Growth Energy™
Expanding America's Bioeconomy

March 17, 2025

<u>Via Regulations.gov</u>

William Hohenstein
Director of the Office of Energy and Environmental Policy
U.S. Department of Agriculture
1400 Independence Avenue SW
Washington, DC 20250

RE: Interim Rule: Technical Guidelines for Climate-Smart Agriculture Crops Used as Biofuel Feedstocks (Docket No. USDA-2024-0003)

Dear Mr. Hohenstein,

Thank you for the opportunity to provide comments on the USDA's interim rule, Technical Guidelines for Climate-Smart Agriculture Crops Used as Biofuel Feedstocks (Interim Rule). Growth Energy is expanding the bioeconomy and is the nation's largest association of biofuel producers, representing 97 U.S. plants that each year produce 9.5 billion gallons of low-carbon, renewable fuel and purchase more than 3 billion bushels of grain; 130 businesses associated with the production process; and tens of thousands of biofuel supporters around the country. Our members make low-carbon fuels, high-protein animal feed, and they supply plant-based ingredients for everything from bioplastics to safer cleaning products.

Climate smart agriculture (CSA) is a key component of ensuring that American-made biofuels like bioethanol continue to be competitive here in the United States and abroad. Among the best estimates of bioethanol's GHG lifecycle impacts, agriculture represents more than 50 percent of bioethanol's carbon intensity (CI).

The Interim Rules provides farmers and biofuels producers with well recognized means to harness the economic benefits of some agricultural practices, including cover crops, reduced tillage, and crop nutrient management, that reduce GHG emissions. In addition, the Interim Rule rightly incorporates the best model for measuring the benefits of those practices. The Argonne GREET model's Methodology for Calculating Carbon Intensities used in USDA Feedstock Carbon Intensity Calculator (USDA FD-CIC) is a readily accessible mechanism to accurately reflect the reduced CI of biofuels using agricultural feedstock that incorporate CSA practices.

USDA notes, however, that the Interim Rule establishes only voluntary technical guidelines for the quantification, recordkeeping, and reporting of certain CSA practices and that the guidelines are not yet tied to any existing policies or regulations governing clean transportation fuel. In other words, the Interim Rule provides a framework for recognition of CSA practices, but it does not yet provide an incentive for anyone to engage in those practices.

The best place to incorporate these guidelines – and to incentivize the CSA practices they recognize – is in Section 45Z of the Internal Revenue code. Although Section 45Z provides an incentive for reduced CI transportation fuel, it completely neglects the important role of CSA practices – and farmers – in reducing CI. In doing so it suppresses farmer interest in engaging in those practices and makes it more difficult for biofuel producers to take advantage of the Section 45Z incentive.

To be sure, the Treasury Department is well aware of the value of CSA practices. It recognized three of them in guidance it published regarding the Section 40B SAF incentive. USDA acknowledges criticisms of the Section 40B "bundling" requirement for CSA practices as unworkable, and we are glad to see that the Interim Rule imposes no such requirement on the CSA practices it recognizes. As Growth Energy noted in our October 15, 2024, letter to Treasury, a copy of which is attached, such flexibility should be incorporated into any incentive program, such as Section 45Z, to allow farmers and biofuels producers the maximum opportunity and incentive to implement CSA practices.

We urge USDA to continue to expand the technical guidelines to recognize a broader collection of CSA practices than those included in the Interim Rule. As we stated in our July 25, 2024, response to USDA's Request for Information on Procedures for Quantification, Reporting and Verification of Greenhouse Gas Emission Associated with the Production of Domestic Agricultural Commodities used as Biofuel Feedstocks (RFI), a copy of which is attached, USDA already has an expansive list of CSA practices through the Natural Resources Conservation Service (NRCS) that USDA should continue to consider recognizing in the technical guidelines established by the Interim Rule.

