Turbocharged:
Supersized Subsidies for Carbon Capture & Hydrogen are a Giveaway to the Fossil Fuel Industry

Recently enacted laws in the United States turbocharge public subsidies for carbon capture utilization and storage (CCUS), direct air capture (DAC), and fossil hydrogen – which utilizes carbon capture in the production process. Fossil fuel companies are the primary users and proponents of these technologies, and stand to benefit most from the massive handouts. The same legislation also provides support for fossil fuel leasing on federal lands – opening the door to more drilling precisely at a time when the world needs to be halting oil and gas expansion, and rapidly transitioning to a fossil-free future. This fact sheet summarizes the impact of the changes that have been introduced or that will take effect in the coming months, illustrating just how big of a giveaway they are for fossil fuel companies.

Infrastructure Investment and Jobs Act (IIJA) of 2021

The IIJA authorized over $17 billion for Department of Energy pilot programs related to CCS, DAC, and hydrogen.

> ***Subsidies for DAC**:* Appropriated $3.5 billion for four regional Direct Air Capture hubs for FY2022-2026 (Sec. 40308(a)): "DOE is allocated $3.5 billion to lead the development of four regional DAC hubs. These hubs, which will each have the capacity to capture and store and/or utilize one million metric tons of CO2 per year, will be networks of DAC projects, potential CO2 off-takers, transportation infrastructure and storage infrastructure." [U.S. Dep't of Energy, Fossil Energy and Carbon Management (FECM) Factsheet]
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> ***Subsidies for CCS and Hydrogen:*** Appropriated $3.5 billion for carbon capture demonstrations and large pilots (Sec. 41004), and $8 billion for four regional "clean" hydrogen hubs (Sec. 40314): "The newly established [Department of Energy] Office of Clean Energy Demonstrations is allocated $3.5 billion for carbon capture demonstrations and large pilots and $8 billion for hydrogen hubs, including at least one utilizing fossil fuels with carbon Management." [FECM Factsheet]
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> Additional appropriations provide DOE with funds to finance carbon dioxide transportation infrastructure (Sec. 40304), including $2.1 billion to "the Carbon Dioxide Transportation Infrastructure Finance and Innovation Program Account" for CO2 transportation. [FECM Factsheet]

Inflation Reduction Act (IRA) of 2022

The following table summarizes changes to the 45Q tax credit (26 U.S.C. § 45Q), the main public subsidy for carbon capture in the United States to date, which provides a dollar value tax credit per ton of carbon dioxide captured and utilized or sequestered. These changes, provided for in Sec. 13104 of the IRA, extend and modify the credit for carbon oxide sequestration.

Legal Feature	**Before Ira**	**After Ira**
Sequestration credit for storage *IRA section 13104(b)(1)(A), (2)(A);* *26 U.S.C. § 45Q (b)(1)(A)(i)(I), (ii)(I)*	$50/ton	$85/ton
Sequestration credit for Enhanced Oil Recovery (EOR) *IRA section 13104(b)(1)(B), (2)(B);* *26 U.S.C. § 45Q (b)(1)(A)(i)(II), (ii)(II)*	$35/ton	$60/ton
DAC credit for storage *IRA section 13104(c)(1)(B);* *26 U.S.C. § 45Q (b)(1)(B)(i)*	$50/ton	$180/ton
DAC credit for EOR *IRA section 13104(c)(1)(B);* *26 U.S.C. § 45Q (b)(1)(B)(ii)*	$35/ton	$130/ton
Capture requirement (power/DAC/other) *IRA section 13104(a)(1);* *26 U.S.C. §45Q (d)(2)(A)/(B)/(C)*	500,000 / 100,000 / 25,000	18,750 / 1,000 / 12,500
Direct pay? *IRA section 13801(a)* *26 U.S.C. § 6417(a), (b)(3), (d)(1)(C)*	No	Yes
Project construction must begin *IRA 13104(a)(1);* *26 U.S.C. §45Q (d)(1)*	2026	2033

Note: The face values for the increased 45Q tax credits are smaller than those listed in the chart. However, the provisions were changed to include prevailing wage and apprenticeship requirements (IRA Sec. 13104(d); 26 U.S.C. § 45Q(h), (h)(1)), which, if satisfied, provide a five-times multiplier for the applicable credits. The table reflects the maximum available credits if the multiplier applies.

