

The United States' Climate Future:

Methods for immediate action in domestic emission reduction

Max Adair, Carly Larson, and Skye Romanowski

Executive Statement

The UN Sixth Assessment Report advises that the United States reduce emissions by 40% by 2030 and eventually reach carbon neutrality. This brief lays out a timeline and methodology for accomplishing this task based on the Carbon Border Adjustment Mechanism, the Emission Trading System in the European Union, and the cap-and-trade system instituted in California.

Introduction

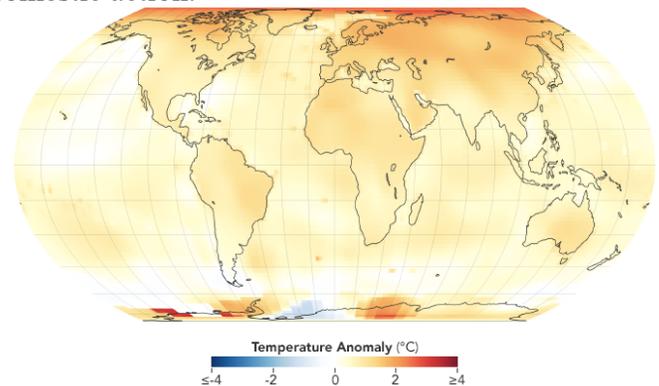
The world has begun to see real consequences of climate change and by 2040 the impacts of climate change across the globe are expected to be severe. In 2019, the United States was the second most egregious climate offender accounting for 14% of global GHG emissions ([“Each Country’s Share of CO₂ Emissions,”](#) 2022). The US produced 4.7 gigatons of CO₂ from fossil fuels in 2019, trailing only China with 9.9 gigatons. As one of the world’s wealthiest nations, the US has a responsibility to take substantial steps towards a green economy.

Climate change is an international security threat that actively affects some vulnerable members of the United States population and the threat will escalate in the coming years. It is the United States’ responsibility and best interest to take action to reduce emissions dramatically to mitigate future disasters.

Since 2016, the United States has fallen behind global initiatives to combat climate change. President Trump’s withdrawal from the Paris Agreement in

2017 led to the US being absent from international deliberation and decision making and a loss of US credibility regarding climate initiatives. While the United States was inactive in climate action, other developed countries such as the European Union, Japan, and South Korea’s national responses have become far more ambitious ([Hultman & Gross, 2021](#)).

Thus far, the majority of climate action has been on a local level. 600 local governments have developed climate action plans, and 45 cities that account for 40 million people have set targets that have reduced emissions by 365 million metric tons of CO₂ equivalent. ([Markolf et al. 2017](#)). President Biden has made a good first step toward reasserting the United States’ role as a major climate leader. Still, the US is not on track to reaching the goal of keeping global warming under 1.5°C and therefore is in need of more aggressive domestic action.



Courtesy of NASA’s Earth Observatory

Methodology

The recommendations presented in this policy brief are intended to be fully initiated within the next five years and

dramatically reduce greenhouse gas emissions produced by the United States within the next 15 years. The goal is to reduce greenhouse gas emissions to 40% below 1990 levels by 2040 and facilitate a net-zero emission country as soon as possible.

