

Pathways to Build Back Better: Nearly a Gigaton on the Table in Congress

It's drafting time in Congress. Committees in the House are working hard to flesh out the size and scope of climate and clean energy investments in legislation as part of the broad \$3.5 trillion, ten-year budget package. The bill will contain new investments to cut emissions and an array of actions to address several policy priorities shared by the White House and congressional leadership. Up until this point, estimating the greenhouse gas (GHG) emissions implications of congressional action has been challenging because of a lack of legislative text. With key committees recently reporting out and marking up their contributions, the picture is becoming clearer.

In this note, we examine the programs that stand out so far and quantify their aggregate impact on US emissions. We find that the six investments we consider can cut US GHG emissions by up to nearly 1 billion tons in 2030 compared to no action. That is up to ten times larger than the impacts we quantified for the [Energy Act of 2020](#), enacted at the end of last year. It's roughly equivalent to zeroing out annual emissions from all light-duty vehicles on the road or the annual emissions from Texas and Florida combined. This is before counting the impact of additional programs that may get included in the package, so there is potential for more impact as the bill comes together in the next few weeks.

A first look at climate in the budget

2021 is proving to be a tumultuous and potentially consequential year for climate action in Congress. After an intense, bipartisan scrum, a \$1 trillion [infrastructure package](#) passed the Senate in August with the House scheduled to vote on September 27. The bill contains billions in new spending on research and development programs, energy infrastructure financing, climate resilience, and significant policy changes that remove bottlenecks for deploying commercial clean technologies like storage and transmission and accelerate deployment of emerging technologies like [clean hydrogen](#).

In the meantime, as part of a two-track process managed by congressional leaders, the Democrats in the Senate and House approved in August a ten-year budget resolution authorizing up to \$3.5 trillion in investments in an attempt to address an [array of challenges](#), including tackling child poverty, expanding healthcare coverage, improving education quality and access, and slashing GHG emissions. Revenue from new programs and increases in taxes on corporations and wealthy individuals will likely cover the cost of some or all of the new investments. Now, House committees are racing to draft the text of their components of the budget bill to have a complete package under review by the Budget Committee by September 15. Key committees with jurisdiction relevant to climate and energy, such as Ways and Means and Energy and Commerce, have already published text and initiated markups. With text now available, we can begin to estimate just how significant congressional action this year may be on future US GHG emissions.

John Larsen
jwlarsen@rhg.com

Ben King
bking@rhg.com

Hannah Kolus
hkolus@rhg.com

Naveen Dasari
ndasari@rhg.com

Claire Jahns
claire.jahns@gmail.com

Hannah Pitt
hpitt@rhg.com

Alfredo Rivera
arivera@rhg.com

Whitney Herndon
wjherndon@rhg.com

Tel: +1.212.532.1157
Fax: +1.212.532.1162
Web: www.rhg.com

New York
5 Columbus Circle
New York, NY 10019

California
647 4th Street
Oakland, CA 94617

Hong Kong
135 Bonham Strand
Sheung Wan, HK

Paris
33 Avenue du Maine
75015 Paris

The big-ticket items to date

With legislative text subject to ongoing negotiations, it's still too early for us to assess the full potential impact of the budget package. Still, after an initial review of available text from key committees and other sources, we consider the aggregate impact of a handful of big-ticket items that stand out. These are:

- Full-value, long-term, flexible clean energy tax credits for new zero-emitting electric generation and grid improvements with provisions for direct pay and bonus credit for meeting domestic content criteria.
- A Clean Electricity Performance Program (CEPP) that provides grants to electric utilities and other load-serving entities (LSEs) to procure an increasing amount of clean energy through 2030. LSEs pay a fee if they don't meet procurement targets.
- Funding for rural electric cooperatives to accelerate decarbonization efforts.
- A new electric vehicle (EV) tax credit that provides \$7,500 per vehicle with no manufacturer cap and higher credit values for meeting labor and domestic production criteria.
- A fee on methane emissions associated with oil and gas production and transmission.
- Stepped-up funding for agricultural and forestry programs that achieve carbon removal through soil conservation and reforestation on private and public lands.

We also include many elements of the infrastructure package as part of our analysis, including EV charging infrastructure grants, abandoned mine and well remediation funding, and support to keep nuclear plants online.

