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Misconceptions About Climate Policy

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There is a rapidly emerging consensus that we need to reach net zero greenhouse gas emissions in the United States by no later than 2050. The most cost-effective, fastest path to get all the way to net zero is through a technology-inclusive climate agenda with robust investment in innovation to develop all the clean energy options we need.

Given the complexities of climate change, however, there's plenty of misinformation within the climate advocacy community that could send policymakers and advocates down the wrong path, politically and substantively. Here are ten of the biggest misconceptions to watch out for.

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1. We must eliminate emissions by 2030.

The world is not going to end in 12 years. This myth comes from a gross misinterpretation of the United Nation IPCC's Special Report on 1.5°C, which states that we need to reduce global carbon pollution by 45% by 2030 (and reach net zero emissions by 2050). When the report was released in 2018, 2030 was indeed 12 years away. But, climate change isn't like a Mayan calendar doomsday scenario. The scientific consensus is that we have a bit more time – if we reach net zero emissions globally by 2050, we will likely stay below 1.5°C and avoid the worst impacts of climate change. That's good, because it will be a *tremendous* challenge to eliminate emissions from all sectors of the economy by 2050, especially considering we still lack some of the zero-carbon technologies that we'll need. If possible, we should eliminate our emissions sooner, considering that the U.S. is responsible for a greater amount of emissions and has an easier path to deep decarbonization than developing countries.

2. We already have all the technologies that we need.

While we do have a number of effective clean energy solutions, we are woefully under equipped to decarbonize most areas of the economy. We still need better technologies like affordable long duration grid storage, carbon capture, hydrogen fuel cells, advanced sensors and controls, carbon-neutral fuels, and more. Even thriving technologies like wind and solar could be improved upon to encourage faster adoption.

In order to develop these crucial technologies and make them cost-competitive, we need robust clean energy innovation. That does not mean relying on some miracle private sector

breakthrough. To make sufficient progress, the federal government needs to increase investments in the research, development, demonstration, and deployment of clean technologies. Supporting innovation also does not mean delaying or slowing down the deployment of existing technologies until the newer ones arrive. Quite the opposite, we need to aggressively deploy existing clean energy technologies while continuing to work on the emerging ones. In fact, the Department of Energy found that pairing deployment policies with innovation actually amplifies the effectiveness of both in cutting emissions.

3. All we need is a carbon tax.

Some economists say it's simple – just pick the right price for carbon and let the markets do the rest. Unfortunately, a price on carbon, while valuable, isn't enough. Given the time crunch, we need guaranteed emissions cuts, which carbon pricing cannot offer. To reach our emissions goals, we not only must expand current carbon pricing, we must also use a variety of policy levers for all sectors of the economy. There is no silver bullet policy.

4. We can eliminate emissions with only renewables.

Until recently, 100% renewables has been a major rallying cry among climate advocates. But there is significant scientific analysis showing that relying on renewables alone is neither the fastest nor the most affordable path to zero. All major studies modeling US decarbonization see renewables growing to at most 50%-75% of electricity sources. [1] We are only at 1% solar and 8% wind, so we absolutely need to build more. [2] However, using other carbon-free resources alongside renewables can help us get to net zero from our electricity grid faster and at a lower cost, AND allow us to eliminate emissions from parts of industry and transportation where renewables just don't cut it. We should be prioritizing emissions reductions over which technologies we use.

5. The public is demanding 100% renewables.

Not only is there no substantive case for 100% renewables, there is no public demand for it, either. American voters are feeling the urgency of the climate crisis and are embracing all clean energy technologies that can help us achieve our goals. Recent polling by the Environmental Defense Fund shows that battleground voters strongly support a plan to reach 100% clean energy economy-wide by 2050. While just a few years ago battleground voters may have viewed this plan as unrealistic, they now view it as "thoughtful," "moderate," and "reasonable." That means that zero-carbon technologies like nuclear

power and carbon capture can be politically durable when included in a broader clean energy plan. Even liberal voting demographics like extremely online Democrats prefer a technology-inclusive approach to combating the climate crisis.

6. A breakthrough in batteries is all we need.

Since the problem with renewables is that they are variable, some argue a breakthrough in battery storage would solve all our problems. It is an appealing, but dangerous, fantasy. Large battery storage systems carry an astronomical price tag, even with substantial innovation. That being said, batteries are a critical technology for deep decarbonization that we must improve upon. Battery costs are plummeting and they can help us deal with hourly fluctuations; however, current grid-scale batteries cannot compensate for days or weeks of limited wind or sun. As we strive to develop even better batteries and clean energy technologies, it is important to foster the growth of a diverse energy portfolio. We cannot afford to risk the climate crisis on any one technology.

