Help solve climate change!

MIT Spark - Saturday, March 16, 2024
Teacher email: 15930-teachers@esp.mit.edu

Description

We know the technical changes needed for a relatively safe climate future: reduce human-made greenhouse gas emissions to net-zero by 2050 and reduce CO2 in the air below 350 ppm by 2100. The cheapest, fairest, and most comprehensive way to address the underlying climate pollution problem is to fix the market's failure to account for the costs of pollution in prices with a three-part solution called Carbon Fee and Dividend. The fee makes it powerful, the dividend makes it equitable, and the associated border adjustments will push our carbon price around the world. Congress can move the world halfway to achieving its 1.5˚C warming limit goal and make the remaining work easier to do with one piece of legislation.

This will fundamentally change incentives throughout the US economy, so there is strong resistance from those who profit from the status quo. Is it possible to break the logjam and save ourselves? Can any of us do anything to help address the most significant existential crisis human civilization has ever faced? Yes, we can!

Each of us can take effective action in this pivotal moment in humankind's history, just as people in past generations achieved women's suffrage, civil rights, and same-sex marriage through collective action movements. Ordinary citizens advocating together for change is our last, best hope to avoid climate catastrophe. The CFD Movement has begun. Your part starts right here!

Bio

John Gage worked at Sun Microsystems Inc. for 20 years and Oracle Corp. for 10 years, helping roll out the infrastructure for the internet for most of his software career. Then, his undergraduate Biology background returned to haunt him when he did a deep dive into the science of climate change. To help drive the changes required to address the problem, he joined Citizens' Climate Lobby's grassroots effort to create the political will to enable Congress to pass effective and fair bipartisan climate legislation. Now he is CCL's NH state coordinator, presents at local and national conferences, lobbies Congress (on his own dime), and loves teaching at MIT ESP events to help students learn how to take and share effective climate actions.

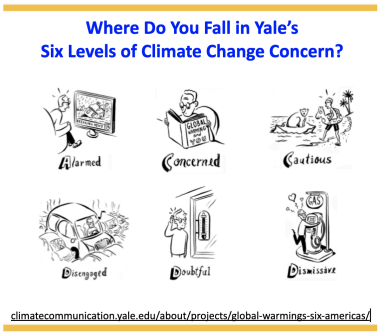
Welcome!

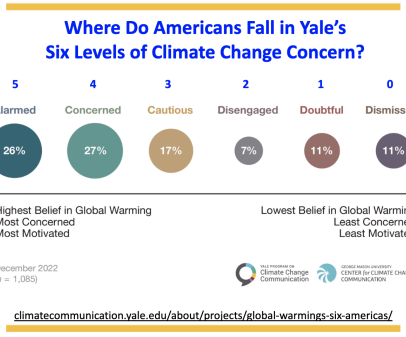
MIT Spark 2024 - 15930: *Help solve climate change!*

Session Guide: bit.ly/2024-spark-hscc

Hello, everyone! Thank you for joining this class to help solve climate change!

First, I want to hear your thoughts about the problem and our options.





TAB 1: https://docs.google.com/document/d/1gNpQwipp4jJPjuF5b6mwRFSeWnt-T6PdgFAnCHlNCJo/edit?usp=sharing

Take a poll #1

Yale Climate Communications periodically polls Americans to measure their level of concern about climate change. They created these six categories. Where Do You Fall in Yale's "Six Levels of Climate Change Concern"?

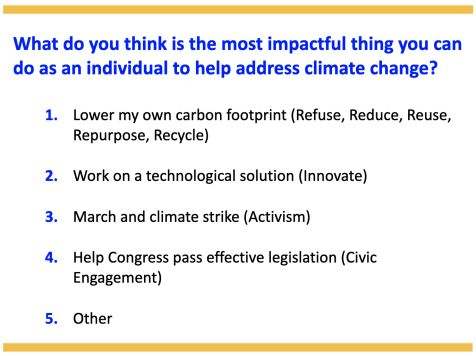
Hold up fingers: 5) Alarmed, 4) Concerned, 3) Cautious, 2) Disengaged, 1) Doubtful, 0) Dismissive

SCROLL DOWN

Compare class percentages with the US average according to Yale Climate Communications' poll results.

Take a poll #2

SCROLL DOWN



What do you think is the most impactful thing you can do as an individual to help address climate change?

1. Lower my carbon footprint (Refuse, Reduce, Reuse, Repurpose, Recycle)
2. Work on a technological solution (Innovate)
3. March and climate strike (Activism)
4. Help Congress pass effective legislation (Civic Engagement)
5. Other

These are all worthwhile. It's good to do all of them. You should do what you are inspired to do! But I think there is a clear winner in terms of the overall power of any individual. Here's why:

1. The average American's carbon footprint is 16 tons of CO2 a year. But humanity emits about 40 billion tons a year, and other GHG pollution adds another 15 billion tons of CO2 worth of warming on top of that. Rewiring America researched EIA data and found that only 42% of GHG emissions are under the decision-making control of households. The vast majority of those emissions are from just a half dozen types of machines: transportation, space heating, water heating, laundry, cooking, and yard tools. The rest is hidden in the production of the things we buy. Individual choices are important, but to solve the problem, we need all market actors - investors, producers, and consumers - worldwide to make good choices - rich and poor. We should each take steps to reduce our pollution where we can, but even if we all did all the right things, this option is not powerful enough to put the world on a safe climate path.

