CLEARPATH

Energy Provisions of Infrastructure Investment and Jobs Act Have Huge Value

The bipartisan infrastructure bill recently passed by the Senate contains significant investments in research, development, and demonstration of clean energy and climate technology. These include $27 billion for grid infrastructure and $21.5 billion for a new office of clean energy demonstrations, which will lead to demonstrations of advanced clean energy technologies. It also includes $10.5 billion for hydrogen and direct air capture regional hubs to advance those technologies, and $6 billion to support the existing civil nuclear fleet. The combined impact of just the demos, orphan wells, wildfires, civil nuclear, and transmission policies alone would likely reduce emissions by a total of 160 million metric tons of CO_2e per year over the next five years, equivalent to all greenhouse gas emissions from aviation and rail in the United States.

Benefits of Clean Energy Research and Demonstration

The infrastructure bill includes funding for a wide variety of demonstrations, and even this subset could be helpful. Resources for the Future (RFF) considered the long-term impact of investments in five advanced energy technologies in the infrastructure bill, including advanced nuclear, energy storage, geothermal, carbon capture, and direct air capture. They found:

- Funding levels envisioned in the Energy Act of 2020 and funded in the infrastructure bill could lead to **average societal benefits of $30 - $40 billion per technology through 2050** due to reductions in both cost and emissions.[1]
- Abated carbon emissions from the four power sector technologies would represent **30 million metric tons of CO_2 annually.** If that lasted 20 years, that would be **a total of 629 million metric tons of CO_2 avoided.**[2]

Separately, a study led by Clean Air Task Force (CATF) and Third Way found significant job creation and economic benefits from the demonstration projects funded in the infrastructure bill:[3]

Policies	Avg. Annual Jobs Added	Avg. Annual GDP Increase ($M)
Energy Storage Demonstrations ($1B/5yrs)	1,390	201.3
Enhanced Geothermal Demonstrations and Drilling Technology Laboratory ($190M/5yrs)	278	40
Carbon Capture R&D and FEED Studies ($2B/5yrs)	3,408	467.4
Carbon Capture Demo Projects ($7.5B/5yrs)	23,771	3,200
Advanced Nuclear Demonstrations ($6.2B/7yrs for ARDP, $480M/6yrs for NRIC, $4.5B/5yrs for VTR)	14,825	1,900

[1] RFF. The Value of Advanced Energy Funding: Projected Effects of Proposed US Funding for Advanced Energy Technologies
[2] RFF. Advanced Clean Energy Infrastructure: Effects of the Draft Energy Infrastructure Act
[3] Clean Air Task Force and Third Way. How to Create over 1 Million Jobs While Advancing Climate Goals.

Benefits of Civil Nuclear Credit Program

Without additional support for its clean energy production, nearly half of the existing nuclear reactor fleet could retire over the next two decades. To avoid this, the infrastructure bill also includes $1.2 billion in annual funding through 2025 for a program to support struggling reactors in the existing nuclear fleet. RFF also examined the civil nuclear credit program, finding that:

- Depending on structure, this funding could prevent the closure of **26 to 37 Gigawatts of nuclear capacity (29 - 40 percent of the U.S. fleet)**.[4]
- Avoided closures would lead to an **annual abatement of 86 to 116 million metric tons of CO_2**.

As each gigawatt of nuclear capacity employs approximately 600 people, this represents the continued direct employment of **over 20,000 people** alongside indirect employment in sectors such as manufacturing and construction.[5]

Benefits of CO2 Transport and Storage Investments

The infrastructure bill includes significant investments in carbon dioxide transportation and storage infrastructure necessary to kickstart a U.S. carbon capture industry. The bill includes **$2.1 billion for low-interest loans and grants for transport infrastructure projects**. It also includes **$2.5 billion to expand the Department of Energy's carbon sequestration program** to include large-scale commercialization of sequestration projects and associated transport infrastructure. This level of investment is on the order of magnitude needed to spur a potential **$50 billion CCUS investment over the next five years**.[6]

In addition to the benefit of being able to invest heavily in the carbon capture technologies themselves, the construction and operation of CO_2 transportation and storage also has significant economic benefits. The CATF/Third Way study found that these investments would result in the following benefits:

Policies	Avg. Annual Jobs Added	Avg. Annual GDP Increase ($M)
Jumpstart the Construction of CO2 Transport Infrastructure ($2.1B/5yr)	18,831	3,600
Geologic Storage of CO2 ($2.5B/5yr)	6,965	1,000

[4] Resources for the Future. Advanced Clean Energy Infrastructure: Effects of the Draft Energy Infrastructure Act

[5] Nuclear Energy Agency and International Atomic Energy Agency. Measuring Employment Generated by the Nuclear Power Sector

[6] National Petroleum Council. Meeting the Dual Challenge: Appendix D: Economic Impacts Of Ccus Deployment