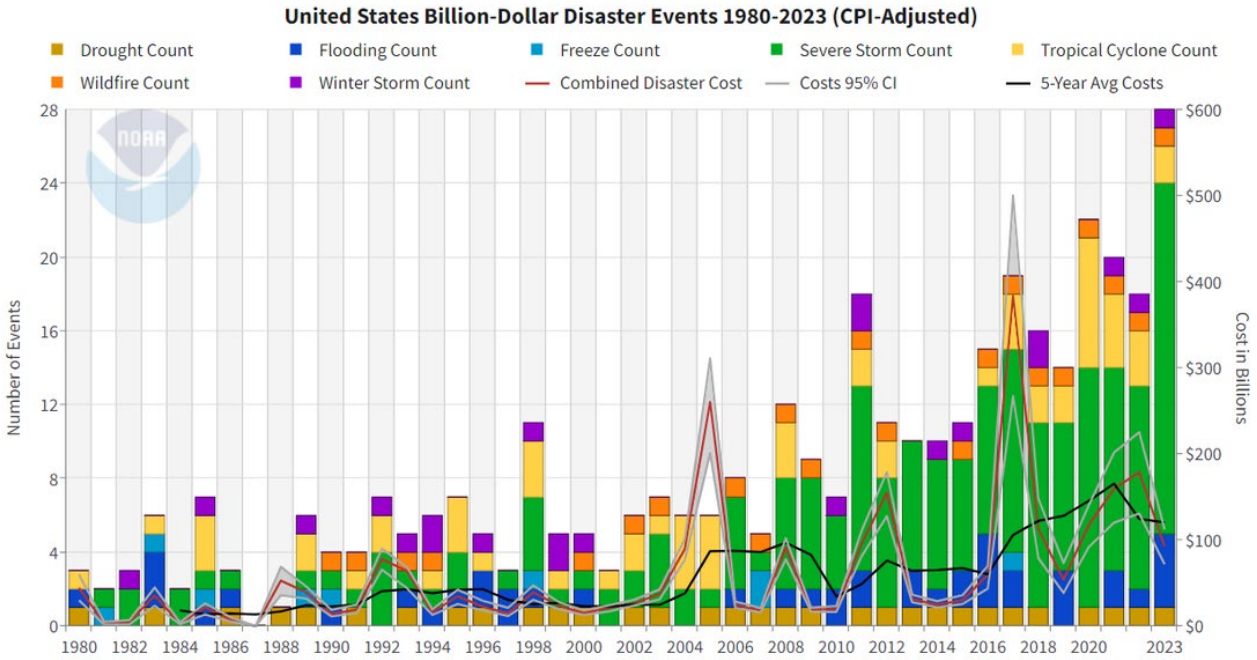
DISCUSSION

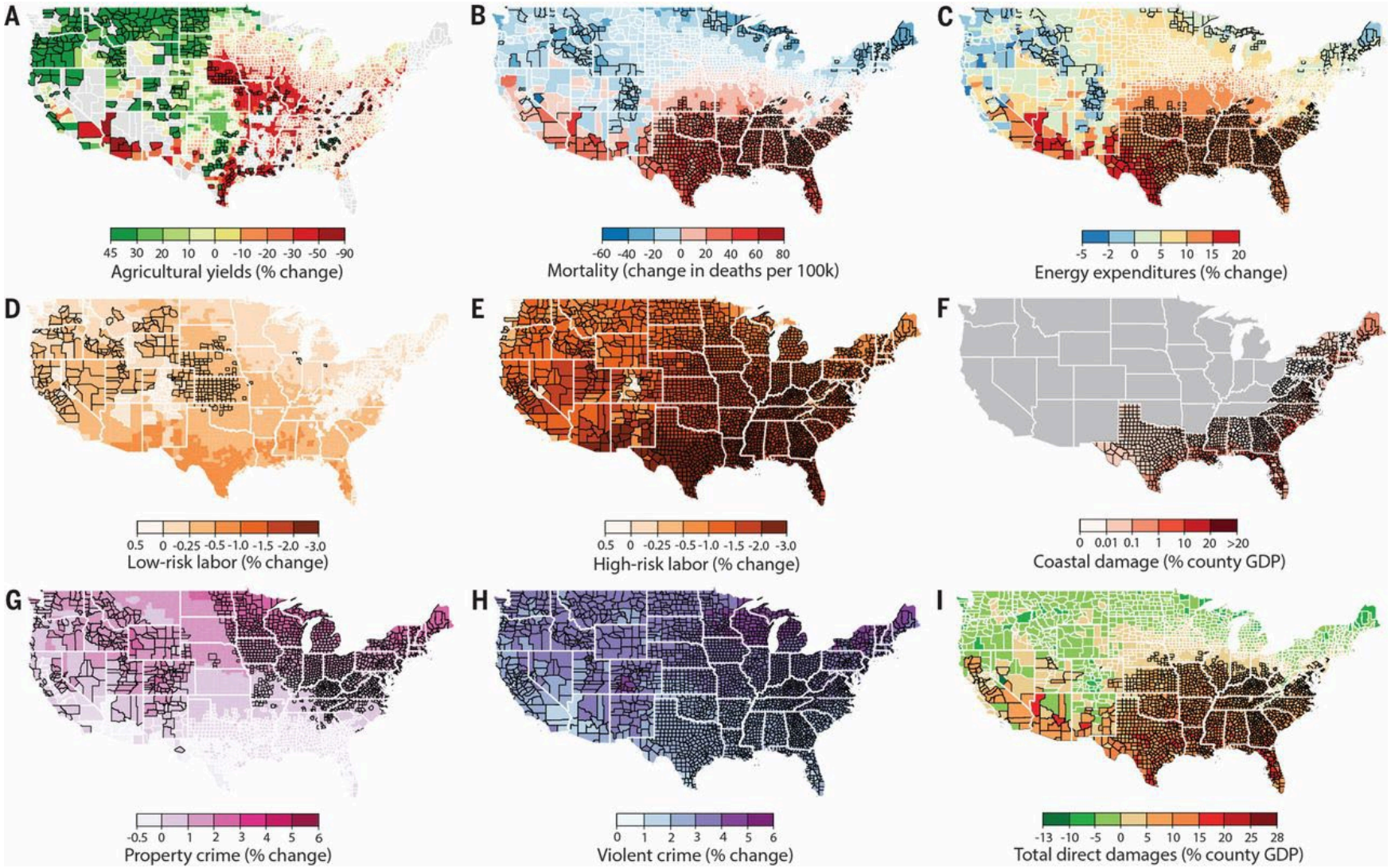
C02 and surface temperature rising



Impacts of climate change

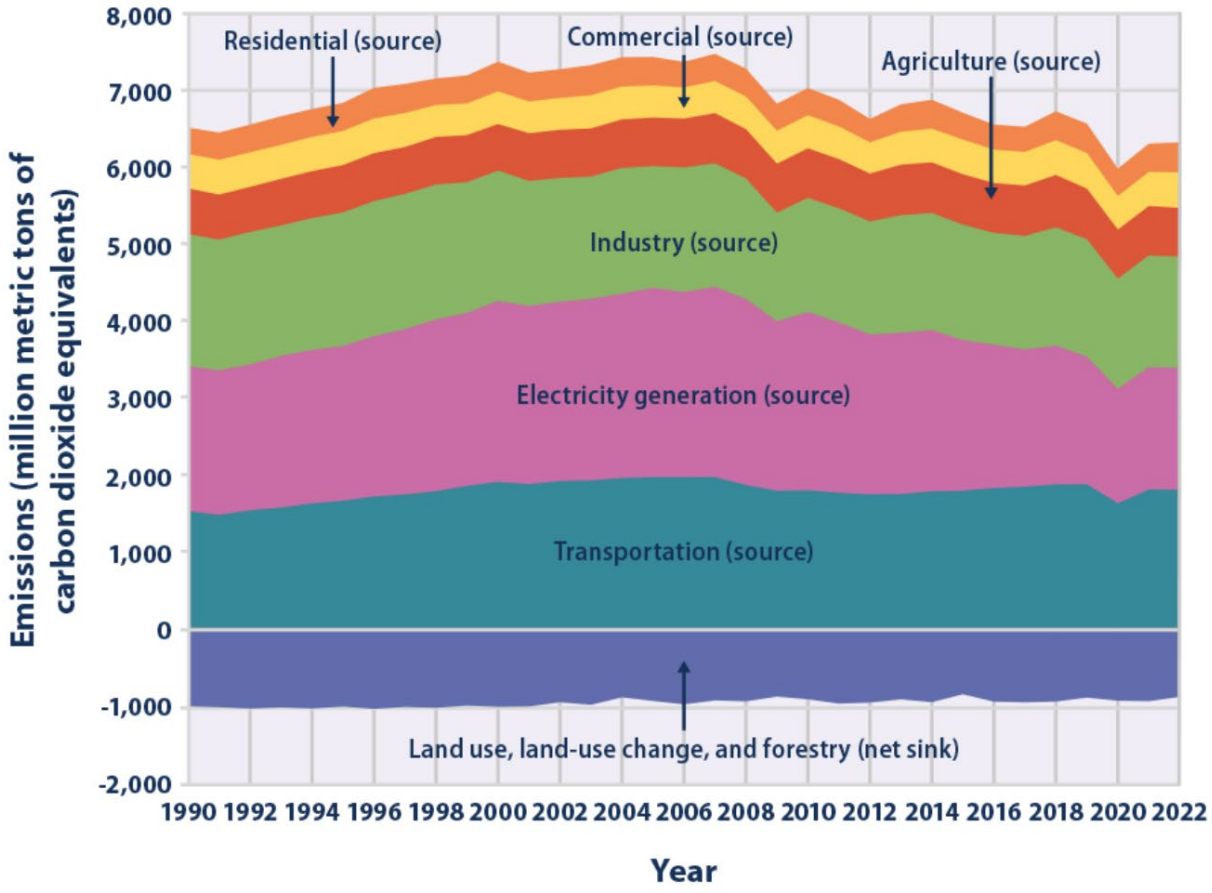
- The global cost of climate change damage is estimated to be between $1.7 trillion and $3.1 trillion per year by 2050. This includes the cost of damage to infrastructure, property, agriculture, and human health.
- This cost is expected to increase over time as the impacts of climate change become more severe.