2. Technological advancement will help in the longer term, but we'll see in En-ROADs later how little impact this can have in the next few decades compared with what we must do in that time.

3. Protesting to raise awareness about the problem is part of building the political will to address it, so this is helpful. If we could get 10% of all Americans out on the street, as happened on the first Earth Day, things would change rapidly, and there is a social movement to force change. But in addition to making

noise to address climate change, we must also give our elected leaders support to legislate specific policy choices that include carbon pricing. It is possible to spend a lot of money on subsidies, which politicians find easy to do, but fail to achieve our critical climate pollution reduction goals of 50% reduction by 2030 and net zero by 2050. Without carbon pricing, leaders from the IPCC to Secretary of State Janet Yellen say we'll fail to achieve important climate goals.

4. Yes! The UN, IPCC, World Bank, World Economic Forum, OECD, and nearly all US economists say a critical part of solving climate change is putting a global price on climate pollution from fossil fuels (carboncashback.org/carbon-cash-back). Congress is the only entity that has the power to do that. But Congress will only pass this legislation when there is sufficient political will to help them do so. That is why helping create the political will for a high, equitable carbon price is so powerful. Our biggest power is what we can do together to change state and federal laws.

The Message

Global warming is happening. It's us. We're sure. It's urgent. We can fix it. (A Climate Science 101 poster). Pollution should not be free. We can charge the fossil fuel industry for its pollution and give the money collected to families, and most families will come out ahead financially.

The science, economics, and policy solutions are clear. We are only lacking the political will to change.

What it takes to be an effective advocate for change: Concern + Knowledge + Action

1) **Concern**: Well, you're in this class, so it looks like you've got this!

2) **Knowledge**: Knowledge and skills make you powerful. To help, I'll review basic climate science, the impacts of global warming, the economics of climate pollution, and policy options to address the problem. Other things are important too: communication skills, knowing actions you can take and their relative impacts, and how to share the concern and the solution with others. Solving climate change is a marathon, not a sprint. There's a lot to learn and skills to practice, and this can be personally rewarding as well as helpful.

   I'll do a quick review of the science, economics, policy, and politics of climate change, with links to all the sources so you can actively seek more information on your own after this class.

   Then, for fun, we'll play a Kahoot about it *(1 1/2 hour version of the course).*

3) **Action**: I will help you take climate action right here in class - we'll each email Congress. This helps create the political will Congress needs to pass effective and equitable climate legislation. It's easy and quick, and you can do this every month and encourage others to do it as well.

   I'll also share some ideas about what you can do after this class to make an even bigger difference. Being polite, patient, and persistent are essential parts of being effective.

Knowledge Agenda: a brief overview of the science, economics, policies, & politics of climate change

Science: The most effective process we have to better understand the physical world around us.

Economics: The study of the economy. Economists are academically trained professionals who are experts in how producers and consumers behave in markets and how policies impact their behaviors.

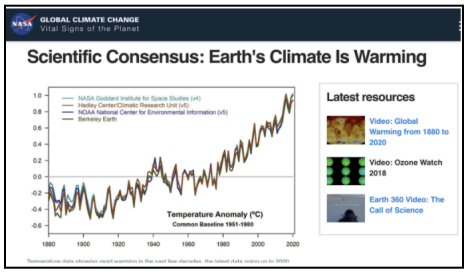
Policies: These are solutions. Like how an algorithm describes a solution idea that can be written in software code, a policy is a solution idea that can be made into a law. Examples include regulations, incentives, and taxes.

Politics: This determines whether and when policies become laws.

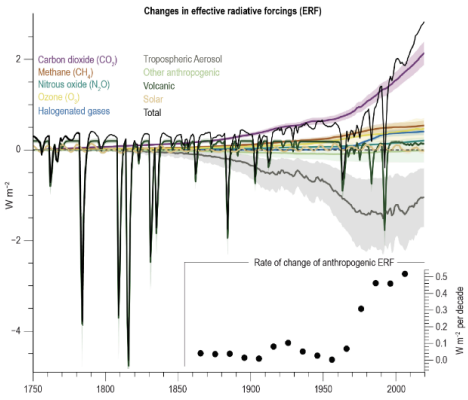
A few degrees change in the Earth's average temperature is a big deal for life on Earth. Here is a graphical view of the last 20,000 years of Earth's surface temps: https://xkcd.com/1732/. Human civilization developed during the last 10,000 years, when a stable, favorable climate made that possible (https://www.climate.gov/news-features/climate-qa/what%E2%80%99s-hottest-earth-has-been-%E2%80%9Clately%E2%80%9D).

Climate science is a mature field of study. A 200-year timeline: https://history.aip.org/climate/timeline.htm.