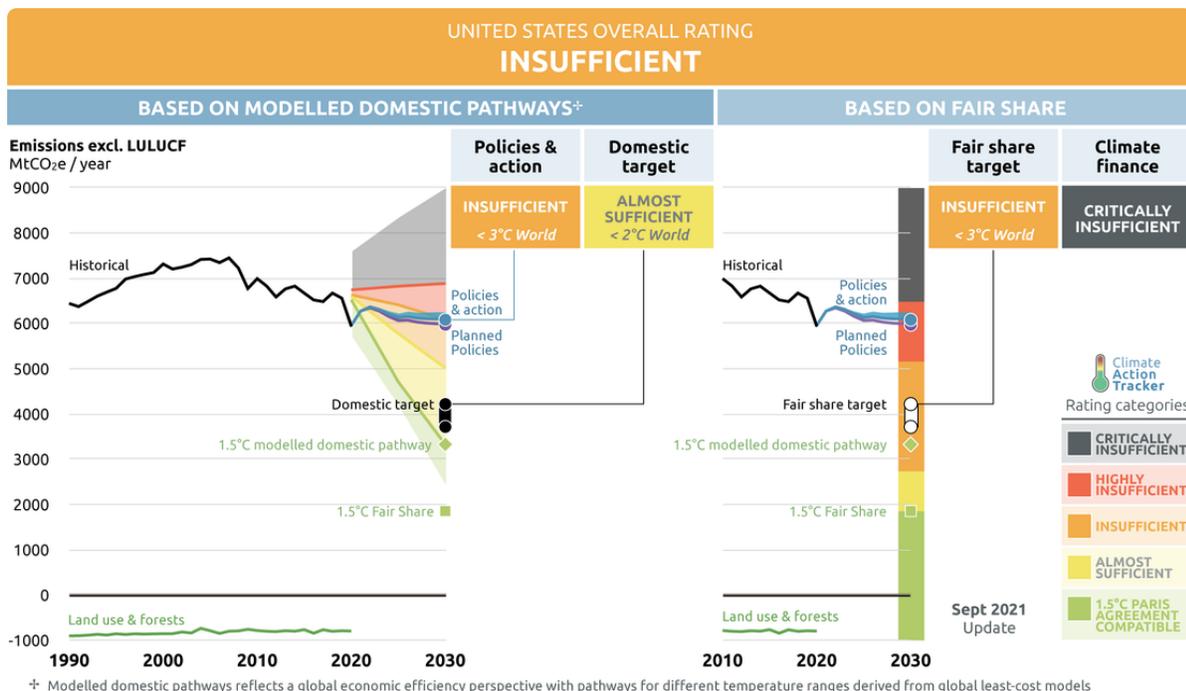
The timeline is based upon the findings of the UN Sixth Assessment Report of the Intergovernmental Panel of Climate Change. The UN is highly confident that if global warming reaches 1.5°C in the near-term, coastal infrastructure will be encroached and likely submerged by rising sea levels and there will be very high biodiversity loss across many ecosystems. Human security will be at high risk close to upper thermal limits, coastlines, or near ice or seasonal rivers. The AR6 reported that recommendations regarding near-term risks previously reported in AR5 (the scientific basis for the Paris Agreement) were understated and require a greater and swifter action to mitigate the projected losses and damages. These findings report that the goal of the Paris Agreement to mitigate warming of below 2.0°C, or preferably 1.5°C, will

need to be far more ambitious in its efforts in the upcoming decade ([Poertner et al. 2022](#)).

Results and Conclusions

1. The US needs to focus on domestic climate change initiatives in order to stay on track with the Paris Agreement.

Climate change is a central aspect of the United States' foreign policy and the US needs to re-establish itself as a climate leader on a global scale. Since Trump's exit from the Paris Agreement, the US has fallen behind as a global leader in combating climate change. In order to reinstate its leading precedent in climate change, the US needs to prioritize internal reform in its energy sector in an effort to drastically reduce greenhouse gas emissions. By doing so, the United States can drive the global economy away from non-renewable energy and establish its dominance as a global climate actor.



President Biden has made a noteworthy first step towards climate change mitigation through the creation of the National Climate Task Force. The task force sets out a goal to create a pollution-free power sector by 2035 and reach a net-zero emissions economy by 2050. On January 27th, 2021, President Joe Biden issued an executive order on Tackling the Climate Crisis at Home and Abroad. In the executive order, the President established the National Climate Task Force. The NCTF has been tasked with the development and facilitation of climate action which falls under federal jurisdiction while “the bipartisan infrastructure deal boosts clean energy jobs, strengthens resilience, and advances environmental justice,” according to The White House.

National Climate Task Force consists of the Secretary of the Treasury, the Secretary of Defense, the Attorney General, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Labor, the Secretary of Health and Human Services, the Secretary of Housing and Urban Development, the Secretary of Transportation, the Secretary of Energy, the Secretary of Homeland Security, the Administrator of General Services, the Chair of the Council on Environmental Quality, the Administrator of the Environmental Protection Agency, the Director of the Office of Management and Budget, the Director of the Office of Science and Technology Policy, the Assistant to the President for Domestic Policy, the Assistant to the President for National Security Affairs, the Assistant to the President for Homeland Security and Counterterrorism, and the Assistant to the President for Economic Policy.

