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Cornhusker Economics

The Biden Climate Plan

President Obama had an aggressive climate plan that included regulation of carbon emissions from power plants. Hillary Clinton would have continued with aggressive policies to slow and reverse global warming but was defeated by Donald Trump in 2016. President Trump sought to undo most of President Obama's climate policies and pursued a fossil-fuel friendly energy and climate policy. The 2020 election of President Biden marks a resumption of ambitious policies to slow and ultimately reverse global warming. This newsletter identifies three major policies the Biden administration is expected to pursue and attempts to explain what policy implication might look like.

The three main policies are (1) transition to electric vehicles, (2) zero greenhouse gas (GHG) emissions from electricity generation by 2035 and (3) reduction of methane emissions from oil and gas operations. The ultimate goal is net-zero GHG emissions by 2050. Transitioning to a clean electricity system is the largest challenge posed by the three policies.

Transition to electric vehicles. Transportation counts for nearly 1/3 of total U.S. GHG emissions. Fortunately, both Ford and General Motors have committed to increased electric vehicle (EV) production. GM has set a goal to be largely 100% EV for passenger vehicles by 2035 (including SUVs and light trucks). By 2026, all Ford's European cars will be zero emission capable (EV or plug-in hybrids). Ford is expected to be competitive with GM regarding its U.S. EV aspirations. The Biden infrastructure plan if adopted is likely to provide financial incentives to states to develop state-wide EV charging station sys-

tems. Of course, for EVs to be zero emission, they must be powered by zero emission electricity. So reducing carbon emissions associated with electricity generation will be crucial to achieving a zero emission transportation system.

Reducing oil and gas operation methane emissions. Venting or flaring of oil and gas operations releases significant quantities of methane into the atmosphere. Methane is a short-lived GHG that has a climate warming potential 40 times higher than carbon dioxide. The Obama administration adopted flaring control regulations that would have applied to oil and gas operations on federal land. Implementation of those regulations was delayed and ultimately stopped in court. The Biden administration is expected to revise the regulations to address the court's concerns and propose revised regulations, probably broadening their scope to include new and existing oil and gas operations on both federal and non-federal land. If adopted, such regulations could lead to the closure of smaller oil and gas operations for which implementing the rules might be too expensive.

Zero emission electricity system. The most important and the most challenging part of the Biden climate plan is to reduce electricity emissions to net zero by 2035. Electricity emissions are the second highest category in the U.S., just behind transportation emissions. To achieve net-zero emissions for the U.S. will require, among other things, an electricity system that is essential

ly emission free and an economy that runs largely if not exclusively on this clean electrical generation and distribution system. That would mean, for example, (1) over time, electrical furnaces, hot water heaters and other household appliances would replace natural gas furnaces, hot water heaters and appliances; (2) powering industry with electricity instead of coal, petroleum and natural gas, and so forth. This process of converting the entire economy from fossil fuels to clean energy is called **electrification**, and converting from fossil fuel internal combustion engines to power cars and trucks to electric vehicles is just one very significant illustration of this process. Electrification can move us closer to net-zero emissions only if the electrical system itself is net-zero emissions. So achieving a net-zero emissions electricity system is fundamental to achieving a national (and global) net-zero energy strategy.

So how will the U.S. achieve this net-zero electrical system? It will be very challenging and is likely the biggest domestic climate challenge facing the Biden administration. And it is the one where the likely policy direction is the least clear. But I will take an educated guess at a probable direction to see what this policy might look like on the ground.

Twenty-eight states plus the District of Columbia have mandatory clean energy requirements.¹ This means that electricity providers are required to generate a certain percentage of their electricity from renewable or clean energy sources, such as wind, solar or nuclear generation. Another eight states have voluntary clean energy requirements, meaning that electricity providers are encouraged, but not required, to generate some of their electricity from renewable sources². Twelve states have requirements or policies to achieve 100% clean electricity.³ Thirteen states have no clean energy

policy or requirements, including Nebraska.⁴ The Biden clean electricity program is likely to build on these state's clean energy programs.