7. States can only pass renewable energy standards.

Renewable portfolio standards have been a powerful tool for 27 states and DC to promote renewables and ensure that at least one-sixth of U.S. electricity will come from renewable sources in the coming decade. But to get to all the way to zero carbon, states and utilities are now looking to Clean Electricity Standards (CES) that foster the growth of all zero-carbon technologies, not just renewables. A CES is a technology-inclusive policy that enables states to reach 100% carbon-free power and creates a backstop against the future growth of dirty fuels. Five states have passed CES legislation in just the last year (CA, WA, NV, NM, and NY). More zero-carbon electricity bills are being considered in IL, MN, NJ, VA, FL, MA, ME, and MD.

8. We can close nuclear plants without increasing emissions.

Electricity generation lost from early closures of nuclear plants (and coal plants, for that matter) is not being replaced by renewables only...it is being replaced mostly by natural gas. According to Rhodium Group, while nuclear generation dropped by 0.7% and coal by 2.6% in 2018, renewables only grew by 0.1%. Natural gas, on the other hand, grew by 3.1%.

The last six nuclear closures [3] were replaced by gas, increasing carbon emissions by 25 million metric tons annually. We can't afford to close nuclear power plants early when we cannot replace them with another carbon-free source. And just replacing carbon-free sources with other carbon-free sources doesn't help us grow our total carbon-free power.

9. Nuclear is just too expensive to be part of the solution.

Wind and solar have both become incredibly cheap. But there's more to the cost of renewables than simply their price per megawatt hour of electricity. Wind and solar are not just racing to become cheaper than fossil fuels, they are racing against their own declining value. [4] The higher the renewables penetration, the lower their value in replacing fossil fuels, the lower their capacity value, and the higher their over-generation of energy that either needs to be stored or is wasted. As a result, when renewables get close to 70%-80% of capacity, there is a drastic increase in cost to utility customers. [5]

It is also important to differentiate between the cost of building and operating a large light water reactor like those in today's nuclear fleet and the cost of next generation reactors. We can't predict cost and construction timelines for these advanced nuclear plants based on the experience with the existing fleet. Right now in the U.S., there are more than 70 different reactor projects underway with simpler designs. They will differ in size, scalability, per unit cost, method of construction, timeline, safety, security, and waste. These innovations could make this new generation of nuclear cost competitive with fossil fuels and renewables.

10. Carbon capture does not exist, and we don't need it anyway.

Some believe carbon capture technologies are a pipedream that will take years to commercialize – and that they aren't even needed in the first place. Some basic fact-checking proves this argument wrong. There are 18 commercial-scale projects already under operation, five more under construction, and 20 in "various stages of development." [6] Third Way's map shows the growing activity in carbon capture, carbon storage, carbon use, and direct air capture. There is work to do before scaling up to the hundreds of carbon capture projects we'll need, but as the map shows, carbon capture is real and growing. Indeed, all four pathways modeled by the IPCC to stay below 1.5°C use carbon dioxide removal, and three of the pathways require carbon capture and storage.

Know the facts and build policy solutions around them.

As policymakers debate the best approach to fighting climate change, be smart about crafting policies that are based in science. Create ambitious long-term goals for carbon-reduction, and set early milestones to ensure the country gets on track toward meeting them. Remember the potential and importance of all zero-carbon technologies, including carbon capture and nuclear. Know that voters who care about climate want solutions that are both progressive and pragmatic. And don't fall for these common misconceptions about climate policy.

ENDNOTES

1. The White House. "The United States Mid-Century Strategy for Deep Decarbonization." November 2016, https://unfccc.int/files/focus/long-term_strategies/application/pdf/mid_century_strategy_report-final_red.pdf;

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   UCS. "The US Power Sector in a Net Zero World." November 2016, https://www.ucsusa.org/sites/default/files/attach/2016/11/UCS-Deep-Decarbonization-working-paper.pdf?_ga=2.263568588.1974402731.1534852232-1981528426.1534852232;

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   C2ES. "Pathways to 2050: Alternative Scenarios for Decarbonizing the U.S. Economy." May 2019, https://www.c2es.org/site/assets/uploads/2019/05/pathways-to-2050-scenarios-for-decarbonizing-the-us-economy-final.pdf.

2. Rhodium Group. "US Climate Service." 2018.

3. Crystal River, San Onofre Nuclear Power Plant, Kewaunee, Vermont Yankee, Fort Calhoun, and Oyster Creek

4. Jenkins, Luke & Thernstrom, "Getting to Zero Carbon Emissions in the Electric Power Sector," *Joule,* 2018, https://doi.org/10.1016/j.joule.2018.11.013.

5. Watch this video, Dr. Jesse Jenkins does a great job explaining this.

6. Global CCS Institute, “Global Status of CCS.” 2019, https://www.globalccsinstitute.com/resources/global-status-report/.