

Carbon politics in the US

Christopher Knittel

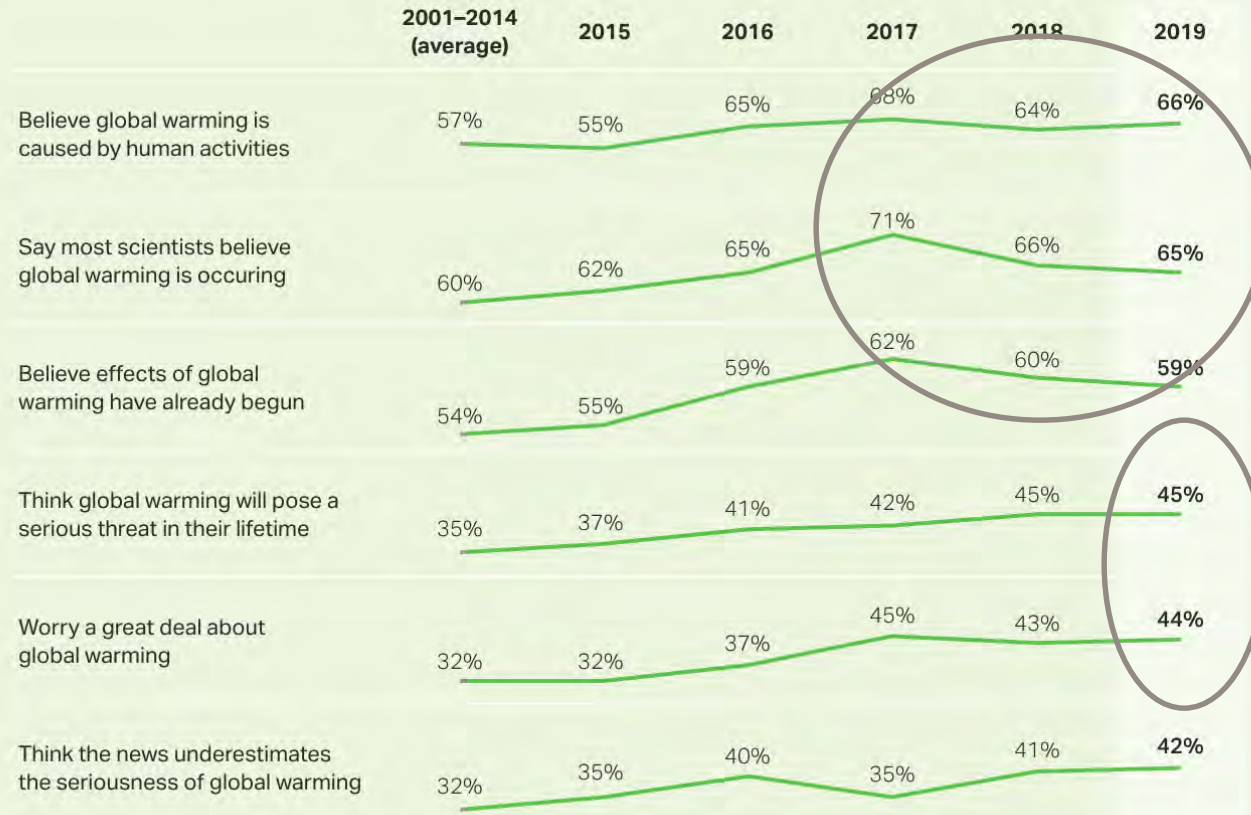
George P. Shultz Professor of Energy Economics, Sloan School of Management, MIT
Director, Center for Energy and Environmental Policy Research, MIT
Co-Director, Electric Power Systems Low Carbon Energy Center
Co-Director, The E2e Project, MIT, UC Berkeley, U of Chicago

Outline of presentation

- What's the state of play for climate policy in the US?
- Where is it headed?
- Also focus on policy choice
- A way forward?
- Along the way: discuss recent and future work at MIT and elsewhere

Interesting trends in polling data

Summary of Americans' Views on Global Warming



All polls conducted in March

GALLUP

What do the polls tell us?