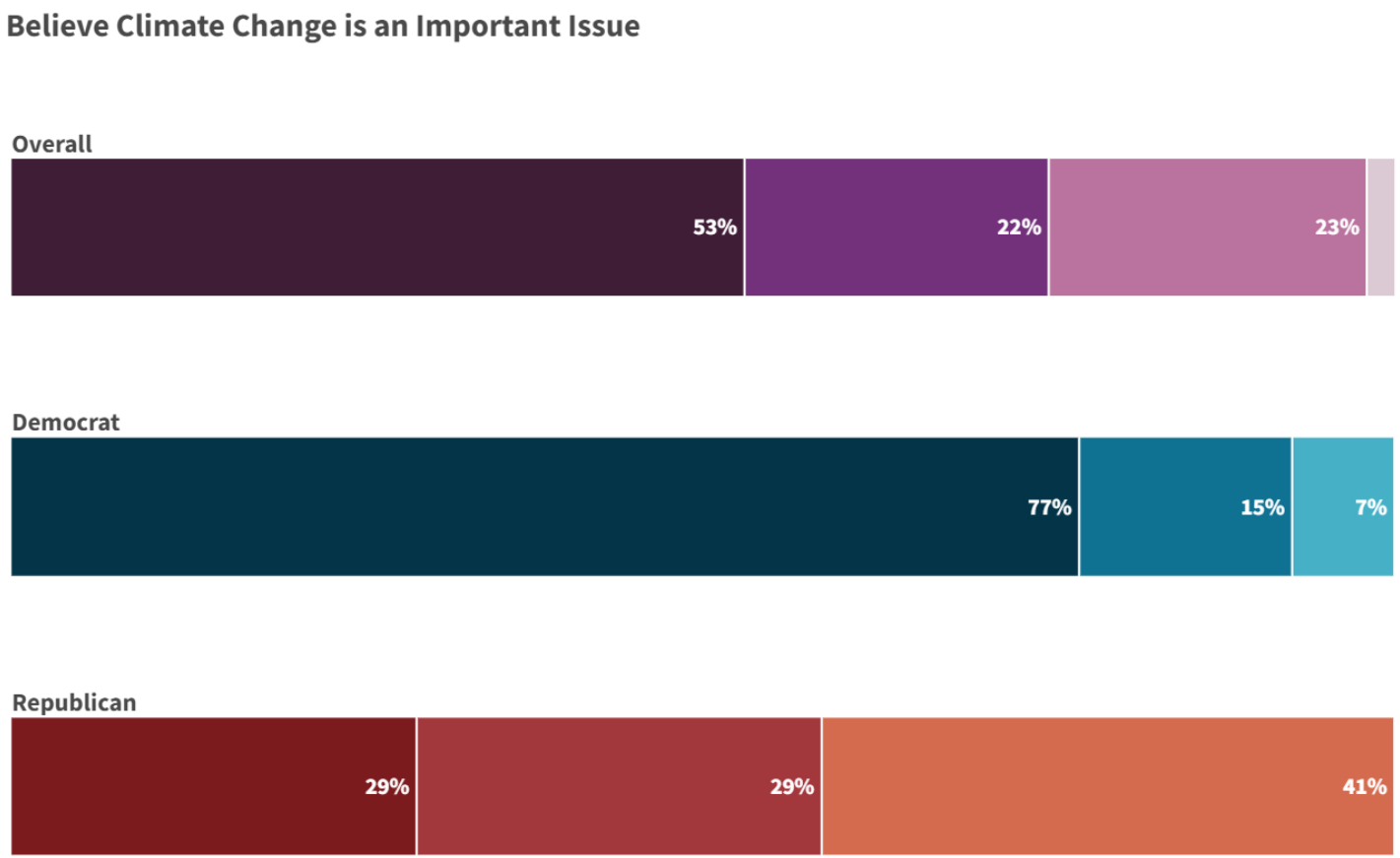


Economic damages from climate change in the United States (Hsiang et al., Science, 2017)

Greenhouse gas emissions by sector

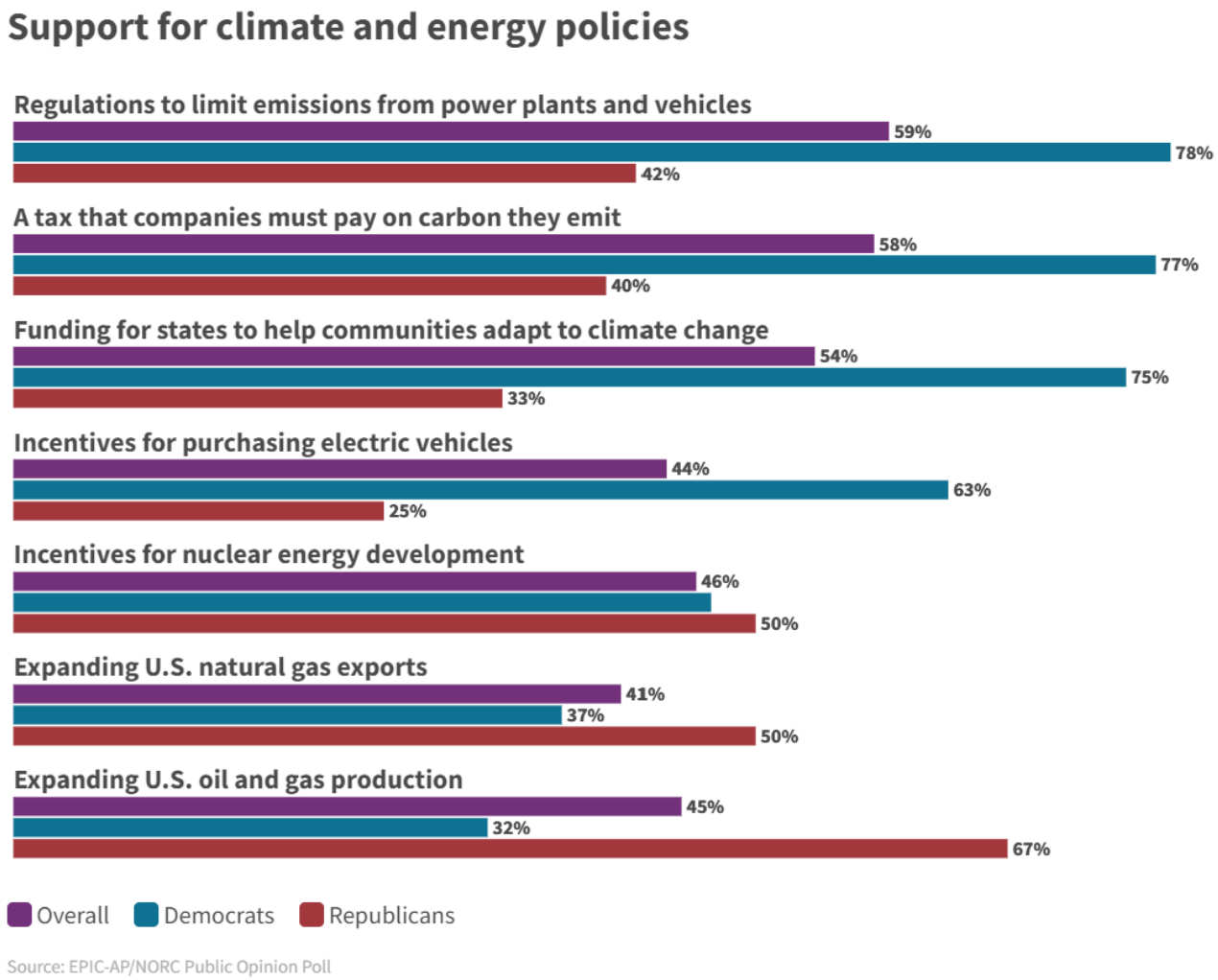


Hot topic for voters



https://epic.uchicago.edu/insights/americans-views-on-climate-change-and-policy-in-10-charts/

Preferences on solutions vary by party



https://epic.uchicago.edu/insights/2024-poll-americans-views-on-climate-change-and-policy-in-12-charts/

The policies

Kamala Harris ✓
@KamalaHarris

I support a Green New Deal. Climate change is an existential threat to all of us, and we have got to deal with the reality of it.

10:37 PM · Jan 28, 2019

Previous policy initiatives under Trump

- America First Energy Plan
- 2017: Withdrawal from the Paris Climate Agreement
- 2017: Signed Executive Order to promote fossil fuel production through eased restrictions and increased lease sales.
- 2018: Affordable Clean Energy rule allowed states to set own emissions targets.
- 2018: Opened nearly all US waters to oil and gas drilling.
- 2019: Rescinded almost 100 environmental rules and regulations.