Domestic targets of the US are almost sufficient (< 2-degree celsius increase) but they fail to meet the goals of the Paris Climate Agreement. Implemented US policies and actions are critically insufficient, as is its fair share of the climate burden. In order to meet the goals of the PCA, the US must take more action on the domestic front. The Climate Task Force implemented by Joe Biden provides a channel for climate action to be made through executive action rather than through legislation. Since the task force establishes a precedent of easier and swifter climate action, it can be used to advance the US’s domestic front.

2. Greenhouse Gas Emissions by large-scale corporations are a serious contributor to global warming.

The production of greenhouse gasses (GHG) as a byproduct of industrialization has been the single largest carbon contributor to the earth’s atmosphere. Greenhouse gasses are largely produced by the burning of fossil fuels, agriculture, and deforestation. An excess of greenhouse gasses, with CO₂ as the major offender, has been proven to cause the global temperature to rise by 1.0°C since 1900 (“[What is Climate Change?](#)”).

Since 1988, only 100 companies have been responsible for over 70% of greenhouse gas emissions. The main barrier to reducing GHG emissions is that companies prioritize short-term profitability over long-term prosperity. In short, there is little incentive for companies to reduce GHG emissions. Additionally, a majority of these companies are backed by public investment. Therefore, it is responsible to reduce GHG emissions in a controlled and regulated fashion so as not to harm economic prosperity of the United States and the world ([Riley, 2017](#)).

It has been shown in California (“California Cap-and-Trade”), the EU (“The EU Emissions Trading System: An Introduction”), and Quebec (“Carbon Market Business brief: Quebec”) that cap-and-trade systems can be an effective and regulated method of lowering greenhouse gas emissions emitted by large corporations.

3. Carbon Border Adjustment: Mechanisms can combat carbon leakage while maintaining the competitiveness of domestic goods production.

Carbon Leakage: Carbon leakage refers to the situation that may occur if, for reasons of costs related to climate policies, businesses were to transfer production to other countries with laxer emission constraints. This could lead to an increase in their total emissions. (Via European Union)

The European Union’s recent Carbon Border Adjustment Mechanism announced in July of 2021, is in line with the IMF’s assessment on Border Carbon Adjustments. Border Carbon Adjustment Mechanisms will stymie carbon leakage by levying taxes on imported goods so that the price of carbon aligns with the current price of carbon within the domestic system. Once the outside producer can demonstrate they have previously paid a price for carbon during the production of the imported goods, the cost can be deducted for the importer. This system encourages other countries to green their production processes.

Without a Carbon Border adjustment, producers are encouraged to “transfer production to other countries with laxer emission constraints.” The program levels the playing field between domestic and foreign businesses and therefore protects domestic interests and the

environment simultaneously ([Parry et al. 2021](#)).

Recommendations

1. Reform Energy domestically through a cap and trade initiative

Greenhouse gas reductions need to be administered on a federal level in order to present a united front in the international community. In recent years, the emergence of cap and trade systems in the European Union, California, and Quebec have made significant strides in the implementation of cap and trade programs. Within 6 years of the program’s launch, California was able to reduce its carbon emissions by 6% (“California Greenhouse Gas Emissions for 2000 to 2019”) and since 2020 has increased the rate of carbon cap decrease and plans to reach 40% fewer emissions than in 1990 by 2030 (“California Cap-and-Trade”). The timeline of California’s plan is desirable to apply to the entirety of the United States due to its swift ability to reduce emissions.

Cap-and-Trade Helpful Terms

Entity: a corporation, business, or factory that has been identified to be a large producer of GHGs and is therefore subjected to the cap-and-trade program.

Offset Credits: a purchasable unit that allows an entity to exceed its carbon allowance. The unit has a quantifiable effect of re-greening to offset the extra metric ton of carbon being emitted by the entity.

Regreening: Re-greening is a method of offsetting carbon emissions through initiatives that restore previously barren environments and ecosystems.

Allowances: the number of metric tons of carbon that an industry is allotted to emit in a given period. Allowances are tradeable and sellable units.