- We are losing ground (or treading water)!
 - How?
 - Becoming more partisan issue
 - Huge, well organized, disinformation campaigns
- Still, fewer than 50% worry about climate change and think it will pose a serious threat in their lifetime
-

Remains a partisan issue

 **Donald J. Trump** [@realDonaldTrump](#)

The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.

2:15 PM · Nov 6, 2012 · [Twitter Web Client](#)

96.6K Retweets 65.1K Likes

 **Senator John Cornyn** [@JohnCornyn](#)

It's summer, Chuck

 **Chuck Schumer** [@SenSchumer](#) · Aug 16

July 2019 was the hottest month ever, of any month, on record.

Climate change is the greatest threat facing our planet.

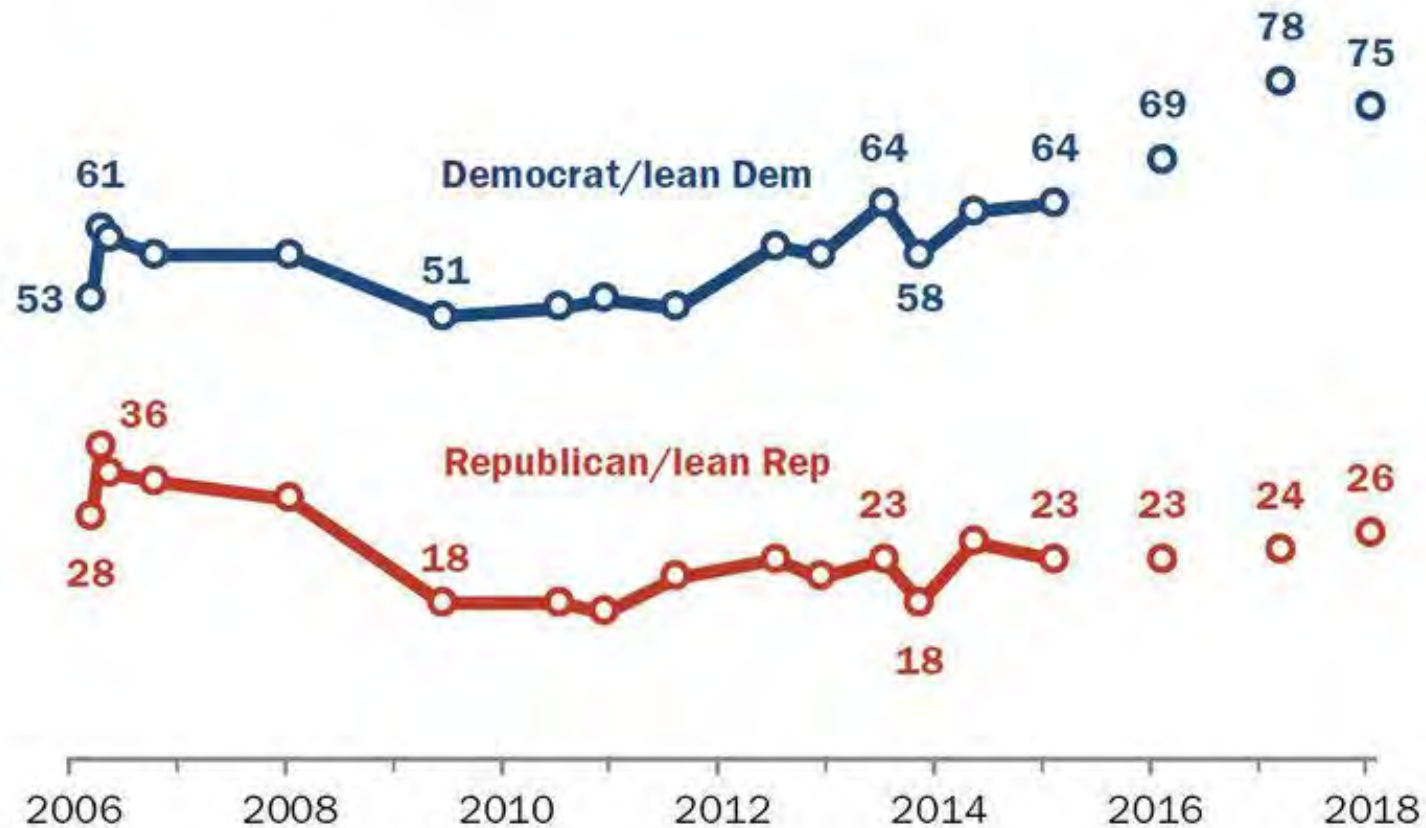
It's about our kids. It's about our health. It's about the future.