Trump platform for 2024

1. Bring Americans the lowest-cost energy and electricity on Earth to increase productivity.
2. Increase coal, oil, and natural gas production by ending delays on federal drilling permits, leases, and pipeline projects.
3. Support nuclear energy production by keeping power plants open and investing in small nuclear reactor technology.
4. Reduce reliance on foreign fuel to achieve energy independence by refilling the strategic petroleum reserve.
5. Roll back regulation such as fuel economy standards for appliances and vehicles.
6. Intends to withdraw from international climate agreements, advocating for a more nationalistic approach to energy policy.

Previous policies under Harris/Biden

- 2021: Rejoined the Paris agreement to join international efforts to limit global warming.
- 2021: Infrastructure Investment and Jobs Act provided $1 trillion to invest in transportation networks (such as public transit), modernize the electric grid, and build EV infrastructure.
- 2022: Inflation Reduction Act invested trillions in tax incentives for renewable energy projects, tax credits for EV adoption, and research and development of climate solutions.
- 2023: Climate Adaptation Initiative funded local projects to enhance climate resiliency and reduce pollution.

Harris platform for 2024

1. Transition to clean energy economy by subsidizing renewable energy sectors like solar and wind.
2. Achieve net-zero greenhouse gas emissions by 2050.
3. Incentivize businesses and homeowners to adopt renewable energy solutions through tax credits.
4. Promote the transition to electric vehicles by investing in charging infrastructure and consumer subsidies.
5. Fund mitigation and adaptation strategies to climate-related disasters.
6. Promote environmental justice through grants to disadvantaged communities for projects such as urban forestry, weatherization of buildings, and job training in the renewables industry.

Social cost of carbon

Social Cost of Greenhouse Gas

Over the past three administrations, the social cost attributed to three greenhouse gases have fluctuated depending on the methods used to calculate the damage associated with climate pollution. The figures below compares the 2020 value for a ton of each type of gas under each presidency. The Trump administration's value for nitrous oxide was unavailable.

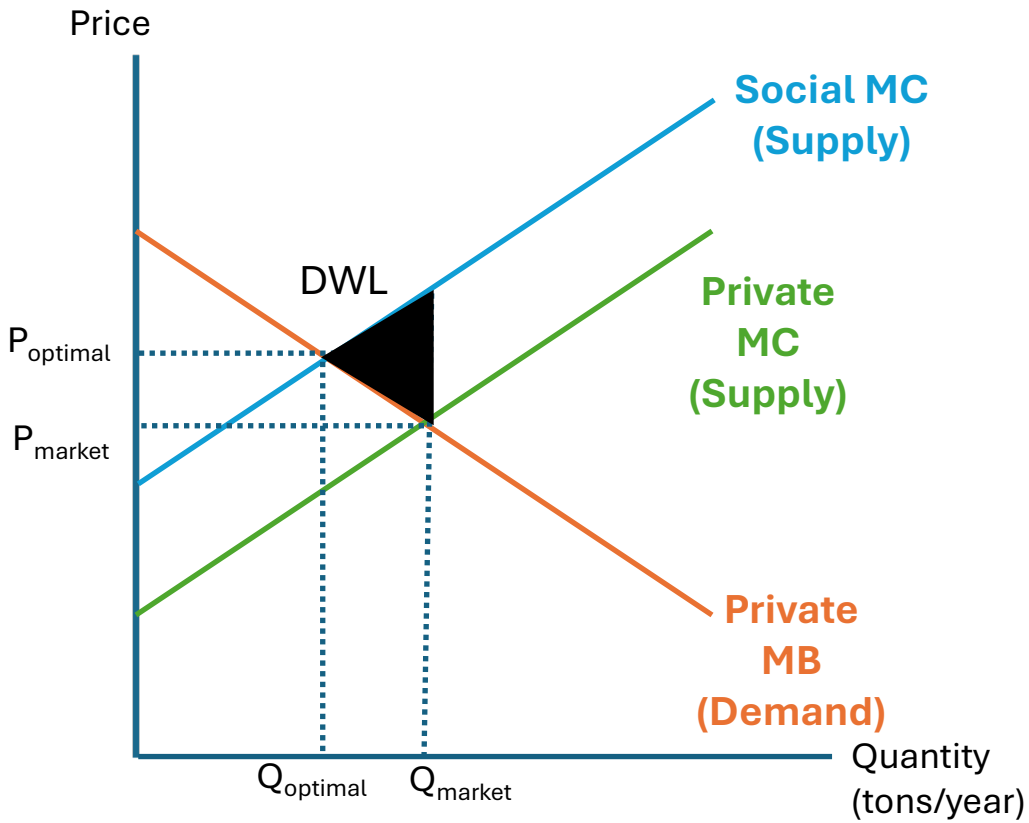
	Obama	Trump	Biden
Carbon Dioxide	$46	$1	$51
Methane	$1,470	$58	$1,500
Nitrous Oxide	$15,000	N/A	$18,000

Sources: Environmental Protection Agency, Institute for Public Integrity

The theory: A case of negative externalities

- Externalities are side effects of activities that generate costs to people not directly involved in those activities.
- In other words, an externality is an uncompensated impact of one person's action on the wellbeing of someone else.
- In the presence of externalities, the market fails to maximize societal welfare.

Graphing externalities



The private marginal benefit curve (the demand) captures the willingness to pay for buyers.

The private marginal cost curve captures the costs of production.

The social marginal cost curve equals the private costs of the producers but also the cost imposed to bystanders.

A deadweight loss is the cost to society created by market inefficiency.

