

# Decarbonizing our economy, explained

By Adri Davies



Source: [studentenergy.org](http://studentenergy.org)

Climate change has quickly become one of the most salient issues amongst the American public. Catastrophic natural disasters, increased activism, and policy proposals like the Green New Deal have culminated in an unprecedented focus on stopping the irreversible effects of greenhouse gas emissions run rampant. This new found public attention has resulted in a Democratic primary where each candidate has a climate proposal, many naming the issue as their number one priority.

Inundated by urgent climate messaging, activism, and political rhetoric, many voters are left concerned and unsure about how we can tackle the global crises at a time of peak political polarization. Experts debate the rate at which we can decarbonize our economy, disputing if our society can sustain a hastened renewable energy transition, or if the fossil fuel companies that caused our climate crisis have to be the part of the solution as well. In Congress, some politicians propose aggressive legislation, while many still answer to donations from big oil and gas.

We are left with a difficult paradox. Driving to work, receiving a delivery from Amazon, and even simply plugging in your phone to charge are all mundane activities, yet all are directly reliant on a backbone of natural gas or oil. The sobering truth is that as economic activity grows, so do carbon emissions. Unlike the way we prosecuted the tobacco industry, we cannot simply gut the fossil fuel industry. You may not need to smoke a cigarette to get to work, but you probably need to drive a car. While the puzzle seems large, complicated, and maybe too overwhelming to be solved, there is solace in the fact that every individual has the power to make impactful political, social, and economic choices.

## What is decarbonization?

To grasp the many approaches to tackling climate change, defining some terms will be beneficial. Various cities, companies, and countries use different language to articulate their climate plans, but even small differences can mean very different things.

*Decarbonization:* For our purposes, think of decarbonization as the general effort to remove carbon emissions from human activity. Decarbonization can be approached many different ways, which are defined next.

*Carbon free:* No carbon dioxide emissions. All electricity is generated from renewable sources, like solar, wind, or nuclear.

*Net zero or carbon neutral:* Removing as much carbon dioxide from the atmosphere as you are putting in, so the *net* amount of carbon emissions is zero. This is possible through mechanisms like carbon sequestration (extracting pre-existing carbon from the atmosphere) or planting trees.

*Nonbinding:* An agreement that does not hold one to promise or obligation to follow through with their commitment. Understanding the meaning of nonbinding is critical, because many climate plans, laws, and state goals are technically nonbinding. This means that a state or country is committing to a target, but they are not legally required to meet it.

## Is a carbon free economy possible?

It is most likely that everything you did today required the release of carbon dioxide emissions. Nearly every aspect of our economy runs on fossil fuels. The four sectors that release the most carbon emissions are the electrical, industrial, transportation, and agricultural. So, the energy that runs your home, the manufacturer that produced your toothbrush, the car you drove to work, and the hamburger you had for lunch all require a fundamental change.

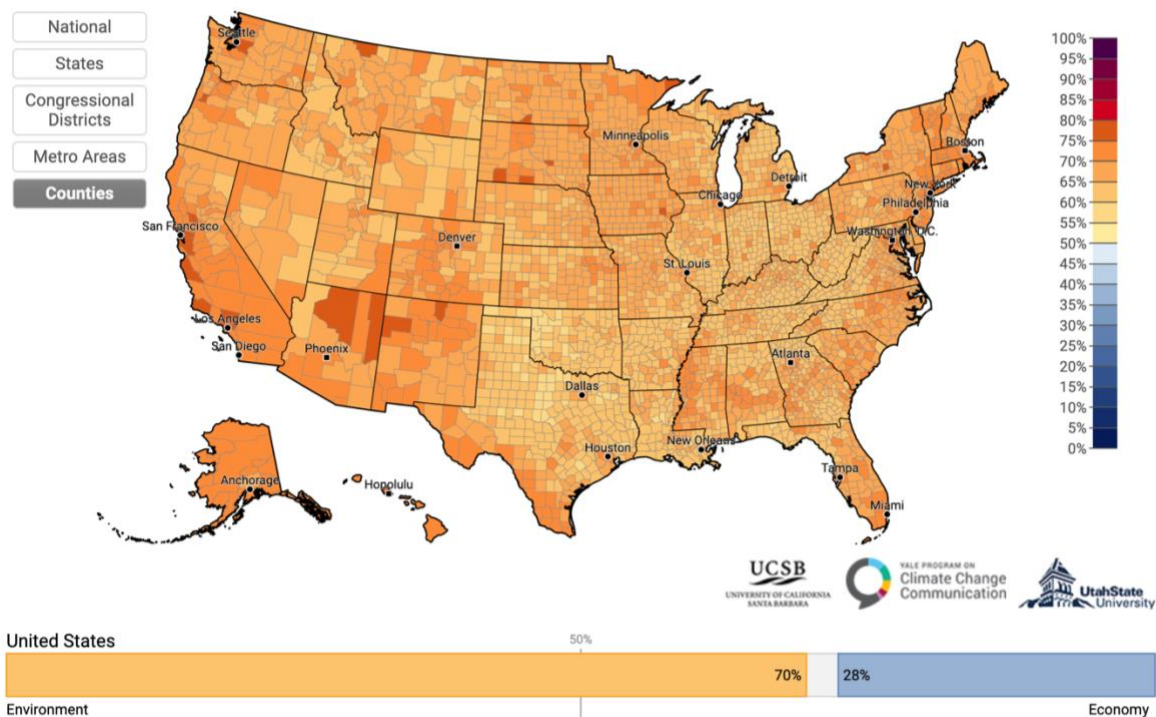
So, is removing the carbon footprint from all economic activity even feasible? It may depend who you ask. In the realm of electricity, Stanford University Professor Mark Jacobson says absolutely. Jacobson has published [research](#) that explains what a zero carbon energy system would look like: he calls for 3.8 million large wind turbines, 90,000 solar plants, and numerous geothermal, tidal and rooftop photovoltaic installations across the world. In 2017 he released [plans](#) for 139 countries to achieve 100% renewable energy.