We must act. [noaa.gov/news/july-2019...](https://www.noaa.gov/news/july-2019...)

3:41 PM · Aug 16, 2019 · [Twitter for iPhone](#)

Republicans and Democrats remain apart on the role of human activity in climate change

% of U.S. adults in each group who say the Earth is getting warmer mostly due to human activity

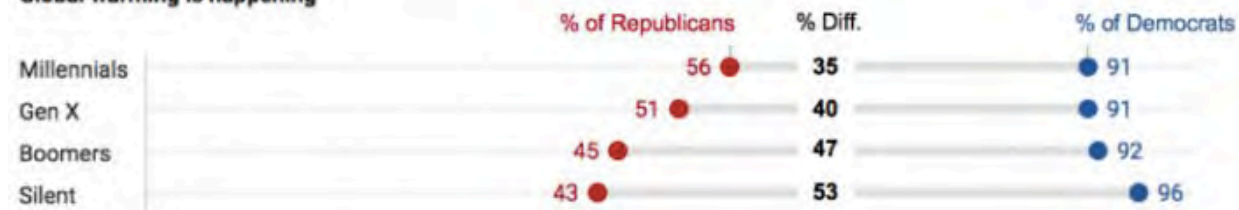


But, do Republican strategists see that tides are changing?

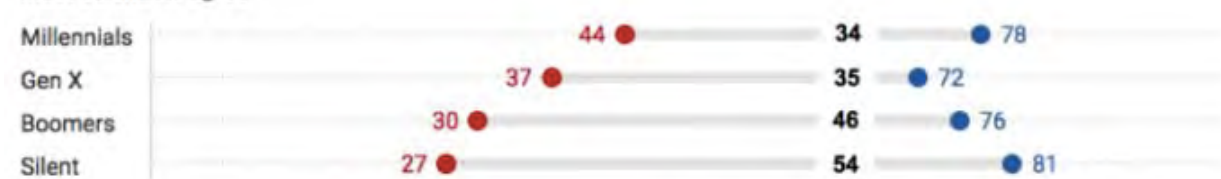
The New York Times

Climate Could Be an Electoral Time Bomb, Republican Strategists Fear

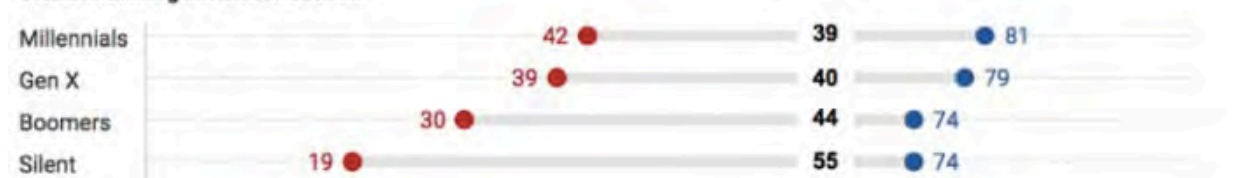
Global warming is happening



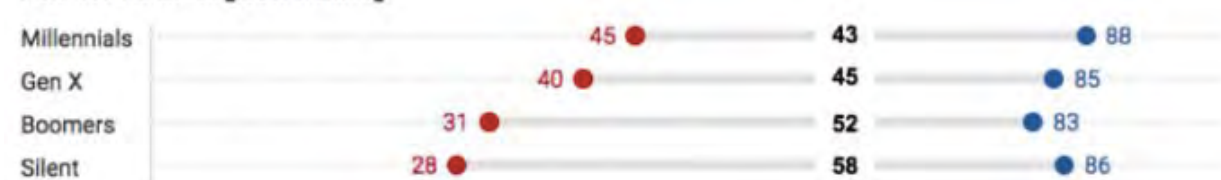
Most scientists agree



Global warming is human-caused

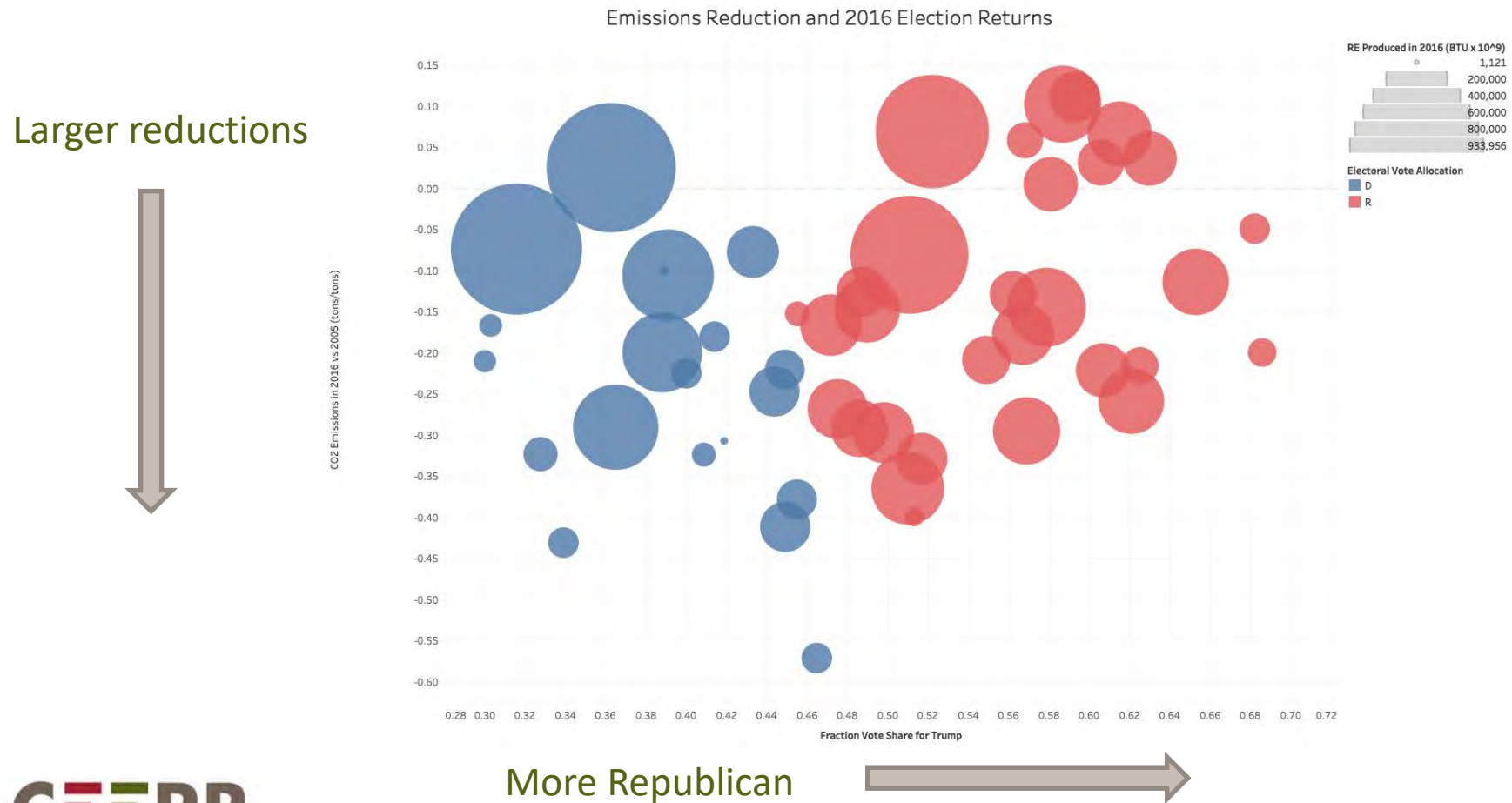


I am worried about global warming



Interestingly, actual decarbonization is less partisan...