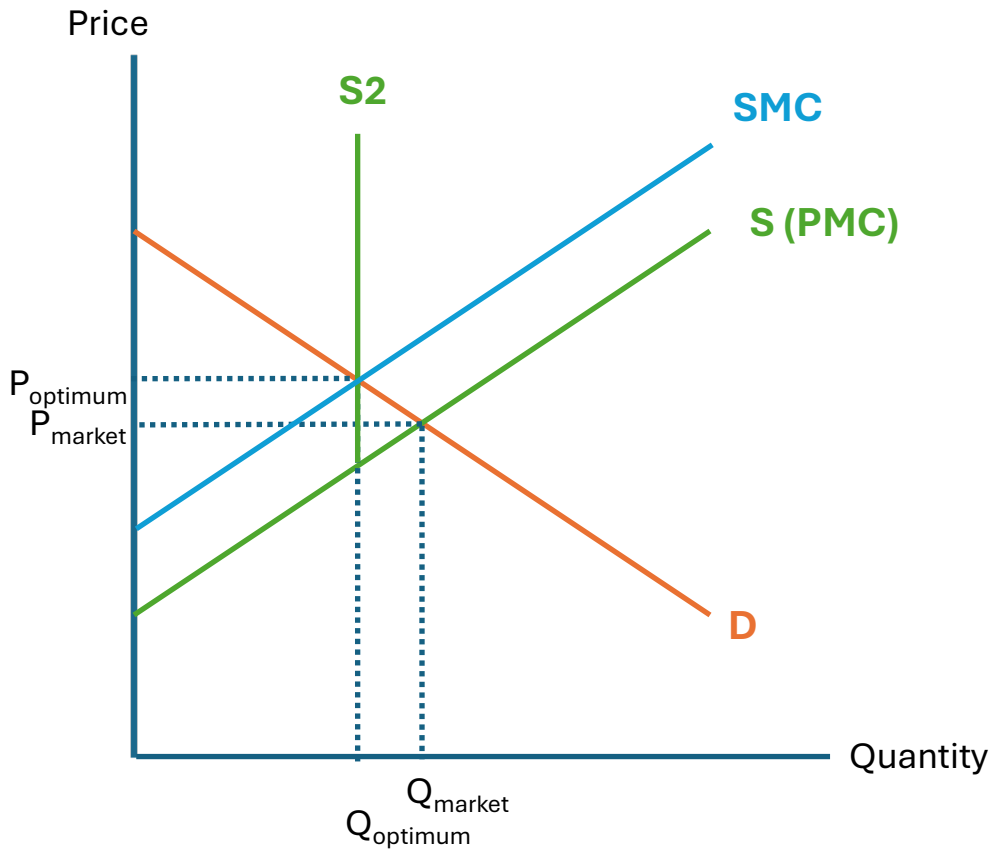
Solutions to Externalities

A government can mitigate negative externalities with policies that internalize the unintended costs, causing people to consider the external effects of their actions.

Externalities can be solved with:

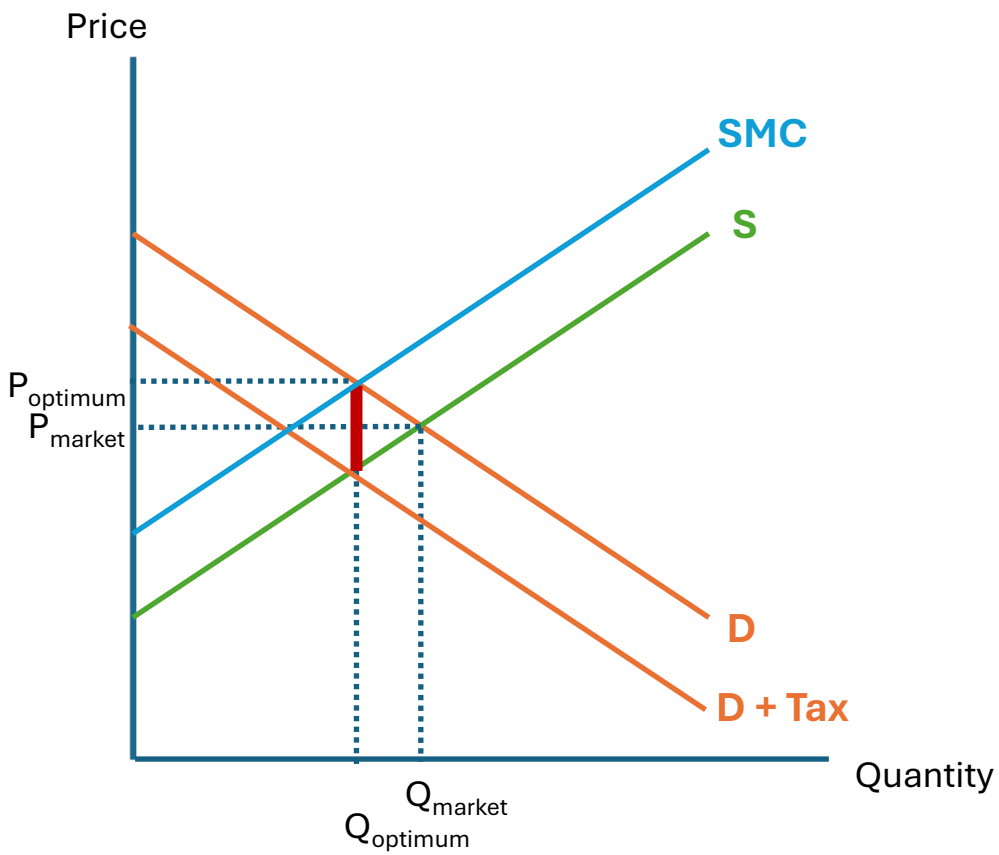
1. Command and control regulation
2. Taxes
3. Subsidies
4. Permits

