THIRD WAY

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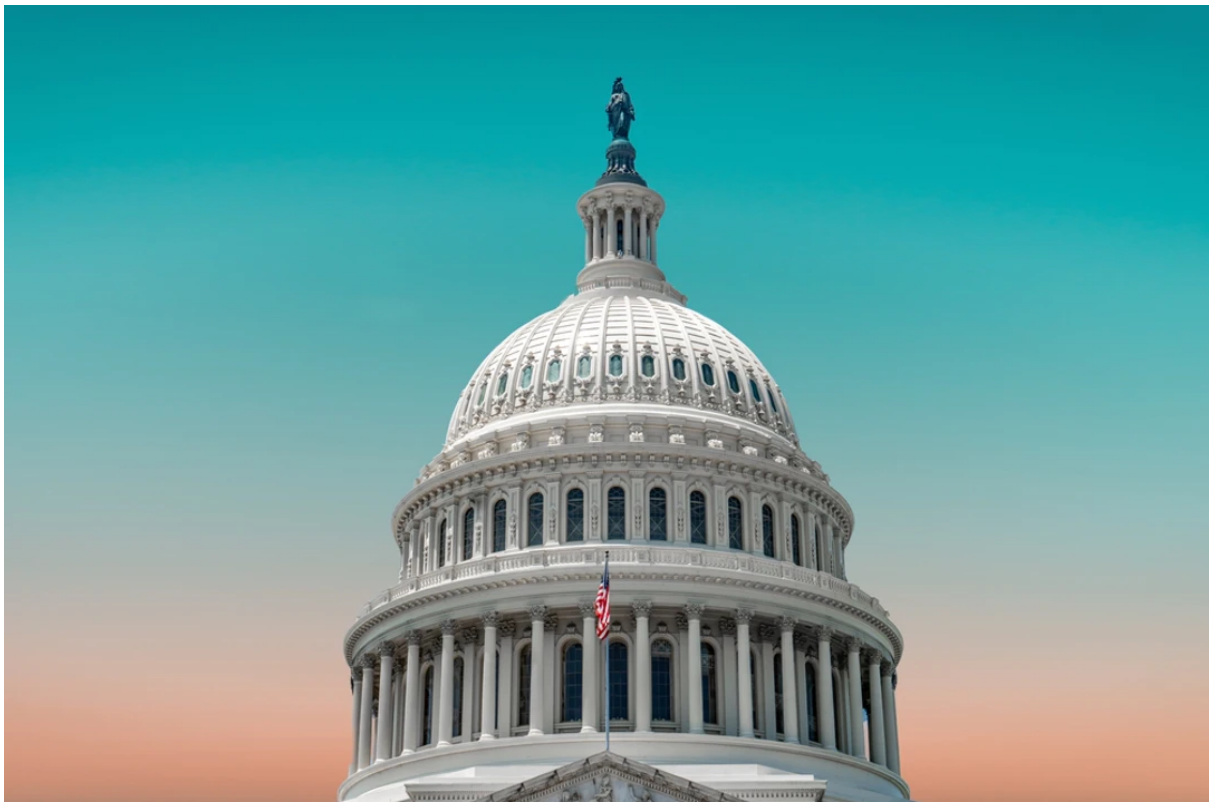
HOT TAKES: Congressional Appropriators Are Already Helping Biden Step-Up Climate Efforts Through Clean Energy Innovation



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Earlier this month, the Senate Energy and Water Development appropriations subcommittee released its FY2021 bill and explanatory statement. Looking at this bill alongside the version passed by the House over the summer, it's clear that President-Elect Biden and Vice

President-Elect Harris will be in a strong position to advance climate action through

innovation in the first 100 days of the next administration.

We appreciate the great work of this subcommittee under the leadership of Senator Lamar Alexander and Dianne Fienstein to develop a report that has broad support. And given the level of ambition that House appropriators also showed in their support for clean energy RD&D at the Department of Energy, we are looking forward to significant progress on energy innovation through the rest of the fiscal year.