- Little correlation, in fact raw correlation is positive



But...but...at the federal level...

The New York Times

What to Know About Trump's Order to Dismantle the Clean Power Plan

Trump's plan to roll back Obama's fuel economy rules for cars, explained

By Brad Plumer | @bradplumer | brad@vox.com | Updated Mar 15, 2017, 2:00pm EDT

The New York Times

E.P.A. to Roll Back Regulations on Methane, a Potent Greenhouse Gas

This has generated an interesting dynamic...

RAISING THE BAR

Automakers have agreed to California's fuel-efficiency standards instead of Trump's

By Zoë Schlanger · July 27, 2019

Exxon and Shell Support Methane Regulations, Gas' Climate Impact Remains Alarming

More Utilities Make Big Commitments to Climate Action

March 05, 2019

Sophia Ptacek & Sheryl Carter

MIT CEEPR

MIT Center for Energy and Environmental Policy Research

There are two issues at play

- First, doing something about climate change
 - Convincing the 75% of Republicans and 25% of Democrats that humans are a major factor in climate change
- Adopting the right set of policies
 - Sustained support for addressing climate change relies on efficiently addressing climate change
 - Being up front with the costs and benefits of policies
 - Protecting at-risk groups

CEEPR's efforts: Recently launched (a)

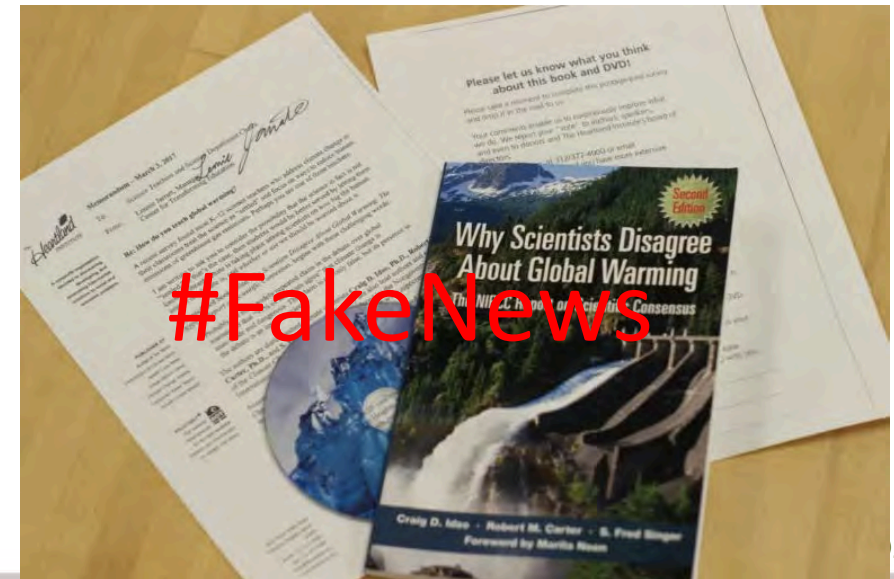
- "Roosevelt Project"
- Led by Secretary Moniz
 - Provide an analytical basis for charting a path to a low carbon economy in a way that:
 - promotes job growth,
 - minimizes worker and community dislocation, and
 - harnesses the benefits of energy innovation for regional economic development

Two steps

- Step one: Underway
 - A series of white papers to understand the landscape
 - Topics include: past technology transitions, infrastructure requirements, incidence of carbon policies across different socio-economic groups, workforce development
 - Team of social scientists and technologists at MIT and Harvard
- Step two
 - Three case studies where we team up with local policy makers to see through policies and their impacts
 - E.g., work with policy makers in the Appalachia to pilot job retraining and industry transition programs