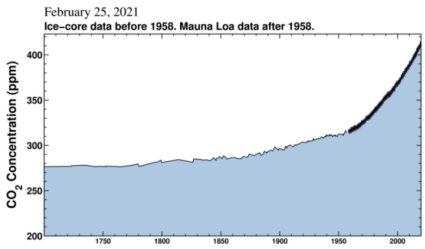
Let's look at what humankind has done and what we are doing to the Earth's climate, and how we can be sure about that based on **reputable sources**…. The first is from NASA:



TAB 2: Reputable sources. There is **scientific consensus** about man-made global warming based on a consensus of all the evidence. This page is from NASA - the graph shows **2°F (1.2°C) of warming** since 1900: https://climate.nasa.gov/scientific-consensus/. A study referenced here notes there is a "Greater than 99% consensus on human-caused climate change in the peer-reviewed scientific literature".

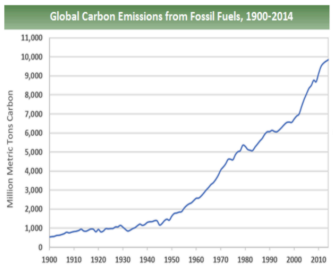


TAB 3: The **climate has always changed**; we know why through science. We also know why it is changing now. From the *IPCC's AR6* - natural and man-made warming and cooling climate forces since 1750: ipcc.ch/report/ar6/wg1/figures/chapter-2/figure-2-10. *Point out W/m^2, CO2, Other WMGHG (methane, HFCs), 11-year solar cycle, volcanos' aerosols, net result (1.5°C worth of warming force).* In the short term, Earth warms 3/4°C for 1 W/m2 added, so 2 W/m2 increase means we've added 1.5C worth of warming to the Earth's climate system. It take a couple of decades for that warming to occur. IPCC AR6 WG1 Figure 2.10 (warming and cooling forces). The IPCC AR6 WG1 SPM shows the net impact in **Figure SPM.1** (hockey stick graph).

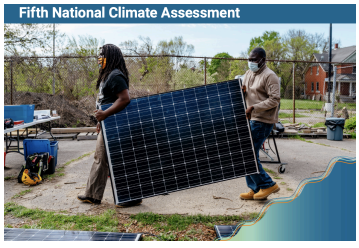


TAB 4: The Keeling Curve graph shows the **50% human-caused increase in CO2** in the air since 1850: keelingcurve.ucsd.edu/ *(Show the 1-year, full record, 1700-present, & 10,000-year views)*. We have changed the basic chemistry of the Earth's atmosphere, and that is changing important physical properties of the Earth. Much of the CO2 we add stays in the air for centuries. Regarding the 10,000-year data: https://berkeleyearth.org/dv/10000-years-of-carbon-dioxide/. About the 10,000 years of stable climate in which human civilization developed: osmanclimate.com/projects/temperature/.

"Atmospheric levels of carbon dioxide are now comparable to where they were during the mid-Pliocene epoch, around 4.3 million years ago. During that period, sea level was about 75 feet higher than today, the average temperature was 7 degrees Fahrenheit higher than in pre-industrial times, and studies indicate large forests occupied areas of the Arctic that are now tundra." - https://www.noaa.gov/news-release/increase-in-atmospheric-methane-set-another-record-during-2021.



TAB 5: Where did that extra CO2 come from? Most (92%) of it comes from burning fossil fuels. Fossil fuel chemistry. There's also been a 150% increase in methane (CH4): EIA and Our World in Data. **CO2 and CH4 emissions from fossil fuels are climate pollution**. These greenhouse gas additions act like an extra blanket, trapping extra heat that previously radiated out into space. Added CO2 can stay in Earth's atmosphere for centuries.



TAB 6: The *Fifth National Climate Assessmen*t (NCA5): a summary of climate science for policymakers: carboncashback.org/science#h.p_h5Lh8ih8gGvF. This report is required periodically by a 1992 law from Congress to be produced by the USGCRP (NASA, NOAA, EPA, DOE, DOD, National Academy of Science, and other major scientific agencies) to be used as a reference to guide the policy arms of the US government.

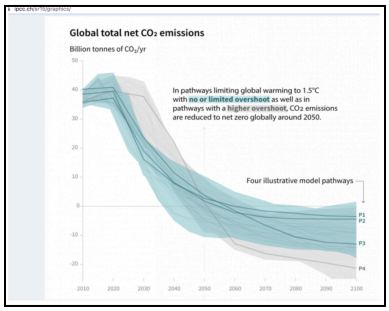
US and Regional Impacts - more severe heat waves, droughts, and associated fires; more severe precipitation events, stronger storms, sea-level rise, and associated flooding and storm damage; ocean acidification. Shifting climate zones, migration patterns, pest range expansion.