Cap and trade programs will create a standardized cap on GHG emissions and reduce the cap each year from majorly-emitting sources. The program includes major GHG-emitting industries. Each entity is allotted a certain number of allowances, which is a tradable permit to emit one metric ton of a greenhouse gas emission. Entities will be allowed to buy additional allowances at auctions, purchase allowances from others, or purchase offset credits. Offset credits are a GHG removal enhancement of one metric ton of carbon dioxide emission. The purchase of offset credits can be used to compensate for additional greenhouse gas pollution but each entity will only be allowed to purchase up to 8% of its compliance obligation in offset credits. The compliance period is typically annual, therefore each year there will be a new, more stringent compliance deadline the entity is required to meet (“[Cap-and-Trade Regulation Instructional Guidance](#)”).

The United States should create a national cap and trade initiative modeled on California’s highly successful cap and trade program. In order to do so, the country will incorporate not only California’s allowance system and trade system but also their offset credits. Offset credits are useful because they allow quicker implementation of cap reduction by providing industry’s ‘wiggle-room’ to increase their carbon production above the cap while undergoing re-greening measures to offset the new production.

The offset credits should be managed by a new program under the Environmental Protection Agency which will coordinate how to allocate funds to re-greening projects across the nation to offset carbon emissions. This agency will create jobs and fund local projects which will benefit civil society.

The federal cap and trade program will initially target entities with the highest carbon emission production, specifically

companies involved in the production of iron, electricity, fertilizer, and aluminum. To be under the jurisdiction of the carbon trading system in the first place, a company must emit 25,000 metric tons of CO₂ (“[California Cap-and-Trade](#)”) For the first 8 years, we suggest a 2.2% annual linear reduction of the federal carbon cap and after 2030 to increase the annual cap linear reduction to 4.5%. The annual linear reduction of 2.2% of GHG means that each year the cap of the program will be 2.2% less than the emission rate at the start of the program (“[The EU Emissions Trading System: An Introduction](#)”). Both California and the EU initially set an easily obtainable allowances cap for the first 10 years and proceeded to raise their ambitions afterward.

2. Reduce the Emissions of Domestic Manufacturing Through Cap-and-Trade

The US Federal Government should institute cap and trade policies that create emissions caps for domestic firms which, when modeling after California, produce more than 25,000 metric tons of carbon dioxide equivalent in the following industries: iron and steel, cement, fertilizer, aluminum, electricity generation, plastic and rubber, and wood. The greenhouse gasses cannot include just carbon dioxide, but also methane, nitrous oxide, hydrofluorocarbons, petroleum fluorocarbons, sulfur hexafluoride, and nitrogen trifluoride .

By targeting domestic manufacturers producing more than 25,000 metric tons of carbon dioxide annually, California identified around 450 businesses accounting for more than 85% of the state’s total GHG emissions. By targeting similar manufacturers in the aforementioned industries, the federal government can target the most egregious climate offenders and have control over their net GHG emissions via cap-and-trade.

Between 2013 and 2017, California's net GHG emissions fell by 5.3 percent. The auctioning and trading of cap space allowed California to generate more than \$5Bn in revenues, which they allocated to climate assistance and resilience development ("[California Cap-and-Trade](#)"). The US should auction emission cap space which will allow the federal government to generate revenue, which could be allocated to any number of projects.

3. Restrict Imports of Carbon Usage Through a Tax/Tariff Strategy

The United States should, in conjunction with the cap and trade systems on domestic energy production and manufacturing, impose tax on imports with high carbon emissions associated with production. Drawing from the European Union's Carbon Border Adjustment Mechanism, the United States should gradually phase in import taxes for a select number of goods over a period of five years.

The European Union's CBAM levies taxes against highly polluting industries such as iron and steel, cement, fertilizer, aluminum and electricity generation. In addition to these products, the United States should create carbon taxes associated with plastic and rubber (1.4 billion metric tons of carbon dioxide emissions in 2019) and wood products (0.9 billion metric tons of carbon dioxide emissions) as they, too have been identified as among the most polluting industries ("[Greenhouse gas emissions from production processes...](#)")

Per the IMF ([Parry et al. 2021](#)) using industry, rather than firm-level assessments

of emission leakage simplifies administration to the point of feasibility. In an attempt to maintain the relative price of foreign and domestic products, industry-level assessments of emission leakage should be made using country-specific data. To mitigate the likelihood of firms overproducing carbon emissions, producers should be able to measure and receive BCA tax reductions if they under-produce carbon relative to the industry and country standards. If a firm falls below industry and country standards in the state of production, the carbon border adjustment tax/tariff should be decreased to economically incentivize emission-efficient production.