As we noted in our response to the RFI, the CI reduction potential of many of those practices, such as manure application and use of green ammonia, can already be quantified using FD-CIC. To the extent there is not a value in GREET and FD-CIC for an existing or emerging practice, USDA should work with Argonne National Laboratory and the Department of Energy to establish a value moving forward. Additionally, for emerging practices and to avoid any undue delays, USDA should establish an efficient mechanism for growers and bioethanol producers to receive a provisional GHG reduction value if such a value can be quantified appropriately.

In addition, as we also noted in our response to the RFI, either a mass-balance or book-and-claim approach could be used to track sustainability attributes and commodity embedded CI values. Because functional characteristics of the crop do not change with the method of production, there is no need for identity preservation or further segregation. Given varying supply chain and logistics approaches across the bioethanol industry, those choosing to use a mass-balance approach should be able to do so across an entire enterprise including operators of multiple biorefineries.

Workable traceability requirements should allow verification of CSA contracts to be passed through intermediaries, such as feedstock providers and biofuel producers, without requiring a direct contract between farmers and the final fuel processor. Longer term, a book and claim system could be established that would allow the value to be detached from the crop and potentially monetized by the grower. This system could operate similarly to other markets such as renewable energy certificates (REC).

* * * *

Overall, the Interim Rule is a positive step toward recognizing the hard work of America's farmers to increasing the efficiency of their operations in a competitive global marketplace. We appreciate USDA's efforts to create a workable framework for farmers and biofuels users to quantify, record, and verify recognized CSA practices. Thank you for your consideration.

Sincerely,

Chris Bliley
Senior Vice President of Regulatory Affairs
Growth Energy

Attachments

ATTACHMENT 1

Via Regulations.gov

William Hohenstein
Director of the Office of Energy and Environmental Policy
U.S. Department of Agriculture
1400 Independence Avenue SW
Washington, DC 20250

RE: Request for Information on Procedures for Quantification, Reporting, and Verification of Greenhouse Gas Emissions Associated With the Production of Domestic Agricultural Commodities Used as Biofuel Feedstocks (Docket No. USDA-2024-0003)