1) There is **latency** and **inertia** in the system: warming will continue for a decade after we stop polluting, and additional warming will continue after that from positive feedbacks.
2) **Positive feedback loops** and **tipping points** exist. These include loss of albedo (reflective snow and ice), Arctic methane release, foundational species loss (e.g., coral reef ecosystem), desertification, and ocean circulation changes.
3) **Effects**: Global warming causes different changes in climate in different places. Here in the Northeast, our climate moves 30 feet north a day. Increasing CO2 is also causing ocean acidification.

TAB 7: Ecosystem services and biodiversity loss: carboncashback.org/science#h.p_NbN3BFrYjxyd.

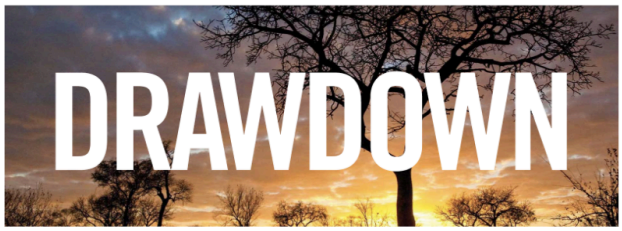
An example of ecosystem destruction described in the IPCC SR15 is 50% loss of coral reefs at 1˚C, 70-90% loss at 1.5˚C, and 98-100% loss at 2˚C warming. (Documentary recommendation: ***Chasing Coral*** on Netflix).

We know the main causes of the problem. So what can we do about it?



TAB 8: The emissions pathway to hold warming to 1.5˚C: (IPCC SR15 Figure SPM.3A).
Step 1: Stop polluting. The IPCC's *Special Report on 1.5°C of Global Warming* report is the origin of the call to reduce future CO2 emissions to net-zero by 2050, based on the remaining carbon budget that gives a 50:50 chance: sites.google.com/view/carbon-cashback-coalition/science?authuser=0#h.p_1pX8Sd7hhmy3
Read about these relatively safe emission reduction pathways at https://www.ipcc.ch/sr15/chapter/spm/.
Methane (CH4) emissions must be reduced by 75% by 2030. Another view:
https://twitter.com/LeoHickman/status/1466437136463409169?t=smO7JQgWOFmSdJoYDI02qg&s=19.

TAB 9: **Step 2**: Draw down the CO2 in the air back to 350 ppm by 2100 (this is where 350.org got its name): https://www.giss.nasa.gov/research/briefs/2010_lacis_01. Once there, most CO2 stays in the air for decades or centuries. CO2 is "The Thermostat that Controls Earth's Temperature."



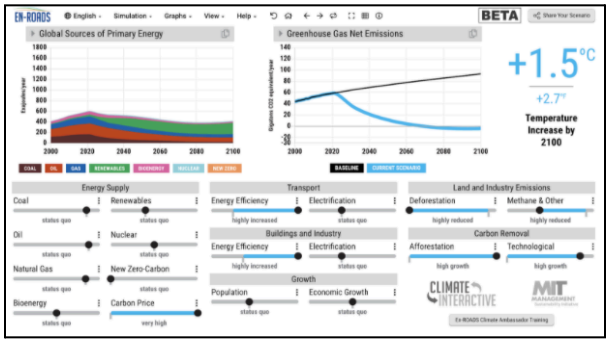
TAB 10: Getting CO2 back down to 350 ppm is what Project Drawdown (https://drawdown.org) is all about: an academic review of the top 100 technical solutions to do what is needed. Summary: transition off fossil fuels; fix refrigeration and cement; improve women's education; better healthcare; land use, agricultural, & other changes to pull the extra CO2 out of the air.

We have the technology & ideas needed, but individuals, businesses, & governments are not making the right choices. There are insufficient incentives in the market to drive the changes at the pace and scale needed.

Pause & Reflect

Ask: Why are we doing this to ourselves? *(Take answers).* The underlying reason is climate pollution is free, so there is insufficient incentive for people and businesses to reduce it. (Tragedy of the Commons).

What can we do? The free market isn't addressing the problem. How do we change behavior to get what is needed? **We need the government to do something to change people's and businesses' behavior**. Policies such as regulations, subsidies, incentives, or putting a price on carbon emissions will change behavior. Policies are not a subject of Project Drawdown, but the author, Paul Hawken, says carbon pricing will "***accelerate nearly every one of the 100 solutions described in the book***".



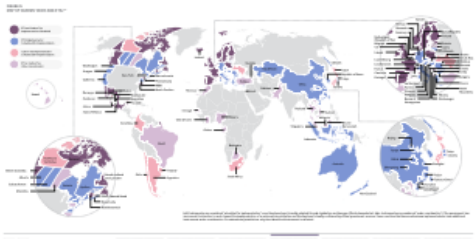
TAB 11: How can we compare policies? MIT's En-ROADS climate policy simulator lets us compare the impacts of all the different policy options. We see that carbon pricing is the most powerful option. When carbon pricing is combined with complementary policies, we can achieve the Paris Accord goal of holding warming to 1.5˚C: https://en-roads.climateinteractive.org/scenario.html. Most economists say that goal will be impossible to achieve if we don't include a strong carbon price in the solutions mix.