However, other experts are less optimistic. Brookings Institution Fellow Samantha Gross has conversely [outlined](#) the many land use hurdles that keep the type of renewable energy development proposed by Jacobson from reaching fruition. On the spectrum of climate politics, these experts still fall on the left, but with a more pragmatic idea of how we are going to get from point A to B. Gross advocates for a more incremental approach, where we develop technologies that can be affordable and competitive alternatives to fossil fuels.

## Do we have the political will?

As the economy grows, so do carbon emissions. As a result, the immediate transition away from fossil fuels will likely cause job loss, increases in cost, and public opposition. Many of the strongest opponents to climate action argue that decarbonization is a version of economic suicide. However, some [surveys](#) provide evidence that the majority of the American public will sacrifice economic growth for the health of the environment.

The figure below shows the estimated percent of adults who say they prioritize the environment over the economy. As of 2018, 70% of adults asked answered yes, that environmental protections are more important to them than the economy. Outlined by county, the dark orange regions indicate a higher percentage of environmental prioritization than the lighter. Urban centers tend to be around seven to ten points higher than the national average, while rural and southern counties may fall three to five points below.



## What are the presidential candidates proposing?

While all the Democratic candidates are prioritizing climate, there are variations amongst their approaches. The most notable differences between them are their budgets, timeline, carbon zero versus net zero goals, and aggression toward the fossil fuel industry. Essentially, there is a spectrum of the pace of change amongst the candidates and the exact way they would enact that change.

Amongst the candidates in the democratic primary, Senator Bernie Sanders of Vermont has the most aggressive climate plan. Adopting former candidate Jay Inslee's approach, Sanders has

championed his own brand of the [Green New Deal](#). It is the most expensive climate plan, with a price tag of \$16.3 trillion and net zero emissions goal in the transportation and electric sectors by 2030.

Senator Elizabeth Warren of Massachusetts has also taken from Inslee's plan to achieve 100% renewable energy. She has a unique approach to her [climate plan](#), by incorporating it into all the various parts of her platform, rather than just one aspect in of itself. The plan explicitly sets goals for an [Apollo Plan](#), which invests \$400 billion over ten years in clean energy research and development. Overall, Senator Warren's plan has a much smaller sticker price of \$3 trillion, which she explains will be funded by her trademark wealth tax on the top 1% of American earners.

