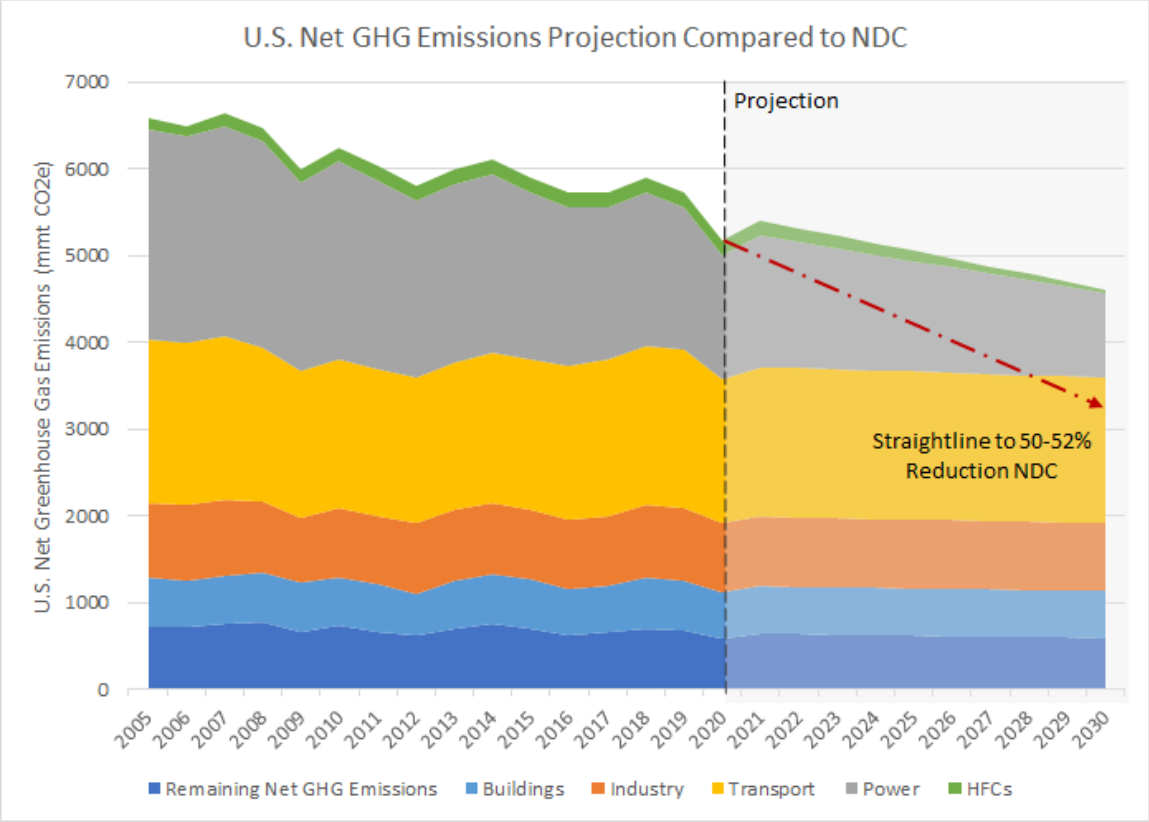
CLEARPATH

Achieving Biden's Climate Target Takes Bipartisan Legislative Action and Regulatory Reform

On April 22, 2021, the Biden Administration formally submitted an updated Nationally Determined Contribution (NDC) under the Paris Climate Agreement. This new goal would require a rate of acceleration in clean energy deployment the U.S. has never previously reached. This plan would require robust bipartisan congressional support to succeed, as well as additional elements of regulatory reform and technology innovation.

New Plan is the Most Ambitious and Would be Exceedingly Difficult

The new NDC pledges a reduction of greenhouse gas emissions of 50-52 percent by 2030, compared to a 2005 baseline.[1] It follows on previous commitments to reduce emissions 17 percent by 2020[2] and 26-28 percent by 2025. The graphic below demonstrates historical greenhouse gas emissions in the United States, along with a projection of future emissions from 2020 until the new NDC. The projection of future emissions is based on continuing the historical rate of change in each category of emissions through 2030. Under these conditions, the U.S. is currently on track to reduce emissions 30 percent by 2030, far short of the 50-52 percent goal.



Net U.S. greenhouse gas (GHG) emissions by sector for the period from 2005 through 2020, with projections for 2021 through 2030 assuming that 2005-2020 trends in each sector continue. Reduction of HFCs is an estimate of the impact of the American Innovation and Manufacturing Act enacted in December 2020. Historical GHG estimates sourced from the Rhodium Group ClimateDeck.