There are significant related social issues of equity and justice. Climate policies can be regressive (hurt the poor). Additional policies are needed to help communities that are disproportionately harmed by past pollution and communities that are dependent on fossil fuel production to transition to the new clean energy economy. We can also hold the fossil fuel companies accountable for deceptive actions that delayed sensible action.

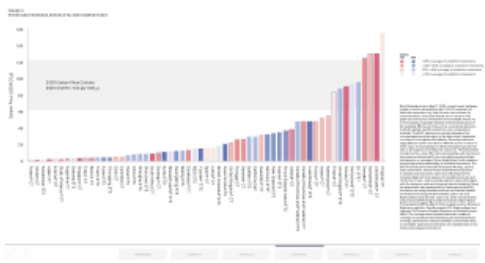
Carbon Pricing

TAB 12: US Treasury Secretary Janet Yellen says, “We cannot solve the climate crisis without effective carbon pricing.” The IPCC says, “Explicit carbon prices remain a necessary condition of ambitious climate policies” (IPCC SR15 chapter 4.4.5.2). So how does carbon pricing work?

Carbon pricing explained with chickens - video:
https://www.youtube.com/embed/zD64kaTY5Vg?start=0&end=118&autoplay=1&rel=0



TAB 13: The chicken video mentions that 20 countries have put a price on carbon emissions. The good news is that the video is ten years old, and now 73 countries and regions have put a price on carbon. Figure 5 in the World Bank’s State and Trends of Carbon Pricing 2023 report at https://openknowledge.worldbank.org/entities/publication/58f2a409-9bb7-4ee6-899d-be47835c838f.



TAB 14: The bad news is that most countries’ carbon prices are too low to drive emissions down as needed. What we’ve got: 23% of global FFs are covered with an average $20/tCO2 price. See Figure 3 at https://openknowledge.worldbank.org/entities/publication/58f2a409-9bb7-4ee6-899d-be47835c838f. According to the World Bank’s High Commission on Carbon Pricing, IPCC, OECD, IMF, and others (*Nature*: A near-term to net zero cost of carbon), we need a global carbon price of $135/tCO2e by 2030 and rising by $10 a year through 2100 on all sources.

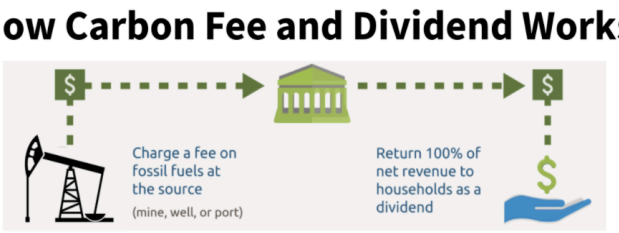
Because we are starting 30 years too late, additional complementary policies will also be required. As we saw with En-ROADS, carbon pricing is now just our best first step to dealing with the problem.

Pause and ask: We know the price that is needed, but why do you think that price is so difficult to achieve?

How can we achieve the high carbon price that is needed?

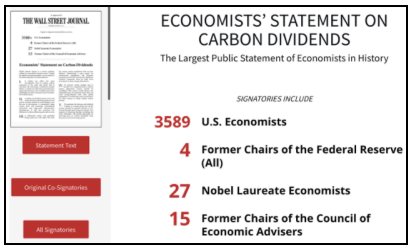
Cash-back carbon pricing makes it possible: we can charge fossil fuel producers a pollution fee and give the money collected to all households on an equal basis each month to protect families’ purchasing power. This

solution is popular and durable. Businesses like it because associated CBAMs make US producers more competitive globally. CBAMS motivate other countries to reduce their pollution, too.



TAB 15: How does Carbon Fee and Dividend Work? *Present the CF&D laser talk while showing this image:* https://sites.google.com/view/carbon-cashback-coalition/carbon-cash-back?authuser=4#h.p_PweRp_4_YjYg. To complement the laser talk, see details at citizensclimatelobby.org/basics-carbon-fee-dividend.

1. Charge coal, oil, and gas producers and importers a steadily rising carbon fee ($10/tCO2 more each year)
2. Give all the money collected to all citizens equally to protect everyone from costs in compensation for the pollution
3. Use Border Carbon Adjustments to apply our fee on imports to protect US jobs & push our price globally.



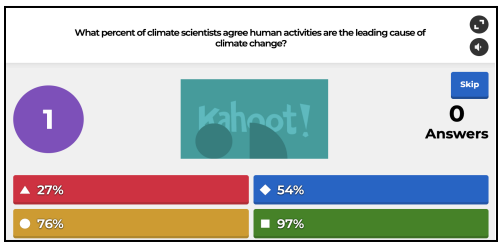
TAB 16: The Economists' Statement on Carbon Dividends: https://clcouncil.org/economists-statement/ (read 1,2,5,4,3, PDF). This largest public statement of support for any policy from economists says carbon fee and dividend with border adjustments is the most cost-effective and equitable way to reduce climate pollution.