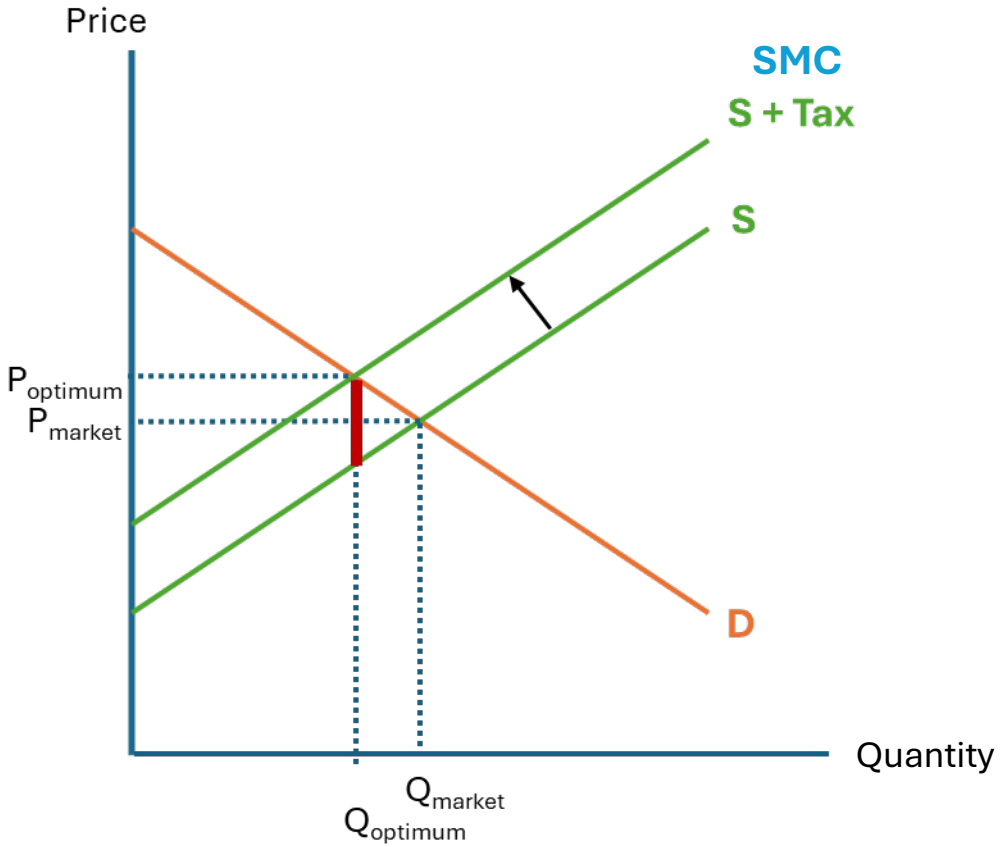
Command-and-control regulation



- With command-and-control regulation, the government controls the output supplied by firms not to exceed the optimal quantity.
- No matter how much the price rises, firms cannot increase production.