[1] UNFCCC April 2021 US NDC
[2] The U.S. did reach this goal, but only due to the economic impacts of the COVID-19 pandemic.

Reaching the additional 20 percentage point reduction in *economy-wide* carbon emissions needed to meet this target would require tremendous efforts across many economic sectors. The goal cannot be met by reducing emissions in any one sector. For example, even if emissions in the power sector went to zero between now and 2030 (an impossibility), economy-wide emissions would still only have fallen 45 percent compared to 2005. From a speed perspective, it would require emissions reductions at a rate 400 percent higher than what was achieved between 2005 and 2019.[3]

Carbon Reductions at This Rate Require Bipartisan Congressional Action

State and local policy actions would certainly contribute to carbon emissions reductions, but individual actions by climate-focused states would be insufficient to lead to the necessary reductions. For example, even if all deep blue States (CA, OR, MD, WA, RI, VT, NY, NJ, CT, MA, IL, NM, HI, and DE) followed California's lead of a 100 percent Zero Emissions Vehicle (ZEV) new sales mandate in 2035, that would only result in an additional 2.6 percent reduction in tailpipe emissions in 2030 compared to current policy.[4]

Accordingly, any policy scenario that achieves a reduction on this scale would require federal legislation. Researchers at the University of Maryland (UMD) modeled a set of federal policies that achieved a 51 percent reduction by 2030.[5] In total, it required the combination of many significant policies across the entire economy to achieve the goal, including:

Sample of Modeled Policies	Administrative Action	Congressional Action
New regulations on existing coal and gas	X	
Carbon capture requirements for all new gas units in 2025	X	X
Extension of renewables credits		X
Doubling and extension of 45Q carbon capture credit		X
Establishing credits to maintain existing nuclear energy		X
Expanded and extended electric vehicles incentives, resulting in 40% of 2030 sales		X
Dramatic appliance and efficiency standards in buildings	X	X
Payments for reforestation and land management		X
New regulation/incentives for other GHG (CH_4, N_2O, HFCs)	X	X

[3] Average emissions reduction each year between 2005 and 2019 was one percent per year. Reductions between 2021 and 2030 to meet the NDC would require reductions of over four percent per year.
[4] Rhodium Group ZEV State Targets Tool. Note, if power sector emissions rapidly decline, the reductions associated with these ZEV targets would increase, as there would be fewer increases in grid emissions.
[5] University of Maryland Center for Global Sustainability, Charting An Ambitious U.S. NDC Of 51% Reductions By 2030

Almost all of these policies require some form of congressional legislation, and because many of them are new programs, they cannot be enacted under reconciliation instructions.[6] *Bipartisan congressional action would be required to achieve any carbon reduction of this magnitude.*

This Level of Deployment Would Likely be Impossible Without Regulatory Reform

One topic that only received scant mention in the NDC submission and in associated modeling efforts is the need for regulatory reform. This dramatically higher rate of clean energy deployment cannot occur without making clean energy easier to build—that is, without significant permitting reform. Many of the technology scenarios modeled by UMD would face significant regulatory hurdles that go unmentioned. Just a few of the biggest regulatory challenges to achieve this outcome include:

- **Transmission infrastructure to support 70-80 percent clean electricity**. Reducing power sector emissions 80 percent by 2030 requires significant expansion of both carbon capture and renewable energy. In a recent study, Breakthrough Energy Sciences modeled the grid required for a 70 percent clean electricity system in 2030 with high levels of renewables. Their study identified that approximately $200 billion of investment would be required to expand national transmission capacity by approximately 30 percent across a number of scenarios.[7] Expansion on that scale would require significant state and federal regulatory approvals, on a scale never seen in modern times.
- **CO2 pipelines and injection wells for all new gas plants to use carbon capture**. UMD's analysis calls for 233 million metric tons of captured carbon from natural gas plants and industrial facilities by 2030.[8] This level of capture capacity is over five times the total carbon capture capacity currently in operation in the United States. This future is possible, but a recent comprehensive report found that significant expansions of pipeline capacity and regulatory improvements will be necessary in addition to tax incentives.[9] Specifically, the report outlined that on the federal level, the permitting process for Class VI carbon storage injection wells must be significantly streamlined to take only six months, down from the current timeline of six years. Furthermore, storage options on federal lands and offshore must be explicitly granted. For carbon pipelines, state level permitting would need to be improved to greatly expand the network.
- **EV charging infrastructure capable of supporting 40 percent of light-duty vehicle sales in 2030**. Building charging infrastructure to achieve this goal would be a tremendous undertaking. The International Council on Clean Transportation estimates that charging infrastructure would have to grow 20 percent annually just to meet demand currently anticipated in 2025.[10] Expanding to 40 percent of new car sales would require an even sharper expansion of charging infrastructure.[11] State and local permitting presents a significant challenge for developing adequate public charging options.