What is economics? The academic study of the economy (money, markets, and policy). What do they say the problem is? A **market failure due to external costs**. They recommend internalizing those costs so they are reflected in prices, and using cash-back dividends to prevent the regressive impacts of a tax or other policies: https://www.nature.com/articles/s41467-021-22315-9.

The carbon fee and dividend approach has "as much consensus among economists as the reality of climate change does among scientists." - Gregory Mankiw, Council of Economic Advisers Chair, President G. W. Bush.

Time for questions

Q&A



TAB 17: Let's Play a Climate Kahoot!

Copy/paste into chat: On your phone, go to http://kahoot.it

Game: https://play.kahoot.it/v2/?quizId=0cef8991-9cee-4f7c-940c-185b798e1f1a

https://create.kahoot.it/share/climate-change-and-cash-back-carbon-pricing/0cef8991-9cee-4f7c-940c-185b798e1f1a

1. What percent of climate scientists agree that humans are the leading cause of climate change?
2. How much has the CO2 concentration in the air increased due to human activities?
3. How much has the Earth's surface warmed since 1900?
4. What percent of the world's tropical coral reefs have been lost since 1990?
5. What is the most cost-effective and fair approach to address climate pollution according to economists?
6. How many countries have already put a price on carbon emissions from fossil fuels?
7. What carbon price is needed by 2030 to meet Paris Accord Goals?
8. The most impactful thing we can do about climate change is to help get effective federal legislation. T/F

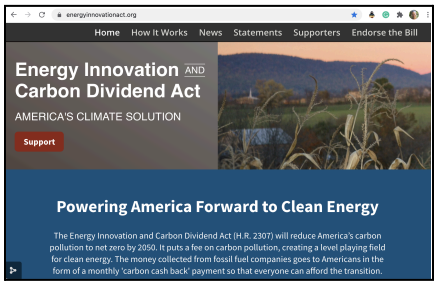
Prepare for Action

Now you know the science, economics, and the most powerful climate solution policy according to the experts. You probably know more than some members of Congress do about this! So how can we work together to get Congress to act? I'm a volunteer with Citizens' Climate Lobby, a grassroots, nonpartisan organization that is working to create the political will to enable Congress to pass effective climate legislation.

Citizens' Climate Lobby
citizensclimatelobby.org

TAB 18: CCL Intro - 2-minute video: https://www.youtube.com/embed/9oyguP4nLv0?autoplay=1&rel=0

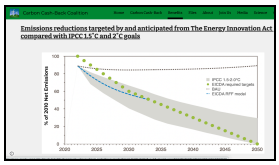
200,000 Citizens Climate Lobby volunteers around the world, mostly in the US. In Canada, they succeeded. Here is PM Trudeau talking about that: https://www.youtube.com/embed/3fF4XK2X3KA?&start=1378&end=1552&autoplay=1. In the US, CCL volunteers have been working in towns and states to create political will, and lobbying Congress to pass Carbon Fee and Dividend legislation for over a decade. Now there is a bill in Congress!

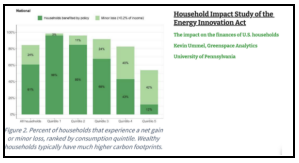


TAB 19: The bill is called the ***Energy Innovation and Carbon Dividends Act***: energyinnovationact.org.

You can learn how to explain it by internalizing a brief description of the bill. Here is a two-page fact sheet and other resources about the bill.

Talking points: the Energy Innovation Act will get us to net zero greenhouse gas emissions by 2050, give us affordable clean energy, put money in people's pockets, save lives, and make US producers more competitive in the global market. It will also motivate all other countries to match our carbon price.





TAB 20: Independent analyses have been done to evaluate the effectiveness and benefits of this approach: https://sites.google.com/view/carbon-cashback-coalition/benefits#h.p_uJeLR2IAMFce
(Show the emissions-reducing potential graph, then scroll up to show the highly progressive result reflected by the Household Impact Study chart).