The IRA also includes a new provision allowing for the transfer of credits under 45Q. See IRA Sec. 13801(b); Chapter 65, Subchapter B, Sec. 6418(a), (f)(1)(a)(iii)

Other CCS, DAC, and/or hydrogen-related subsidy provisions in the IRA include:

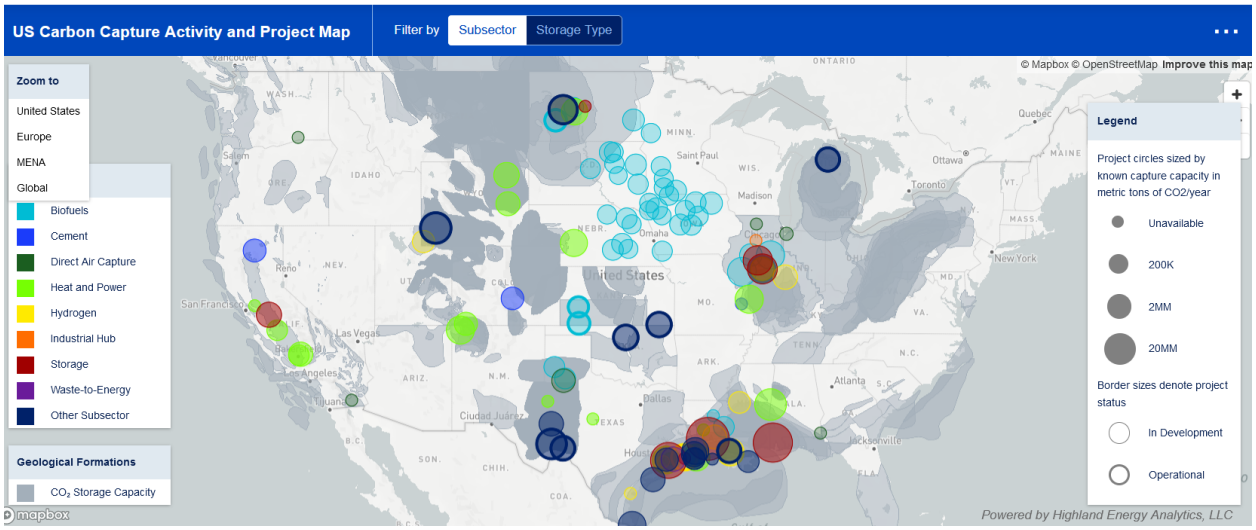
Clean Hydrogen Tax Credit (CHTC), Section 13204

Provides a credit per kilogram of hydrogen produced, the value of which is a percentage of $0.60/kilogram, with the percentage depending on the per kilogram lifecycle greenhouse gas emissions of the hydrogen. For hydrogen that has a lifecycle GHG emissions of between 2.5 and 4 kgCO2e/kgH2, the credit is 20% of $0.60. For hydrogen that is between 1.5 and 2.5 kgCO2e/kgH2, it's 25%. For hydrogen between 0.45 and 1.5 kg CO2E/kgH it's 33.4% and for "qualified clean hydrogen" with a lifecycle greenhouse gas emissions rate of less than 0.45kgCO2e/kgH2, it's 100% or $0.60/kilogram. Thus the subsidy is greater for green hydrogen – that produced from water using renewable energy – but it still provides a significant subsidy for fossil hydrogen production (e.g. "blue hydrogen" - hydrogen produced from steam reforming methane plus carbon capture and storage).

Like the 45Q credit for CCS, direct pay was also enabled for the CHTC (see IRA Sec. 13801(a); Chapter 65, Subchapter B, Sec. 6417(a), (b)(5), (d)(1)(B)), as was transferability of the credit (see IRA Sec. 13801(b); Chapter 65, Subchapter B, Sec. 6418(a), (f)(1)(a)(v)).

Up to $250 billion in loan guarantee commitments through September 30, 2026 for projects, including CCS, Sections 50141, 50144, and 50145

Increase Department of Energy loan guarantee commitment authority to include $250 billion for financing for energy infrastructure reinvestment projects including projects that "(1) retool, repower, repurpose, or replace energy infrastructure that has ceased operations; or "(2) enable operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or anthropogenic emissions of greenhouse gases."