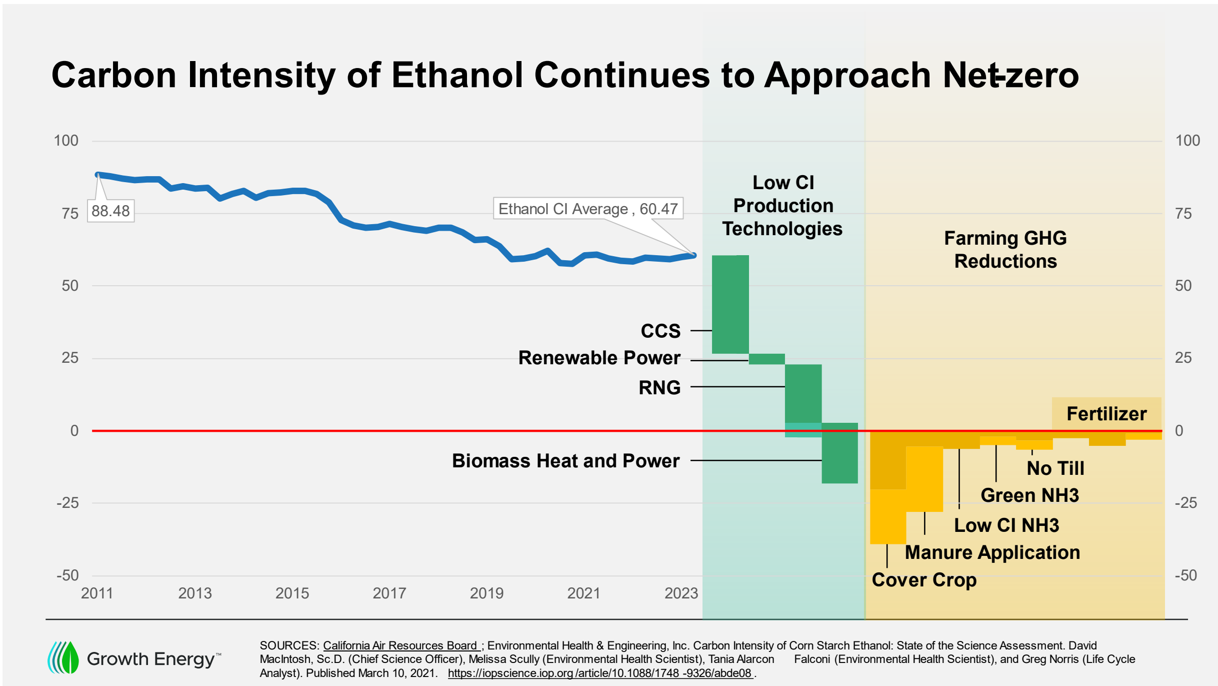
Dear Mr. Hohenstein,

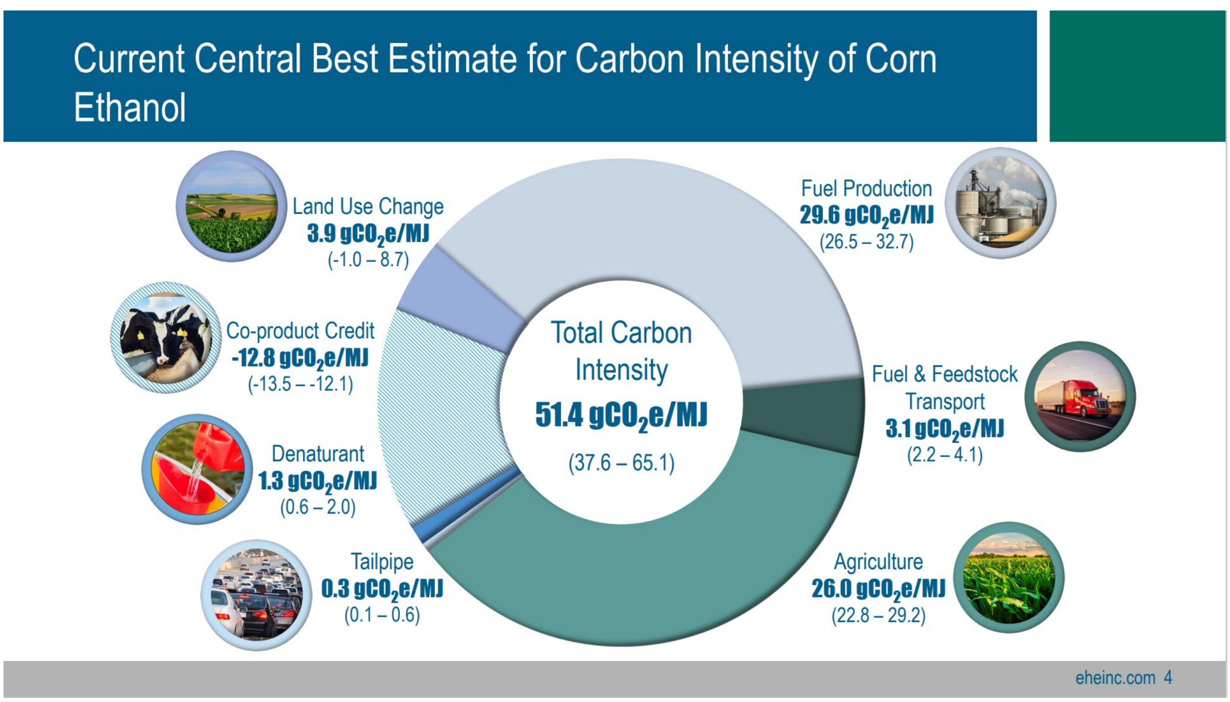
Thank you for the opportunity to respond to the most recent request for information (RFI) regarding Procedures for Quantification, Reporting, and Verification of Greenhouse Gas Emissions Associated with the Production of Domestic Agricultural Commodities Used as Biofuel Feedstocks. Growth Energy is expanding the bioeconomy and is the nation's largest association of biofuel producers, representing 97 U.S. plants that each year produce 9.5 billion gallons of low-carbon, renewable fuel and purchase more than 3 billion bushels of grain; 121 businesses associated with the production process; and tens of thousands of biofuel supporters around the country. Our members make low-carbon fuels, high-protein animal feed, and they supply plant-based ingredients for everything from bioplastics to safer cleaning products.