One suggested approach is a federal Clean Electricity Standard (CES) for all electricity providers. This would mean that the percentage of electricity generated and distributed would need to be zero-emission electricity. Electricity providers would receive zero-emission electricity credits (ZECs) for each megawatt of clean electricity distributed. Electricity providers would have graduated clean energy requirements increasing over time until 100% clean electricity would be required by 2035. Electricity providers who used more than the required amount of clean electricity could sell their remaining ZECs to providers who used more fossil fuel generated electricity and not enough clean electricity. For example, if an electricity provider needed to provide 40% clean electricity to customers but in fact provided only 35%, it would need to purchase ZECs to bring it up to the 40% clean electricity required.

This approach has some similarities to the Obama administration's cap and trade program, which was sidelined by the Trump administration. More information regarding the Biden climate plan is likely to emerge over the coming months.

There are many unanswered questions regarding the federal CES approach. Given the recent issues associated with the reliability of electricity service during extreme weather events in much of the U.S., maintaining electricity system reliability will be of paramount importance. My guess is that the Biden infrastructure plan will include federal funding for improving the electrical grid into an integrated national grid, with a new high-capacity electricity transmission network to move electricity around the nation, and even into Texas. I would expect financial incentives for development of clean electricity and electricity storage to be part of the Biden program. We should have a clearer idea of the Biden climate plan within a year or so.

What about agriculture? There is a lot of media chatter about how we all need to become vegetari

¹ The 28 states with mandatory clean energy requirements are (1) Arizona, (2) California, (3) Colorado, (4) Connecticut, (5) Delaware, (6) Hawaii, (7) Illinois, (8) Iowa, (9) Maine, (10) Maryland, (11) Massachusetts, (12) Michigan, (13) Minnesota, (14) Missouri, (15) Montana, (16) Nevada, (17) New Hampshire, (18) New Jersey, (19) New Mexico, (20) New York (21) Ohio, (22) Oregon, (23) Pennsylvania, (24) Rhode Island, (25) Texas, (26) Vermont, (27) Washington, and (28) Wisconsin.

² The eight states with voluntary clean energy requirements are: (1) Indiana, (2) Kansas, (3) Oklahoma, (4) North Dakota, (5) South Carolina, (6) South Dakota, (7) Utah and (8) Virginia.

³ States with 100% clean energy requirements include are (1) Oregon, (2) California, (3) Arizona, (4) New Mexico, (5) New York, (6) Maine, and (7) Virginia. States with 100% clean energy targets include (1) Nevada and (2) Colorado. States with economy-wide net-zero GHG emission targets include (1) Louisiana, (2) Michigan and (3) Massachusetts.

⁴ These 13 states are (1) Idaho, (2) Wyoming, (3) Nebraska, (4) Arkansas, (5) Louisiana, (6) Mississippi (7) Alabama, (8) Georgia, (9) Florida, (10) Tennessee, (11) Kentucky, (12) West Virginia and (13) Alaska.

ans in order to stop climate change. I personally believe these assertions are premature. U.S. agriculture does have a significant carbon footprint, but it is well behind the transportation, electricity, industrial and residential sectors. There will no doubt be agricultural aspects of the Biden climate plan but they are likely to emphasize incentivizing carbon capture and sequestration in agricultural soils. I also expect intensive research into livestock feed additives (like seaweed) to reduce ruminant livestock methane emissions. Agriculture will ultimately be affected by the effort to achieve U.S. net-zero emissions by 2050, but addressing agricultural emissions is not at or even near the top of the Biden administration's climate change to-do list.

Resources

Assessing Joe Biden's Climate Plan, New York Times, Feb. 2, 2021, <https://www.nytimes.com/2021/02/02/podcasts/the-daily/biden-climate-agenda.html>

BLM Methane Waste Prevention Rule, Harvard Energy & Environmental Law Program, September 2017, updated to 2020, <https://eelp.law.harvard.edu/2017/09/bam-methane-waste-prevention-rule/>

A Roadmap to 100% Clean Electricity by 2035, Evergreen Collective, Feb. 2021, <https://collaborative.evergreenaction.com/policy-hub/100-clean>

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