CEEPR's efforts: Recently launched (b)

- CEEPR's response to Heartland Institute:
- Currently working across MIT to develop climate change curriculum for HS students
- Developing online resource for teachers, complete with lesson plans and



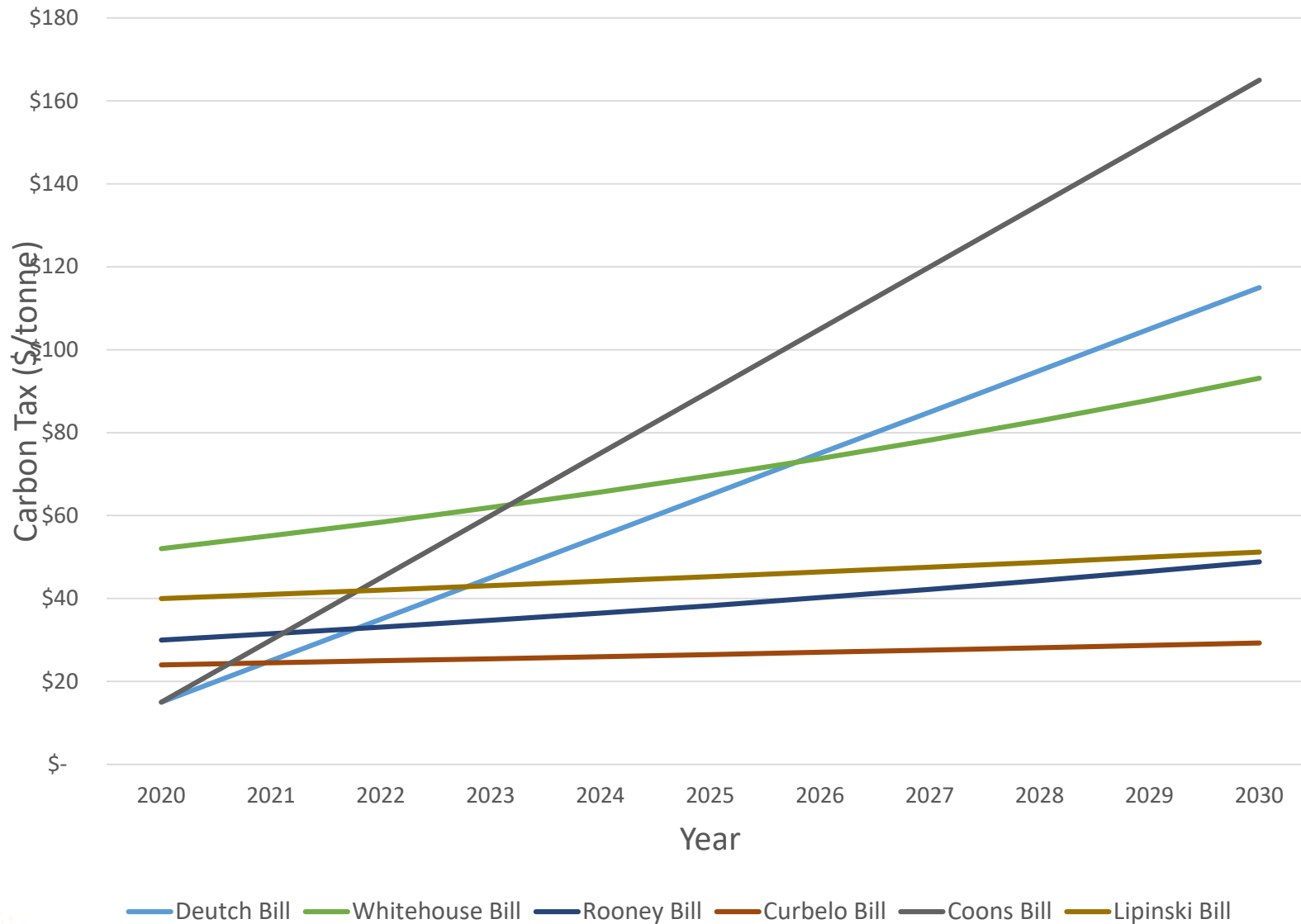
How to get Republicans on board?