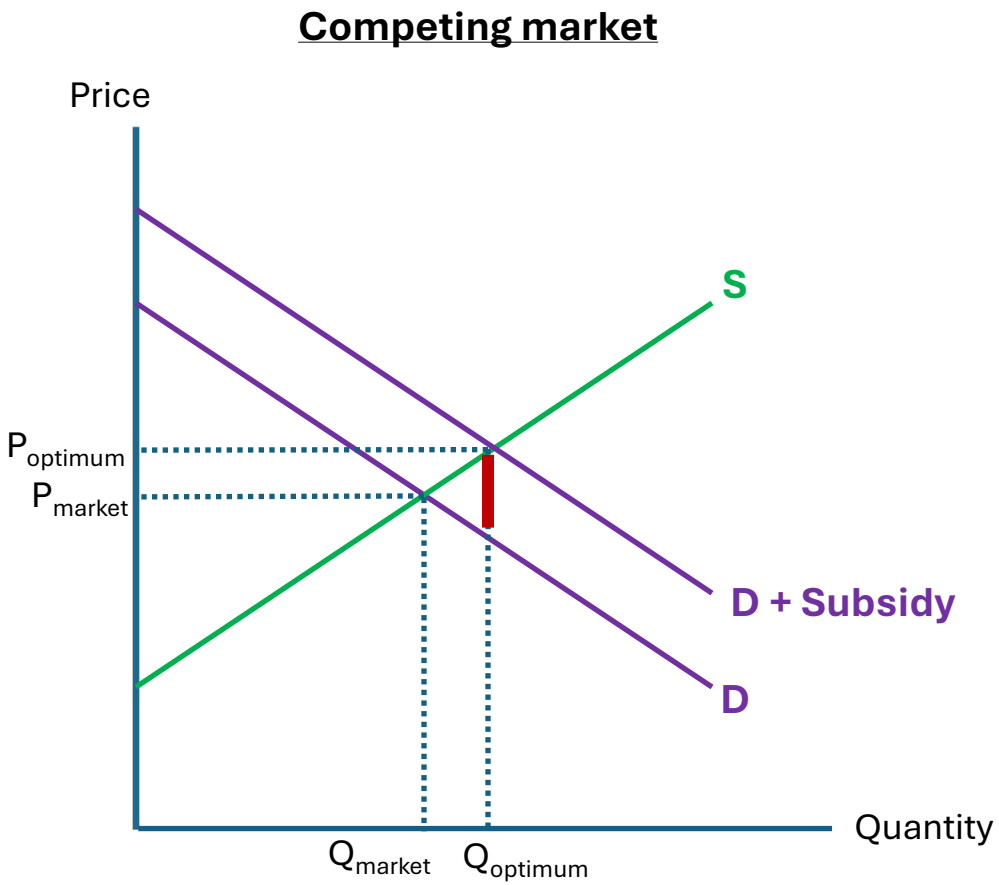
Taxes

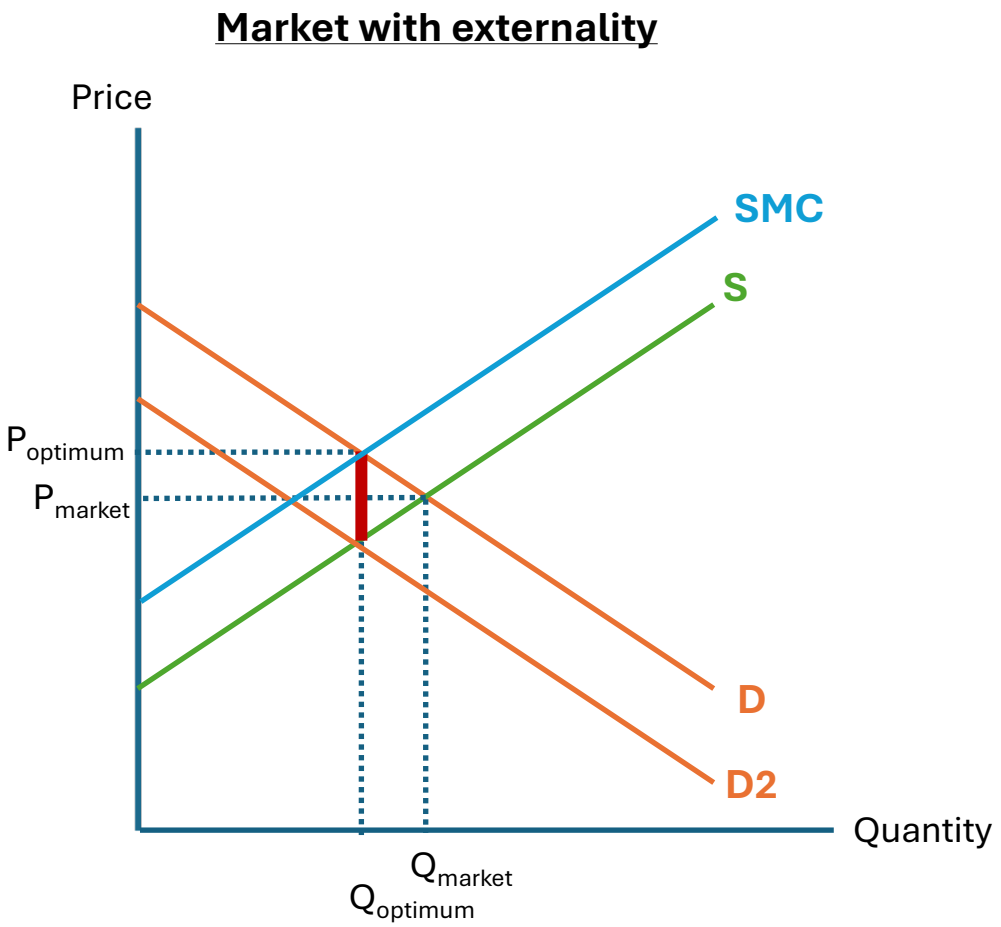




Set a tax equal to the damages from the negative externalities. Consumers or producers can be taxed, the optimal equilibrium will be achieved in both cases.

Subsidize substitute goods