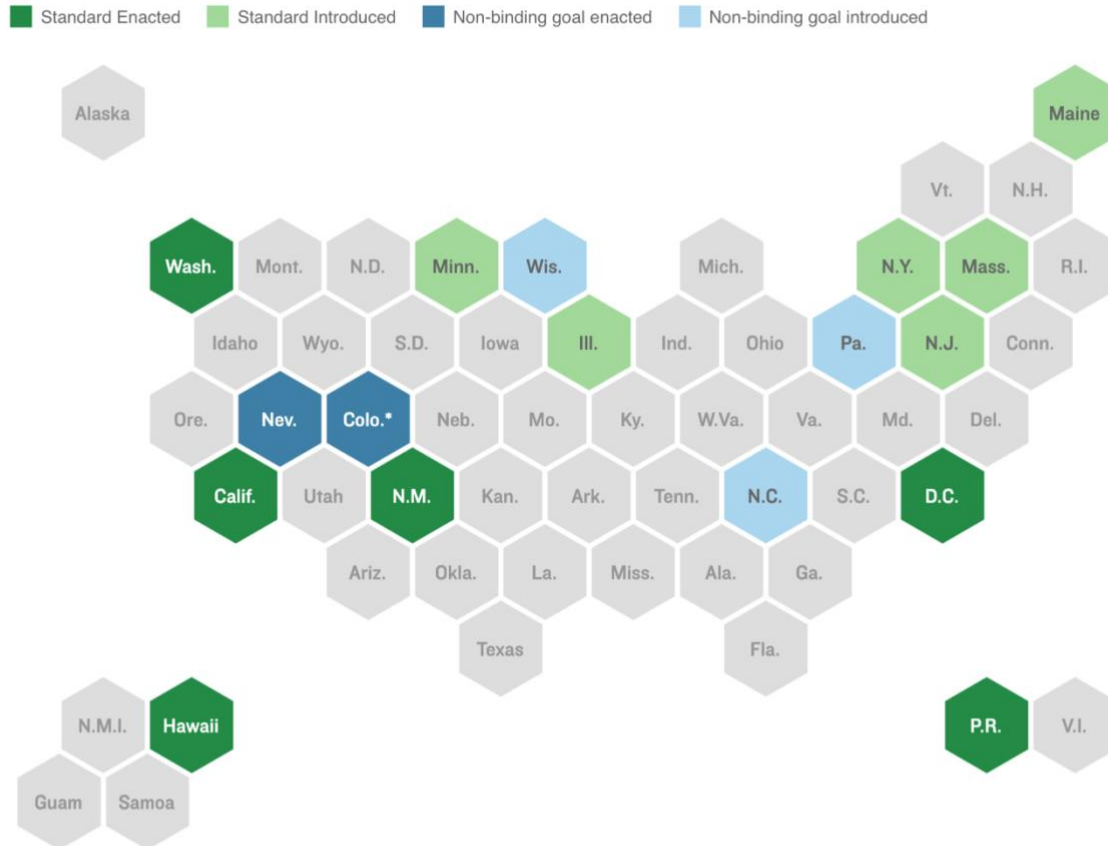
South Bend Mayor and the youngest presidential hopeful, Pete Buttigieg, has a more moderate but still aggressive [approach](#) to decarbonization. Buttigieg plans to double clean electricity in the US by 2025, zero emissions in electricity generation by 2035, achieve net zero emissions from industrial vehicles by 2040, and a finally reach net zero emissions by 2050. Overall, his plan would cost around \$1.5 trillion.

Each candidates climate plan can be found on their website. Paying attention to the level of prioritization and goals of each potential nominee can help inform voters when deciding who they want to face climate change going into 2021.

## Where are zero carbon policies being enacted today?

Under the Trump administration, the US has increased oil production to unparalleled levels. Trump delivered on his campaign promise to make the United States “energy independent,” which has resulted in withdrawing from the Paris Agreement, and essentially moved the U.S. five steps backwards in the effort to decarbonize. Energy independence is considered one of the Trump administration's greatest accomplishments amongst those on the right because it is thought to keep American consumer prices down regardless of fluctuations in the international markets or changes in supply amongst other top oil producing companies like Saudi Arabia.

However, while our current administration is taking steps back, many states and local municipalities are reacting with adamant climate action. Again, there is clear evidence that many leaders are also willing to prioritize climate progress over economic growth. For example, California, Hawaii, New Mexico, and Washington have all enacted legislation committing to only use renewable energy sources by 2050. Two states, Nevada and Colorado, have nonbinding goals enacted, and at least nine other states have similar proposed goals or mandates. So, even though the United States federal efforts to decarbonize have been dismantled, states and municipalities have committed themselves to a greener standard even without the top-down pressure.



#### Notes

\*Colorado's goal applies to the utility company Xcel Energy.

Source: *EQ Research's Policy Vista Legislative Tracking Database*. Data as of June 19.

Credit: Nick Underwood/NPR

## What about the rest of the world?

Decarbonizing one nation is a small piece of a larger global picture. When 196 countries signed the Paris Agreement in 2015, they began to look in the right direction, but many are yet to actually take the step. The agreement marked a changing landscape for climate diplomacy, but unfortunately Trump has [removed the United States from the agreement](#) and signaled a lack of commitment to the rest of the world.

