Bioenergy with carbon capture and storage (BECCS) involves capturing carbon dioxide in plants, turning it into energy or fuel, and storing subsequent carbon emissions in geologic formations or carbontech products.

BECCS is projected to be able to remove 3.5–5.2 gigatons of CO₂ annually by 2050 at costs between $20–$288 per ton of CO₂ removed — costlier than forestry and soil carbon sequestration but cheaper than direct air capture.

BECCS Technology
Current Policy Support

Policy support for BECCS has so far been piecemeal and indirect. The US Department of Agriculture and Department of Energy are currently involved in BECCS through biofuel and bioenergy industry financial assistance programs (such as the Renewable Energy Assistance Program) and R&D funding. Existing federal policies and programs (such as the Renewable Fuel Standard) are designed for the production of biofuels from biomass and offer no direct incentive for atmospheric CO₂ removal. Next-generation policies like the low-carbon fuel standard (LCFS) currently implemented in California and Oregon are growing in popularity across states. LCFS programs incentivize innovative fuel production processes like BECCS through a market-based, carbon emissions reduction credit system. Section 45Q of the US tax code also supports BECCS by providing a $35–$50 tax credit per ton of CO₂ stored geologically or in carbontech products.

The Clean Electricity Standard included in H.R. 1512, the CLEAN Future Act, sets a 100% clean electricity target by 2035 and creates a zero-emission electricity generation credit system which would allow BECCS to become more cost competitive with renewables. Introduced in the Senate, S. 622, the American Jobs in Energy Manufacturing Act of 2021, would provide a manufacturing tax credit that would cover carbon capture facility investments, an incentive for biorefineries to become BECCS plants.

Additional policy support is needed to develop innovative feedstock production pathways, increase demonstration and deployment projects, nationalize LCFS, and establish sustainability standards that safeguard from possible risks.