- Privately, many Republican policy makers will admit they believe in climate change despite their outward positions
- In addition to educating their base that climate change is real, there are two potential paths to enacting meaningful climate change policy
 - First, make a carbon tax part of large scale tax reform
 - Second, replace current inefficient policies (e.g., fuel economy standards) with a carbon tax

Paths to climate change policy

- The first (tax reform) is unlikely to garner much Democratic support
 - Would require replacing income tax revenues with carbon tax revenues
 - This can be quite regressing
 - Although, it could be coupled with large dividends for low-income households
- The second has great promise, IMHO
 - Potential for large efficiency gains
 - Note: Republican opposition to carbon taxes is often confounded with their opposition to **any** climate change policy

Recent carbon tax proposals



Key question

- How large of a carbon tax is needed to replace the existing inefficient policies?
- This creates a lower bound for the carbon tax required
 - Anything higher is a net gain in emission reductions

Diary of a Wimpy Carbon Tax: Carbon Taxes as Federal Climate Policy

Christopher R. Knittel

August 2019

In this short note, I use MIT's Emissions Prediction and Policy Analysis (EPPA) Model to calculate the carbon tax required to replace the major federal climate change policies that existed as of 2016: Corporate Average Fuel Economy (CAFE) Standards on light-, medium-, and heavy-duty vehicles; the Clean Power Plan (CPP); and the Renewable Fuel Standard (RFS). I first use the Regulatory Impact Analyses of each policy to estimate each policy's respective greenhouse gas emission reductions in 2020, 2025, and 2030. Next, I use the EPPA model to simulate the carbon tax required to achieve the same emission reductions in each of the three benchmark years. The results suggest that a modest carbon tax can replace these three flagship climate change policies. If the carbon tax is applied to all greenhouse gases, adjusted for the gas' respective global warming index, the required carbon tax in 2020 is roughly \$7 per tonne. In 2025, the required tax increases to roughly \$22 per tonne; in 2030 the required tax is roughly \$36 per tonne. These results underscore the economic power of a carbon tax, compared to the economically inefficient policies currently in place.

[Full Paper](#)

Steps in answering this question

- Two main steps
- First, use the Regulatory Impact Analyses (CBA) for four main federal policies that existed in 2016 to estimate the emission reductions in 2020, 2025, and 2030
 - Clean Power Plan, Light-duty Fuel Economy Standards, Medium- and Heavy-duty fuel economy standards, Renewable Fuel Standard
 - Note these reductions are likely biased upward
- Second, use MIT's EPPA model to simulate the carbon taxes required to meet these reductions