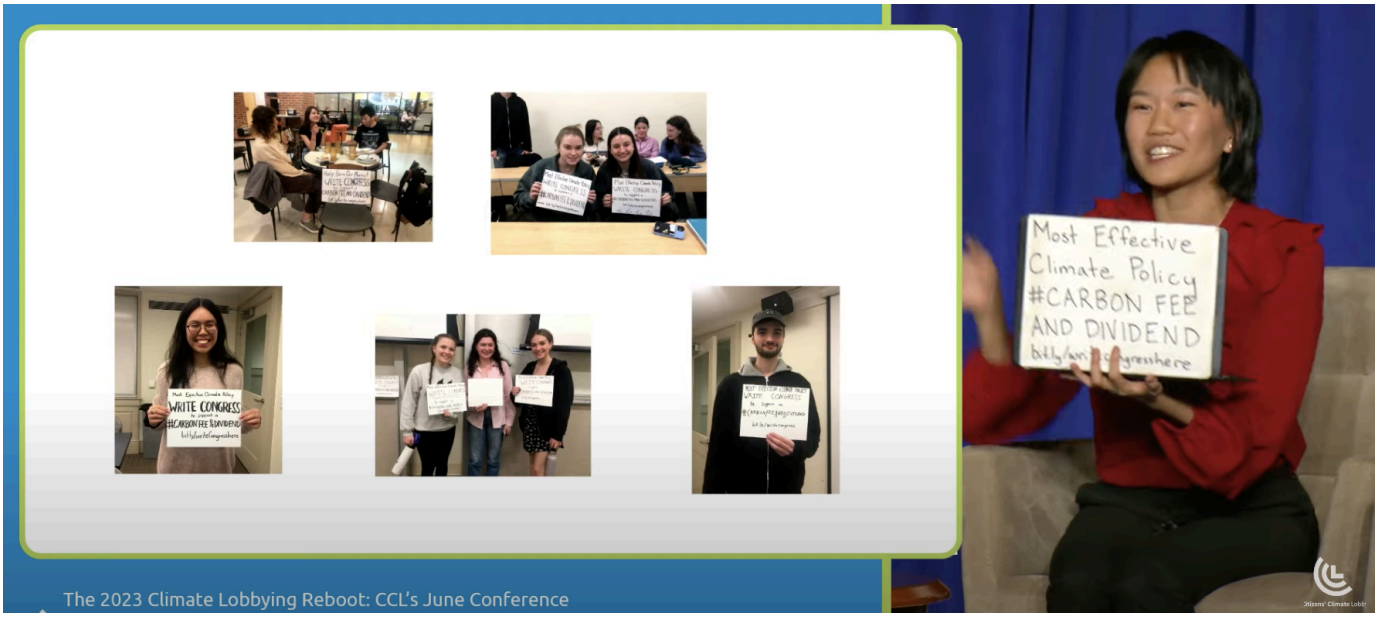
Why haven't we done this already? Some companies have been profiting from the status quo, and some people believe the government should stay out of markets even in the case of market failures. That is wrong.

They have run a public misinformation campaign and used money in politics to successfully delay effective legislation to address climate pollution from fossil fuels. This is a Pulitzer Prize-winning investigative journalism about that: insideclimatenews.org/news/15092015/Exxons-own-research-confirmed-fossil-fuels-role-in-global-warming. This book (and movie) about it is by a Science Historian at Harvard University: *Merchants of Doubt*. Here is a great resource that has compiled the misleading myths promoted by Merchants of Doubt with science-based explanations of why they are wrong: skepticalscience.com. Check out this podcast and this TED talk.

TAB 21: Take Action *(zoom in to show the numbered actions below, and play the CFD Movement video)*

We can help create the political will for climate action by sharing our concerns and solutions with others and taking actions that empower people and Congress to act. Try things from this list over the next few months:

1) Write Congress and ask them to act: cclusa.org/write-cfd *(QR Code)*
2) Use social media to tell your friends about Carbon Fee and Dividend and how they can help (e.g., share CCL's Intro video, actions from above, or do your own thing)
3) Bring the CFD Movement to your school: cfdmovement.com, @carbonfeeanddividend, video, bit.ly/cfdresources. Join the Slack, or any Zoom meeting (1st and 3rd Sundays of the month at 7 pm).



4) Write President Biden and ask him to act: bit.ly/write-potus

5) Talk about climate change science with your family. Give them the Carbon Fee and Dividend elevator pitch or the Economists' Statement (PDFs here). Ask them to email Congress for CF&D.

6) Talk about this: ask your teachers about the above (science, economics, solutions, and actions).

7) Share the "Climate Voter" image - print it out, make stickers, or put it on a T-shirt. Set up a "Climate Voter Information" table at polling stations (bit.ly/2024-climate-voter-information-project).

8) Ask local business owners to endorse the Carbon Fee and Dividend policy on behalf of their business as an organization at http://cclusa.org/endorse. Resources to share with them are at bit.ly/cfdresources.

9) Do you know a community leader? Give a state legislator a call. Ask them (and other community leaders) to endorse the Carbon Fee and Dividend policy as prominent individuals at http://cclusa.org/endorse.

10) Write a Letter To the Editor (250 words) or an Op-ed (600 words). Here are some tips on getting published, some Op-Ed templates, & LTE examples.

11) Try taking some actions from the "Take Action" menu at citizensclimatelobby.org.

12) Give a presentation to others (family, class, club, school, or library) or make a video to share: start here or see community.citizensclimate.org/resources/item/19/218. Ask to do a brief climate solutions talk where you can share Carbon Fee & Dividend and help people take action (e.g. write to Congress).

13) Become a trained En-ROADS Ambassador (give climate solution demos): en-roads.org.

14) Keep learning. Find free training at https://community.citizensclimate.org/topics/core-volunteer-training.

15) Try something at the town level. Check out carboncashback.org for a town warrant article idea.

16) Lobby Congress on a bipartisan team! Get trained and lobby with CCL at the next June or November Conference and Lobby Day. Get started with Climate Advocate Training at http://community.citizensclimate.org/new-volunteer

Conclusion

> "Once we start to act, hope is everywhere. So, instead of looking for hope, look for action. Then, and only then, hope will come." - Greta Thunberg (TEDx Talk at https://youtu.be/H2QxFM9y0tY).

