THIRD WAY

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Adding it Up: Groundbreaking Federal Investments into Clean Energy Innovation

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Takeaways

- In the last year, three pieces of legislation have become law (or are poised to soon) that advance clean energy programs and provide funding to get the job done
- Total clean energy funding contained in these bills is a whopping $450 billion, with additional provisions that enable further clean energy funding
- But the things that are *not* funded are just as important as the things that are, and clean energy leaders need to continue advocating for investments in these important provisions

Historic Successes, Historic Opportunities

With a trio of laws, Democrats have mobilized the federal government to accelerate clean energy innovation and deployment and push us towards our goals for economic growth and emissions reductions. The CHIPS and Science Act, the Infrastructure Investment and Jobs Act, and the Inflation Reduction Act enable and fund the federal government to discover, develop, and deploy new clean energy technologies. But realizing the full benefit of these policies and directives will require Congress to continue to invest in American innovation by funding both new and successful ongoing programs. Understanding which provisions in these three bills are already funded, which need continued and increased funding, and which have not yet been funded reveals the next areas of focus for advocates and leaders working to create and deploy clean energy technologies.

Three Laws, Three Purposes

Since November 2021, three pieces of legislation have helped shape the federal clean energy landscape. These new laws each serve a unique purpose: each creates or funds programs and activities that impact a different stage of technology development, but work together to shape federal clean energy innovation efforts. Collectively, these bills help move clean energy innovations from the lab to the street making it easier to bring emerging technologies online.

The CHIPS and Science Act

In August 2022, the CHIPS and Science Act (formerly known as the US Innovation and Competitiveness Act and the America COMPETES Act of 2021) was signed into law. This suite of bills has been through the wringer. What began as a set of provisions for technology development activities at the National Science Foundation (NSF) then became a competitiveness bill that bolstered U.S. supply chains in semiconductors and other key technologies, ultimately entering an arduous negotiation to produce the final bill.

The law provides $52 billion in funding for U.S. semiconductor R&D and manufacturing. It also creates a number of new programs across the federal government to strengthen supply chains and the entire U.S. scientific enterprise, including for clean energy R&D–but importantly, it *does not fund those efforts*.

The bill's bipartisan provisions include a host of science and clean energy policy directives. This includes guidance for NSF to focus on technology development in climate and clean energy research, for the Department of Energy (DOE) to collaborate with NSF on these technology development efforts, for DOE to create a foundation to further finance clean energy projects, and for numerous parts of DOE to catalyze their technology development activities. These new authorities are a fantastically important part of the innovation continuum, accelerating research, development, and demonstration of new clean energy technologies. However, it bears repeating:

these programs now formally exist because the bill has been signed into law, *but they will not have funding to carry out their mission unless Congress passes additional legislation to provide it*.

The Infrastructure Investment and Jobs Act

In November 2021, President Biden signed the Infrastructure Investment and Jobs Act (IIJA) into law. Among its many provisions, the bill included over $77 billion in spending for clean energy, transportation, and fueling and charging infrastructure. The key word here is spending (or, "investment," as in the bill title); this bill actually results in the U.S. Treasury releasing funds to the rest of the federal government to carry out these activities, including programs to prove the commercial viability of clean energy technologies, engage in basic research and development (R&D) of new technologies, and deploy a network of electric vehicle charging infrastructure, among other things.

The activities in this bill sit in a key part of the innovation continuum. Where the CHIPS and Science Act creates frameworks for research and development into emerging technologies, IIJA instead looks largely at later-stage technologies that have made it out of our universities, research institutions, and National Labs but aren't yet ready for widespread deployment. To be clear, IIJA does spend big on some R&D efforts and deployment of energy technologies and grid infrastructure. All of its investments into clean energy innovation, from R&D to demonstration and deployment, are key to achieving our net-zero emissions goals and rapidly scaling up the technologies we need to get there.

The Inflation Reduction Act

Finally, the President recently signed a major piece of climate legislation into law: the Inflation Reduction Act (IRA). This is a budget reconciliation bill, meaning every provision *must* have budgetary impact—spending, tax credits, tax revenue, or debt-related provisions. In other words, it is almost entirely money being spent or collected. The estimated spending from the clean energy provisions, including tax credits and appropriations, is around $370 billion based on Congressional Budget Office cost estimates. These spending provisions are intended for actually building and operating clean energy infrastructure: this means building manufacturing plants, installing new energy assets, and producing clean energy.

This is the final stage of the innovation continuum - actually deploying, at market scale, the clean energy technologies that have been in development for years, and understanding how they operate in the real world, in real time. These tax credits and financing programs, of course, apply to a broad range of clean energy infrastructure, some of has achieved widespread market viability, so they're not *exclusively* innovative. But as new technologies move through the continuum and mature, they too can take advantage of many of these tools. And these incentives dovetail wonderfully with existing programs and funding sources: the IRA's clean energy investment and production tax

credits can be applied to technology demonstrations that IIJA supports, further supporting clean energy businesses seeking to prove their technology works at market scale.

Follow the Money

The bigger picture here is that each of these clean energy bills supports a particular aspect of our clean energy innovation continuum: basic science and discovery, scale-up of emerging technologies, and deployment, deployment, deployment. To ensure the success and longevity of these efforts to continuously develop new technologies here at home, this is what needs to happen:

1. **Congress should fund the science (and energy!) parts of the CHIPS and Science Act**. We may have missed the boat on getting funding for these provisions in the fiscal year 2023 (FY23) funding legislation, which has already been drafted by both House and Senate appropriators. However, now is the time to start advocating for investments in these science and technology provisions in the FY24 funding legislation.

2. **Congress should maintain robust baseline funding for key innovation programs created by the Energy Act of 2020 and funded by IIJA**. IIJA makes a generational investment in clean energy innovation. Letting these programs go over the fiscal cliff in FY27 would be disastrous to our efforts to create, scale up, and commercialize more clean energy technologies.

3. **We must rethink how we invest in clean energy innovation**. The United States is lagging behind world leaders in clean energy innovation. This could be the case for many reasons–the Budget Control Act of 2011, discretionary spending caps, outsourcing by U.S. companies, and more. Other nations are not afraid of public investment in high-risk, high-reward research, development, and demonstration. We should not be either. Now is the time to put the pedal to the metal (of the electric vehicle, of course) and invest in clean energy innovation and prove that the U.S. can be a competitive force in developing new technologies.

Clean energy leaders, advocates, and stakeholders must rally around these goals to galvanize Congress to invest in new innovation efforts and sustain funding for our existing innovation programs. Funding the provisions in the CHIPS and Science Act and continuing to support IIJA and IRA programs and incentives will advance the U.S. scientific enterprise and accelerate our efforts to be a world leader in clean energy innovation.

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