We represent these policies in RHG-NEMS, an economy-wide energy system model with full GHG representation. RHG-NEMS is a version of the National Energy Modeling System created by the Energy Information Administration and modified and maintained by Rhodium Group. We bound emissions outcomes under current policy using pathways we describe in our [Taking Stock 2021](#) report. Specifically, we model a low tech cost pathway that pairs low clean energy technology costs with our central oil and gas prices. We pair central clean energy tech costs with low oil and gas prices for our mid tech cost pathway. Additional detail on these assumptions is provided in the Taking Stock 2021 [Technical Appendix](#).

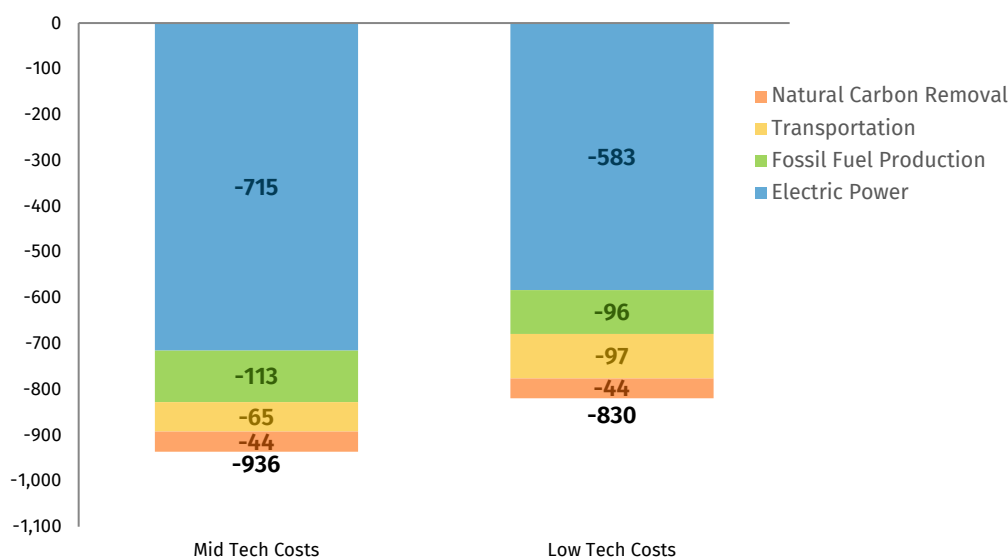
Policy details can matter to outcomes. Our modeling reflects key attributes of the policies emerging in legislative text from committees. Given the quick pace of action we may be missing some small but important details. For instance, the latest version of text requires domestic final assembly for all EVs receiving the new tax credit after 2026; our modeling doesn't fully capture this dynamic and implicitly assumes increased US assembly capacity in response to this requirement.

To quantify the impacts of congressional action on natural carbon removal from farms and forests, we estimate the net negative emissions potential of beyond-baseline funding to select federal programs that support reforestation of public and private lands, including urban forests, and private agricultural land management. Assumed funding levels are based on expectations of House Agriculture Committee language, which is still to be released and subject to change.

Almost a gigaton in play

We find that the aggregate impact of all of these provisions can cut US emissions by 830-936 million tons in 2030 compared to current policy (Figure 1). The range reflects uncertainty around technology costs and energy prices. The biggest share of reductions comes from the electric power sector, where the combination of [clean energy tax credits](#), CEPP, and rural cooperative programs cut emissions by up to 715 million tons. Depending on energy market and technology cost assumptions, the CEPP delivers the majority of these reductions. For this analysis, we assume the CEPP is implemented and sufficiently funded to achieve 80% clean electricity by 2030. Notably, however, the current Energy and Commerce bill targets a minimum four percentage point increase in clean energy generation annually from 2023 through 2031. If LSEs only achieve the minimum increases, the power sector would only achieve a 73% clean share in 2030. In order to achieve that level, the \$150/MWh grant available under the CEPP plus the value of tax credits will have to be sufficient to drive LSEs to add closer to five percentage points of clean generation each year.