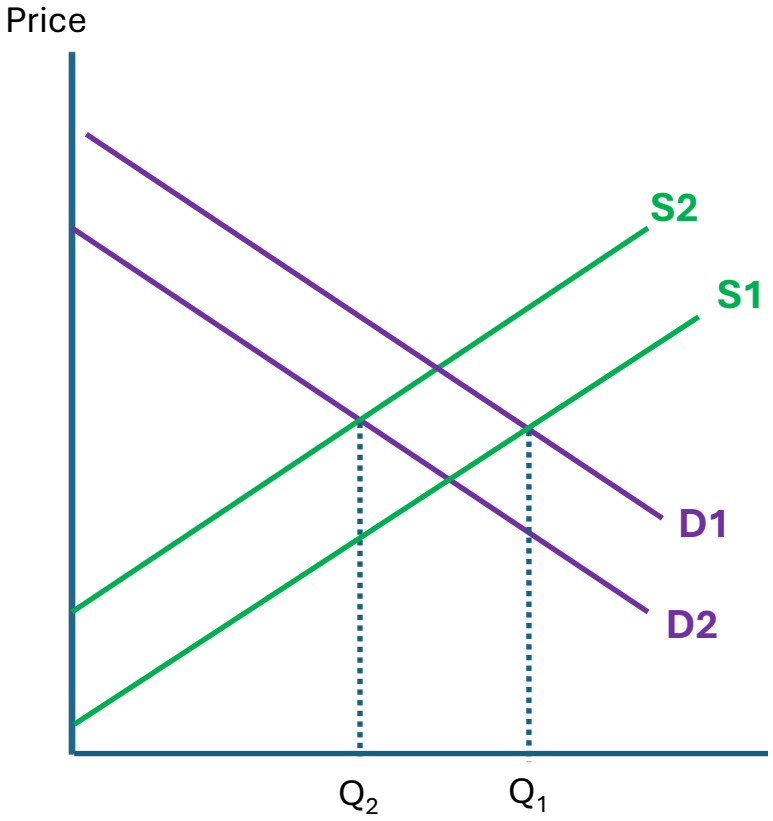




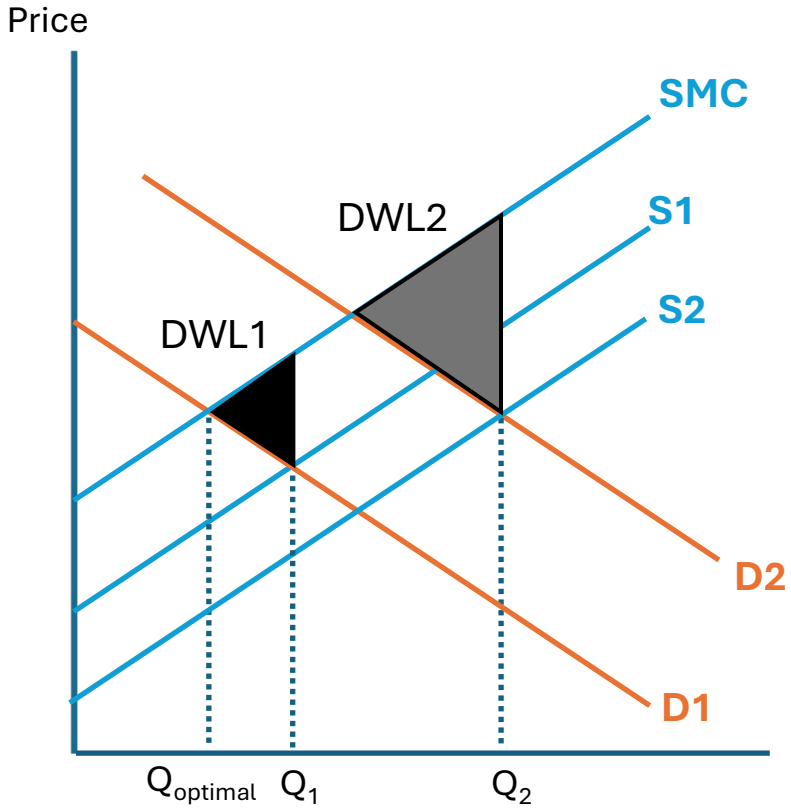
Graphing the effects of Trump policies

Assume Trump enacts the following policies: (1) Removes the subsidies for renewable fuels for consumers and producers. (2) Subsidizes fossil fuel production. (3) Removes fuel economy standards.