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[6]Theoretically, an extremely high carbon tax could lead to a similar level of emissions reduction by 2030 timeframe, but such a carbon tax would not be politically feasible.

[7]Breakthrough Energy Sciences, A 2030 United States Macro Grid

[8] UMD Center for Global Sustainability, Charting An Ambitious U.S. NDC Of 51% Reductions By 2030

[9] National Petroleum Council, Meeting the Dual Challenge: Roadmap to At-Scale Deployment of CCUS

[10] International Council on Clean Transportation, Quantifying The Electric Vehicle Charging Infrastructure Gap Across U.S. Markets

[11] An estimate of the charging infrastructure gap for 100% EV sales by 2030 found that 94,000 public DC fast chargers were needed nationwide by 2025. 40% by 2030 would require a similar order of magnitude, on a slightly longer timeframe.

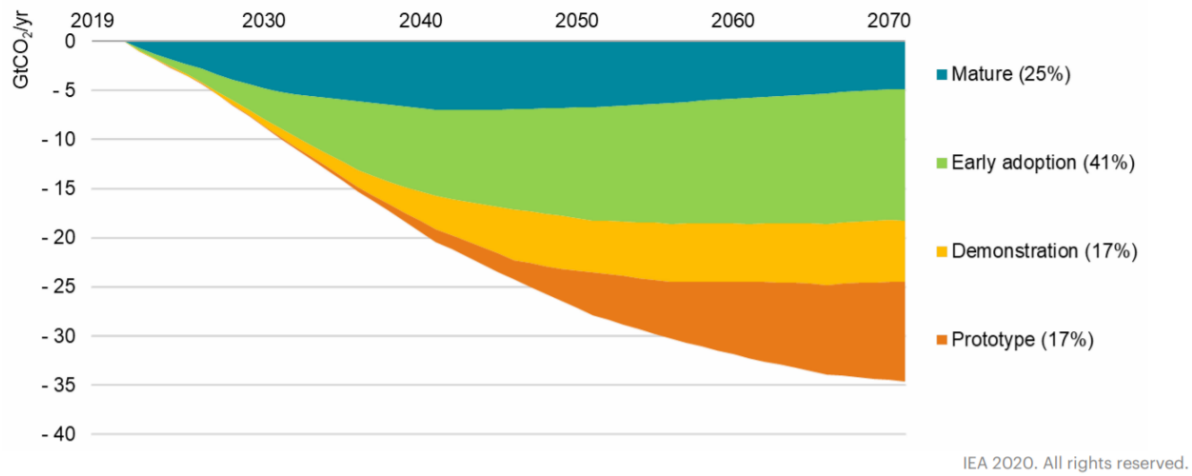
These are just a few of the significant regulatory challenges to reducing carbon emissions at this scale. There are many others that need to be addressed, such as the permitting of renewables on federal land and an update to the broader utility interconnection process.

NDC Should Include Greater Focus on Global Needs and New Technology

As the United States only accounts for less than 15 percent of global emissions and has the strongest energy research and development capability in the world, an NDC that is overly focused on domestic deployment misses the greatest opportunity to aid *global* decarbonization. Alongside domestic clean energy deployment, the NDC needs to specify support for the technologies needed in 2050 and 2070 and tools to aid in the export of those technologies.

The International Energy Agency (IEA) has repeatedly stated that a majority of necessary emissions reductions to get to net-zero emissions are not widely commercially available.[12] That includes technologies for each energy sector, ranging from carbon capture, to electrification of industrial processes, to low-carbon aviation fuels and carbon removal technology.

CO_2 emissions reductions by technology readiness category in the Sustainable Development Scenario



Notes: Percentages refer to cumulative emissions reductions by 2070 between the Sustainable Development Scenario and baseline trends enabled by technologies at a given level of maturity today.

Accelerating the commercialization of breakthrough clean energy technologies across various end-use sectors will reduce the cost and difficulty of future climate plans. The United States is one of the only countries actively developing all necessary technologies for a clean energy economy, and is well-positioned to bring these technologies to market. In addition to accelerating research and development, the NDC should include a stronger focus on exporting clean energy technology and knowledge to rapidly industrializing countries. The U.S. should use all tools at its disposal through the Export-Import Bank, the International Development Finance Corporation, and the State Department to support the adoption of novel energy technologies by other nations.

[12] International Energy Agency, Energy Technology Perspectives Special Report on Energy Innovation