Source: Clean Air Task Force: https://www.catf.us/ccsmapus/

Fossil Fuel Lease Giveaways

In addition to financial subsidization, the Inflation Reduction Act also provides significant regulatory support for fossil fuels leasing. It does this by mandating federal leases receive extensions, explicitly requiring the Department of Interior to proceed with four specific lease sales, and linking federal leases for renewable energy development to leases for oil and gas production. This latter provision is among the most concerning, as it makes renewable investment contingent on continued fossil fuel expansion. The path to renewables should not run through an oil and gas field.

Requiring the continuation of lease terms, Section 50262(C)

Amends the Mineral Leasing Act to require mandatory lease extensions on federal lands where oil and gas drilling has occurred, so long as “oil or gas is produced in paying quantities.” While the impact of the provision remains to be seen, it could open a door to enhanced oil recovery (EOR)--the injection of CO2 into depleted oil wells to pump out more oil—for which 45Q credit is available.

Mandating lease sales under the 2017-2022 Outer Continental Shelf Leasing Program, Section 50264

Sec 50264(b) reinstates offshore lease sale 257 in the Gulf of Mexico. This lease sale – the largest offshore oil and gas lease sale in US history – is currently under judicial review. A federal judge vacated the lease sale following litigation brought by EarthJustice et al (*Friends of the Earth v. Haaland*, No. 21-2317, 2022 U.S. Dist. LEXIS 15172 (D.D.C. Jan. 27, 2022)) but that decision is on appeal (Case No. 22-5067, D.C. Cir.). Sec 50264(c)-(e) further requires three additional lease sales in the Gulf of Mexico (lease sales 258, 259, and 261).

Linking renewables on federal land and waters to oil and gas leases, Section 50265

This section prevents the Secretary of the Interior from issuing a right-of-way for onshore wind or solar projects on federal land unless "(A) an onshore [oil and gas] lease sale has been held during the 120-day period ending on the date of the issuance of the right-of-way for wind or solar energy development, and (B) the sum total of acres offered for lease in onshore [oil and gas] lease sales during the 1-year period ending on the date of the issuance of the right-of-way for wind or solar energy development is not less than the lesser of— (i) 2,000,000 acres; and (ii) 50 percent of the acreage for which expressions of interest have been submitted for lease sales during that period." Sec. 50265(b)(1). In other words, permitting of and support for renewable energy projects on federal lands are held hostage to oil and gas leasing.

Similarly, this section prevents issuing leases for offshore wind development unless "(A) an offshore lease sale has been held during the 1-year period ending on the date of the issuance of the lease for offshore wind development; and (B) the sum total of acres offered for lease in offshore lease sales during the 1-year period ending on the date of the issuance of the lease for offshore wind development is not less than 60,000,000 acres." Sec. 50265(b)(2)

Conclusion

We cannot win the fight against climate change without getting off of fossil fuels. These legislative provisions undermine the prospects of doing so.

CCS and hydrogen – 99% of which is made from fossil fuel – are loophole technologies that allow continued reliance on and expansion of fossil fuels, especially gas. They extend the operation of polluting facilities, propping up demand for fossil fuels, and locking in dependence on gas and coal. What's more, ample evidence demonstrates that CCUS is unnecessary, unproven at scale, and unjust for frontline and fenceline communities, while producing "blue hydrogen"–made from fossil gas with CCUS–is worse than just burning fossil fuel directly.

The Intergovernmental Panel on Climate Change (IPCC) has shown that CCUS is one of the *highest cost* measures with the *lowest potential* to reduce emissions by 2030—the most important period for curbing greenhouse gasses to prevent catastrophic warming. It will almost always be more efficient and effective to replace fossil fuels with renewables, which provide the cheapest source of energy in the majority of the world today, than tacking carbon capture onto already-expensive, polluting fossil fuel facilities. Despite more than fifty years of industry experience with the technology, and billions of dollars in public funds, CCUS projects have repeatedly failed to deliver the emissions reductions promised by their promoters and included in models and still lack the capacity to capture even 1% of global emissions.

No amount of investment in CCUS or blue hydrogen can accelerate the needed transition to a fossil-free future. Neither technology should receive public funding or support. Just like mandating oil and gas lease sales and making renewable projects contingent on oil and gas

lease sales, subsidies for CCUS and blue hydrogen are giveaways to the fossil fuel industry that divert critical resources from proven climate solutions, and put people and the planet at risk.