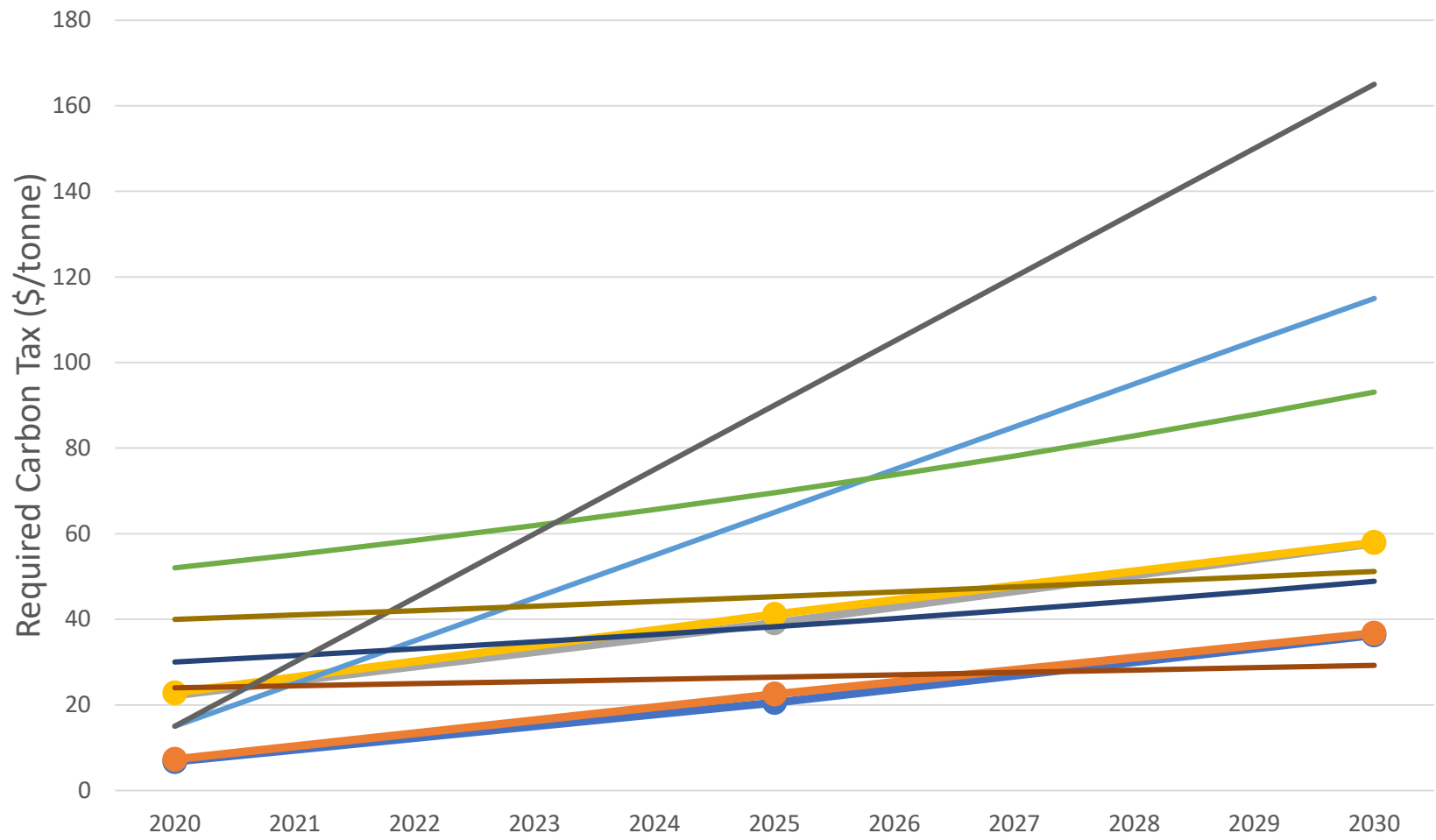
Results are surprising

- Two possible carbon taxes: taxing only CO2, taxing all GHGs
- Also, RIA often give a range of emission reduction estimates
 - I calculate for the lower and upper bounds

Year	All GHGs, Lowerbound	All GHGs, Upperbound	Co2 Only, Lowerbound	CO2 Only, Upperbound
2020	6.77	7.29	22.2	22.79
2025	20.55	22.51	39.12	41.14
2030	36.34	36.75	57.7	57.93

Two reactions to these

- Wow, a carbon tax is so much more effective than these other policies!!
- Wow, the US isn't doing very much!!
- How do these compare to carbon tax bills...



- All GHGs, Lowerbound
- All GHGs, Upperbound
- Co2 Only, Lowerbound
- CO2 Only, Upperbound
- Deutch Bill
- Whitehouse Bill
- Rooney Bill
- Curbelo Bill
- Coons Bill

Wrapping up

- CEEPR's communication efforts are focusing on educating both policy makers and voters
 - Actually, and future voters
- Still a large knowledge gap, even among those predisposed to worry about environmental issues
- We've learned from other issues (e.g., gun control) that high school students can be effective catalysts for change