Here are a few "Hot Takes" from Third Way's Climate and Energy team on the FY2021 approps process, and ways it will help get America's innovation ecosystem running at full speed toward climate solutions once again.

Advanced Vehicle Technologies

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I was happy to see the Senate bill give a much-needed 3.5 percent funding boost for the Vehicle Technologies Office (VTO) within the Office of Energy Efficiency and Renewable Energy. RD&D efforts at VTO are helping to reduce electric vehicle (EV) costs, improve battery cell performance, and get more charging stations deployed and EVs on the road—all essential parts of the next president's plan to reduce transportation emissions and fight climate change.

A few VTO highlights from the Senate bill:

- Nearly $180 million for technologies to lower the cost of batteries;
- $20 million to launch a third round of the hugely successful SuperTruck program, which has already developed and demonstrated technologies that improve the energy efficiency of heavy-duty trucks by over 50% since it began in 2010;
- $40 million for the Clean Cities Program to help cities foster broader adoption of clean vehicles and deploy refueling infrastructure.

While House Democrats hoped to give VTO a massive $1 billion increase in emergency funding in response to the pandemic and the recession, its core bill kept the overall spending level for VTO flat. Even so, the House did include very similar funding levels for the three VTO priorities mentioned above, which sets them up for a big win in a final omnibus bill.

The Senate bill also directs DOE to develop a program plan to help school districts replace diesel buses with electric buses. Grants issued through this program would prioritize school districts serving disadvantaged communities and those in areas with air quality issues. Vice

President-Elect Harris has been a champion on this issue, introducing the Clean School Bus Act to help school districts purchase cleaner buses, so I could see this being something the Administration moves forward with quickly next year.

Carbon Capture, Use & Storage

Matt Bright, @MattBBright

It's really good news for climate that the House and Senate value RD&D for carbon capture, use and storage (CCUS) in their FY2021 appropriations bills. Most importantly, both bills focus their attention on CCUS technologies that have not historically received the attention they deserve, and ones that will be critical for decarbonizing certain sectors of the U.S. economy.

For example, without CCUS, it's going to be nearly impossible to decarbonize our heavy industrial sector by midcentury. This might be why both the House and Senate direct the Office of Fossil Energy (FE) to double its spending for "research and optimization of carbon capture technologies for use at industrial facilities." And both chambers included $15 million in funding for new front-end engineering and design (FEED) studies to advance commercial CCUS projects, requiring at least two studies be in the industrial sector.

Likewise, natural gas-fired power plants produce the largest percentage of U.S. electricity, and many are likely to continue running for years to come--yet there are no operational CCUS facilities on natural gas-fired power plants to cut their emissions. That's why I was glad to see both chambers increase the FY21 funding for CCUS R&D on natural gas power systems to $10 million. Otherwise, the Senate largely kept funding for various CCUS innovation efforts flat, which is actually pretty good considering tight budget caps for FY21.

One area where the federal government could be more aggressive is in supporting the commercial demonstration of CCUS projects. Helping various applications of CCUS get a foothold in the market would galvanize the entire industry into action and vastly increase our odds of decarbonizing by midcentury. The House E&W bill proposed billions of dollars in demonstration funding as part of an emergency stimulus proposal, which would be massively helpful. Even without these emergency funds, though, the House's core bill still gave noteworthy increases over FY20 to carbon capture, carbon use, and underground storage activities.

I can't overstate how important a broad array of CCUS technologies are for climate goals, or the benefits they can provide for U.S. job growth and competitiveness. President-elect Joe Biden made CCUS a priority in his climate, energy, and economic plans on the campaign trail,

and will surely continue to advocate for these technologies from the White House. It's good to

see that he'll have bipartisan support from appropriators to keep CCUS technologies moving forward in FY21.