None of us can solve this on our own, but we can each do our part. Look around you. This is what gives me hope. Each of us is part of a growing number of people around the world who are concerned about climate change, learning how to make a difference, and taking effective action.

Now you know what is needed, and that you can do it. Start with easy things, and try bigger things as you gain experience. Amplify your power by helping others learn how to take effective action, too. Spread the word, and ask them to spread the word, and a geometric progression of ordinary people taking action is how we will solve climate change.

> "I used to believe the important people were addressing the important problems, but I don't believe that anymore. Now I know it's up to ordinary people - you, me, all of us together - to make it happen" - Marshall Saunders, founder of Citizens' Climate Lobby.

Thank you for helping solve climate change!

Appendix

A Zoom recording of this class - youtu.be/zfX2WV7kfz8

A YouTube Playlist of climate solution videos: bit.ly/cclnhsc-videos

A collection of useful CF&D documents in PDF form: bit.ly/cfdresources

Why we need CF&D ASAP: bit.ly/why-cfd-asap-pdf

Ask MIT climate: Will companies pass on the cost of a carbon tax to consumers?
https://climate.mit.edu/ask-mit/will-companies-pass-cost-carbon-tax-consumers

A watch list

1. Outrage and Optimism podcast: “Lifelines VS Deadlines: The Need For Science-Based Policy” - https://podcasts.google.com/feed/aHR0cHM6Ly9vdXRyYWdlYW5kb3B0aW1pc20ubGlc3luLmNvbS9yc3M/episode/MzlkYWZhNjctZGIxYy00MzNlLWJkOTItYzU3NTE2YTU0NmNm?ep=14
2. Al Gore’s 2023 TED Talk: “What the Fossil Fuel Industry Doesn’t Want You to Know” - https://www.ted.com/talks/al_gore_what_the_fossil_fuel_industry_doesn_t_want_you_to_know
3. Podcast: messaging CF&D in Canada: "Pollution can't be free. Give the money back". Zero: Cath McKenna - https://www.bloomberg.com/news/articles/2023-07-13/how-canada-figured-out-a-carbon-tax-and-gave-the-money-back#xj4y7vzkg
4. Mark Reynolds, Executive Director of CCL - a brief summary of who CCL is and what CCL has done. - https://www.youtube.com/embed/dxztgxdOdAI?start=32&end=85&autoplay=1&rel=0
5. Inspiration: Emily O'Keefe on the Carbon Fee and Dividend Movement. - https://www.youtube.com/embed/FFBrPPr5IQk?start=806&end=1006&autoplay=1&rel=0

Alternate Text for Emails to Congress and POTUS

Short Version: I am a student and very concerned about climate change. Please support Carbon Fee and Dividend legislation to address climate pollution from fossil fuels at the pace and scale that is needed in a way that is fair, helps low- and middle-income families, keeps US businesses competitive, and encourages other countries to match our climate ambition. The IPCC says we will fail to achieve our ambitious climate goals without a global price on carbon. A federal border-adjusted cash-back carbon fee on fossil fuel production and imports is a great way to do it. The Energy Innovation and Carbon Dividend Act (H.R.5744) is the bill! Thank you for your service to our country.

Alternate Versions

Subject: Climate pollution should not be free.

Senate:

I am a student, and I am worried about the losses and damages from climate pollution to people, infrastructure, life on Earth, and my future. We need to reduce emissions by 50% by 2030 and down to net zero by 2050. A good way to get on the right path is to put a steadily rising, border-adjusted, cash-back carbon fee on fossil fuel production and imports that reaches $135/tCO2 by 2030 and rises after. This will harmonize US climate policy

with the EU and Canada, help low-income families and protect all household budgets, hold other countries accountable for their pollution, and rapidly accelerate the global transition to a clean energy economy to put us on the path to net zero by 2050. Please advocate for a Carbon Fee and Dividend with Border Carbon Adjustments policy solution and work with members of your party and across the aisle to pass bipartisan legislation to implement it - the Energy Innovation and Carbon Dividend Act (H.R.5744) is a bill in the House that does this. Thank you for representing my interests in Congress!

House Representative:

I am a student, and I am worried about the losses and damages from climate change to people, infrastructure, life on Earth, and my future. We need to reduce greenhouse gas emissions by 50% by 2030 and down to net zero by 2050. I trust the experts who say a steadily rising, border-adjusted, cash-back carbon fee on fossil fuel production and imports that reaches $135/tCO2 by 2030 and rises after will accelerate the transition to a global clean energy economy as needed to meet those goals while protecting family budgets and US business competitiveness.

Please co-sponsor the Energy Innovation and Carbon Dividend Act (H.R.5744), our best first step to rapidly transition the US and global economy off fossil fuels and onto clean energy solutions. Please ask other members of Congress from both parties to join you in co-sponsoring this bill too. Thank you for representing my interests in Congress!

Write Congress about Carbon Fee and Dividend

cclusa.org/write-cfd