Market for renewable fuels



Market for fossil fuels

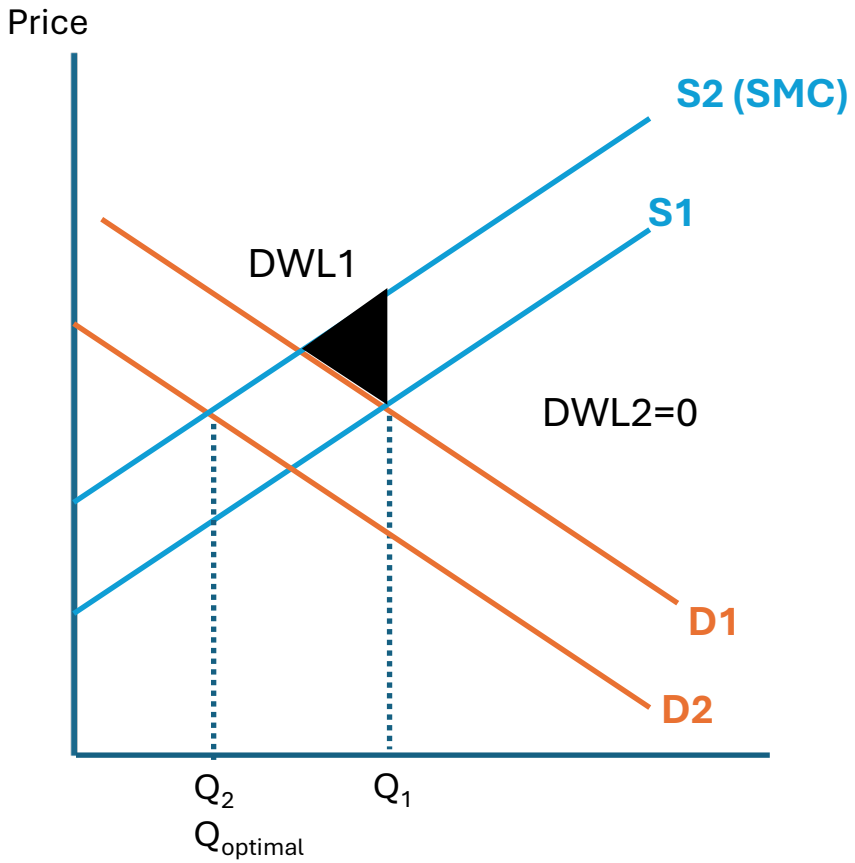


Graphing the effects of Harris policies

Assume Harris enacts the following policies: (1) Subsidizes renewable fuels for consumers and producers. (2) Taxes gasoline consumption. (3) Increases regulation for fossil fuel producers.

Market for renewable fuels

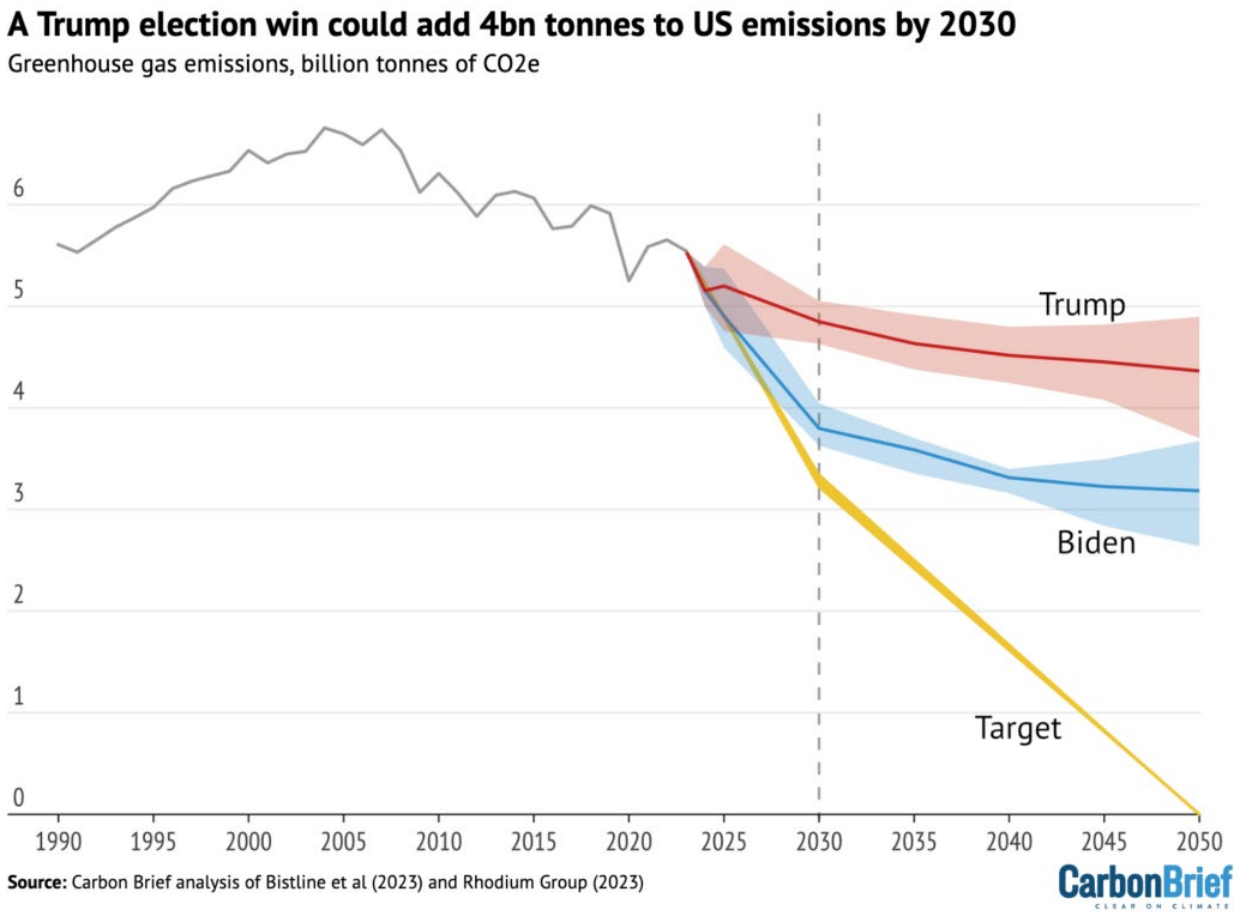
Market for fossil fuels



Theoretical effects of Trump vs Harris policies

	Trump	Harris
Quantity of fossil fuels	↑	↓
Price of fossil fuels	?	?
Quantity of renewables	↓	↑
Price of renewables	?	?
Greenhouse gas emissions	↑	↓
Deadweight loss	↑	↓
GDP long-run	↓	↑

This election will impact emission trajectories



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