Advanced Nuclear

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I'm excited to see the House and Senate appropriations bills continue to illustrate robust bipartisan support for developing and deploying advanced nuclear energy. Both bills increase funding for the Advanced Reactor Demonstration Program (ARDP), an incredibly important effort that will help get safe and affordable reactors built in this decade. In addition to giving us a powerful new tool to help meet emissions goals, commercializing advanced nuclear technology would give the United States an opportunity to regain its leadership in the global nuclear energy market, which would be a major win in terms of economic growth and domestic job creation.

The country that leads in this field will also define the safety, security, and nonproliferation values that are exported along with this technology. For the first time, both the House and Senate bills direct the National Nuclear Security Administration (NNSA) to cooperate with the Office of Nuclear Energy and the Nuclear Regulatory Commission on applications of nuclear security, safeguards, and export controls for advanced nuclear reactor designs. With this directive (and at least $5 million to support it), NNSA's Defense Nuclear Nonproliferation office finally has the mandate to pursue strategic collaborations across the departments and agencies working to bring carbon-free advanced nuclear energy to market. It may not be a ton of money, but it's a very big deal.

Advanced Research Projects Agency-Energy (ARPA-E)

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House and Senate appropriators are rightly recommending a plus-up to ARPA-E, which funds promising early-stage energy technologies through a competitive selection process. The House is seeking a $10 million boost to the $425 million Congress enacted for the agency last fiscal year; the Senate wants a smaller $5 million bump. Both chambers explicitly want ARPA-E to disburse its funds within a reasonable length of time, which seems...reasonable.

Across its many programs, ARPA-E has supported innovations which, for example, aim to

reduce buildings' energy needs; generate power from hybrid natural gas and fuel cell systems; create safe, lower-cost advanced nuclear reactors; and develop long-lasting energy storage systems.

We're glad to see continued bipartisan support for ARPA-E, particularly as news continues to circulate that the Biden transition team is actively considering Arun Majumdar for Energy secretary. Majumdar was ARPA-E's founding director, knows the program intimately, and clearly understands the urgent need for breakthrough technologies to fight climate change.

Renewable Energy & Grid Integration

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There is encouraging news for renewable power sources in the Senate draft on several fronts. The first is innovation. Promising solar, wind, hydro and geothermal technologies received big carve-outs. The draft includes:

- $20 million for perovskites, a type of material that would reduce production costs and increase the efficiency of solar panels.
- $68.2 million for offshore wind, which is slated to play a major role in deep decarbonization due to its high capacity factor and scalability.
- $64 million for Enhanced Geothermal Systems (EGS). EGS, unlike conventional geothermal energy, is less constrained by geological conditions and could expand geothermal energy to most of the country.
- $109 million for marine and hydrokinetic energy, which could achieve substantial new clean energy capacity with lower local environmental consequences compared to conventional hydropower, and with more predictable generation patterns than wind and solar energy.

Another aspect that we're thrilled about is the focus on extending community solar access to low-income areas. Expanding solar to low income communities has local equity benefits by providing quality jobs and cleaner air which is a priority for the President-elect. The Senate bill continues the National Community Solar Partnership Program, which brings together community solar stakeholders to expand access to affordable solar to every American household by 2025. It also directs DOE to provide technical assistance to state, local, tribal

governments for developing community solar business models, and to develop programs that

support a skilled, robust, and diverse solar energy workforce.

At first glance, the lower funding allocated to solar energy might suggest the Senate was deprioritizing solar energy innovation. But a closer look shows the Senate added $40 million to facilitate the oversight of grid integration activities across multiple renewable technologies including Solar, Wind, Water and Geothermal. Rather than cutting funding, the Senate has reallocated funds to a more comprehensive program. As a growing percentage of our energy comes from flexible, renewable resources we must look at the challenges associated with integration while maintaining resilience and reliability of the distribution system. We are very excited to see the Senate direct DOE to dig into this challenge and provide technical assistance and solutions for the clean energy transition.