A common argument against aggressive climate action is why should the United States do anything if China and India, the two other leaders of carbon emissions, aren't? Instead of walking through the obvious philosophical issues with that statement, I will simply say that justifying inaction because no one else is doing the right thing will set a tragic precedent that we do not have the time to recover from. It may be true that there is a collective action problem at hand, and there is no guarantee all other nations will do their part. Yet we began to fix this abstract challenge with Paris, and have undeniably solidified a culture of pointing the finger by not even engaging in a symbolic emissions reduction target. Today, the U.S. is [ranked](#) as a

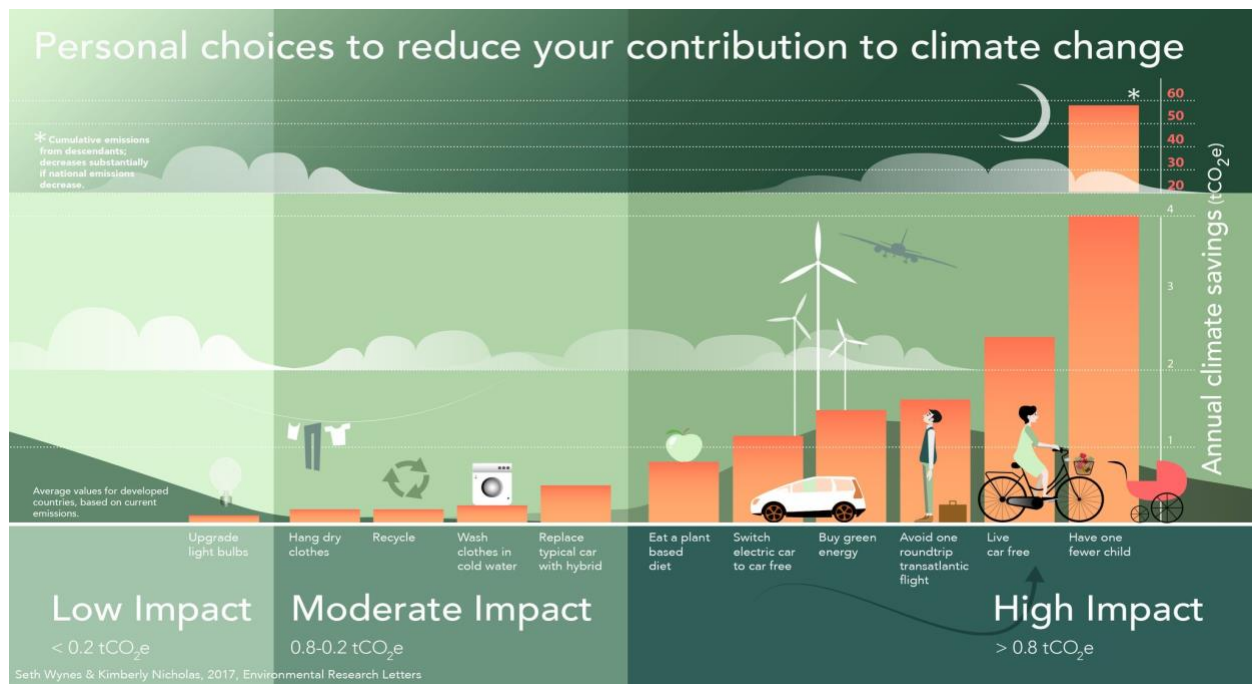
critically insufficient performer in reducing emissions, trailing behind China, India, the EU, and most other nations who are still apart of the Paris Agreement.

## How can I help decarbonize?

First, an important step to take is voting. There are a multitude of candidates running that are willing to reprioritize decarbonization at the federal level. Political action is achievable if the right leaders are in Washington advocating a clean energy transition.

Second, every time you engage in an economic activity, you likely have the ability to lessen your carbon footprint. On a small scale, this type of activity can look like eating less meat or not using your home's heating system as frequently. From a larger perspective, you can invest in green energy for your home or an electric vehicle.

Third, spreading climate awareness, whether through formal education or common public discussion, is critical. Many people are in a similar position of knowing there is a climate crisis, but are left unequipped with the knowledge of what we can do individually, nationally, and globally move towards a solution. Whether it be a conversation with a family member or sharing an article online, all attention towards climate has the potential to deepen an already growing salience.



Source: vox.com

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