Conclusion

The United States has the economic and infrastructural capacity to implement climate-saving policies over the next decade. The US federal government can draw on the European Union's Emission Trading System, the Carbon Border Adjustment Mechanism, and California's cap and trade policies to implement change on a statewide level. The US should first target industries with the highest emission leakage, starting with energy production and several tangible goods.

To prevent emission leakage, the US should pair domestic legislation creating cap and trade systems with Carbon Border Adjustments, which tax imports based on emissions on industry averages by country. CBA's have the dual effect of preventing carbon leakage and keeping domestic industry economically competitive.

Works Cited

- “California Cap and Trade.” Center for Climate and Energy Solutions,
<https://www.c2es.org/content/california-cap-and-trade/>.
- “California Greenhouse Gas Emissions for 2000 to 2019.” California Air Resources Board, 28 July 2021, https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf.
- “Cap-and-Trade Regulation Instructional Guidance”. California Air Resource Board, Sept. 2012,
<https://ww2.arb.ca.gov/sites/default/files/cap-and-trade/guidance/chapter1.pdf>.
- “Development of EU ETS (2005-2020).” European Commission,
https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets/development-eu-ets-2005-2020_e.
- “Each Country’s Share of CO2 Emissions.” Union of Concerned Scientists, 14 Jan. 2022,
<https://www.ucsusa.org/resources/each-countrys-share-co2-emissions>.
- Earth Observatory*, National Aeronautics and Space Administration,
<https://earthobservatory.nasa.gov/world-of-change/global-temperatures>.
- Hultman, Nathan, and Samantha Gross. “How the United States Can Return to Credible Climate Leadership.” *Brookings*, The Brookings Institution, 1 Mar. 2021, <https://www.brookings.edu/research/us-action-is-the-lynchpin-for-successful-international-climate-policy-in-2021/>.
- Markolf, Sam, et al. “Pledges and Progress: Steps toward Greenhouse Gas Emissions Reductions in the 100 Largest Cities across the United States.” *Brookings*, The Brookings Institution , Oct. 2020, <https://www.brookings.edu/research/pledges-and-progress-steps-toward-greenhouse-gas-emissions-reductions-in-the-100-largest-cities-across-the-united-states/>.
- Parry, Ian, Peter Dohmann, et al. “Carbon Pricing: What Role for Border Carbon Adjustments?” International Monetary Fund, 2021, <https://www.google.com/url?q=https://www.imf.org/-/media/Files/Publications/Staff-Climate-Notes/2021/English/CLNEA2021004.ashx&sa=D&source=docs&ust=164977758537358&usg=AOvVaw2p-MS1FQhCkm4mI-EkAAc9>.
- Poertner, Hans-Otto, Debra Roberts, et al. “Climate Change 2022: Impacts, Adaption, and Vulnerability (Summary for Policymakers),” IPCC,
https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf.
- “Provincial and Territorial Energy Profiles: Quebec.” Canada Energy Regulator, 4 Mar. 2022,
<https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-quebec.html>.
- Riley, Tess. “Just 100 Companies Responsible for 71% of Global Emissions, Study Says.” *The Guardian*, The Guardian News and Media Limited, 10 July 2017,
<https://www.theguardian.com/sustainable-business/2017/jul/10/100-fossil-fuel-companies-investors-responsible-71-global-emissions-cdp-study-climate-change>.
- Sullivan, Katie, et al. “Carbon Market Business Brief: Quebec.” IETA,
<https://www.ieta.org/resources/Resources/CarbonMarketBusinessBrief/2021/CarbonMarketBusinessBriefQuebec2021.pdf>.
- “The EU Emissions Trading System: An Introduction.” *Climate Policy Info Hub*, POLIMP Project, <http://web.archive.org/web/20211111124855/https://climatepolicyinfohub.eu/eu-emissions-trading-system-introduction.html>.
- Tiseo, Ian. “Greenhouse Gas Emissions from Production Processes Worldwide as of 2019, by Select Material.” Statista, 17 Sept. 2021, <https://www.statista.com/statistics/1086142/ghg-emissions-manufacturing-processes-materials-globally/>.
- “What Is Climate Change?” The United Nations,
<https://www.un.org/en/climatechange/what-is-climate-change>.