FIGURE 1
Emissions reductions from leading investments in Congress
Million tons CO₂e from current policy



Source: Rhodium Group

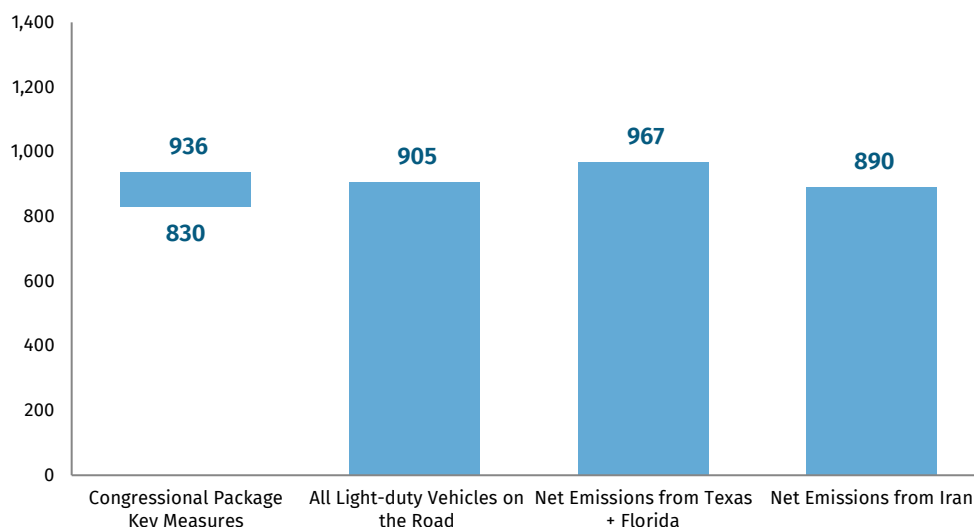
Outside of the electric power sector, the methane fee cuts emissions from fossil fuel production, but reductions in extraction (in response to reduced demand) and remediation programs also reduce emissions. We find that [fears](#) that the methane fee will lead to natural gas price spikes for consumers are greatly exaggerated. We estimate that changes in national average consumer natural gas prices from the fee are 2-3%—a blip compared to typical commodity price changes.

EV charging investments and long-term EV tax credit enhancements drive new EV deployment up as high as 61% of total vehicle sales in 2030—beating President Biden’s [goal](#) of 50%. More EVs on the road drive down emissions from gasoline combustion. Finally, new, long-term investments in programs that support natural carbon removal on American farms and forest lands can achieve 44 million tons of additional reductions.

This scale of abatement represents more reductions than any other single action that any part of the federal government has ever taken to tackle climate change. So just how much is that? 830-936 million tons is ten times the annual average reductions we estimate the [Energy Act of 2020](#) will achieve through 2035. It’s equivalent to removing annual emissions from all of the light-duty vehicles

in America on the road or zeroing out net annual emissions from Texas and Florida combined. It's a little more than the net annual emissions of Iran, the 9th largest emitter in the world.

FIGURE 2
Initial congressional emissions impact estimates in context
Million tons CO_{2e}



Source: Rhodium Group. Note: LDV and state emissions are 2020 estimates. Iran data are for 2019.

With so much in flux, it's too early to definitively say how much the total package will help the US get to the Biden administration's goal of achieving a 50-52% cut in GHG emissions from 2005 levels by 2030. We estimate that there is a 1.7-2.3 billion ton gap between where emissions will be under current policy and where they need to be to meet the 2030 goal. The range reflects uncertainties around energy markets, technology costs, and natural carbon removal. The standout items we include in this analysis cut the minimum emissions gap by at least half.

More tons on the way?

This analysis represents our initial take on a rapidly evolving legislative process. Congress is clearly contemplating actions that can have a huge impact on US emissions. This may be just the beginning. We have yet to see text from other key committees and a final House budget package is a few weeks away. Additional measures included in subsequent iterations of legislative text could increase total emission reductions. Recently, Senate Majority Leader Schumer indicated in a [“Dear Colleague”](#) letter that several additional significant measures are under consideration on the other side of Capitol Hill.

There is also a chance that the total package and associated emission reductions may shrink. Key members of Congress have indicated that the \$3.5 trillion top-line spending level is too high. It's not clear what could be on the chopping block should the package get trimmed down. What is clear is that if any of the measures we assess in this analysis, especially the electric power provisions, are pared back, then Congress could leave millions of tons of emission reductions on the table. This will make the Biden administration's goal of achieving a 50-52% cut in GHG emissions by 2030 that much tougher to reach. We will continue to monitor developments in Congress as the package comes together.

Disclosure Appendix

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