As we have noted in many other venues, U.S. leadership in global biofuels markets is vital to the decarbonization of, and future economic competitiveness in, on-road light-duty vehicles, aviation, marine shipping, off-road, and some industrial applications. Our members are focused on long-term solutions throughout the bioeconomy that would provide an opportunity for our low-carbon biofuels and other key coproducts to compete and help drive down greenhouse gas (GHG) emissions. As such, we are happy to be a resource for the Department as it seeks to quantify the important GHG reductions achievable at the farm for the production of biofuel feedstocks.

The U.S. biofuels industry continues to prove its ability to lower GHG emissions and deliver jobs and economic benefits to American workers and farmers. Extensive research from the Department's own Argonne National Laboratory through its Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies (GREET) model has shown that today's bioethanol provides a nearly 50 percent reduction compared to gasoline in lifecycle GHG emissions and can achieve net-zero emissions with readily available technologies such as CCUS, renewable power, renewable natural gas, combined heat and power, biomass to power including corn stover, and many other technologies.

While our biorefineries are focused on a range of innovative technologies to reduce carbon intensity at the plant, agriculture represents more than 50 percent of bioethanol's carbon intensity (CI) score. It is therefore essential to recognize the full range of climate-smart agriculture (CSA) innovation taking place on the farm – including farm applications such as cover crops, reduced tillage, manure application, crop nutrient management and other ag innovations – that can reduce the lifecycle carbon intensity (CI) score of bioethanol.





Use of the Argonne Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) Model with Granular Carbon Intensity Reductions

As you know, the U.S. Department of the Treasury is in the midst of implementing several key biofuel tax incentives, including the Clean Fuel Production Credit (45Z), the Credit for Carbon Oxide Utilization and Sequestration (45Q), and the Sustainable Aviation Fuel Blender's Credit (40B). These provisions are critical to our industry's capital-intensive investments to reduce GHG emissions and ultimately to the achievement of the administration's broad climate goals, including the SAF Grand Challenge, which aims to achieve net-zero aviation by 2050.

As we have articulated in multiple comments to Treasury (available here, here, here, and here), it is essential that the Argonne GREET model be used for any lifecycle emissions assessment as it is the best tool available for measuring biofuel lifecycle emissions. In fact, earlier this year, EPA highlighted that "the GREET model is well established, designed to adapt to evolving knowledge, and capable of including technological advances."[1] Also, implementation of these credits and related accounting for CSA must recognize granular CI reductions at the farm and at the plant. Any meaningful goals for the use of crop-based biofuels for decarbonization cannot be achieved without the use of the Argonne GREET model coupled with recognition of these reductions. It only follows that USDA should use the GREET model in its quantification of CSA practices in this venue. Further below, we outline some of the specifics relative to the use of GREET Feedstock Carbon Intensity Calculator (FD-CIC) for CSA practices.

Additionally, while tangential yet related to USDA's efforts here, it is essential that the Department of Treasury also use GREET moving forward for implementation of the Section 45Z Clean Fuel Production Credit. As part of that process, Treasury must be as expansive as possible when including innovative technologies in-use or in development for the production of bioethanol. Our previous comments have outlined major, but not all, CSA provisions and plant technologies, but USDA and Treasury should be far more expansive and allow bioethanol producers to utilize these technologies to reduce their carbon intensity. We will be working to advance this as part of the 45Z rulemaking process, but we include here for USDA's awareness as it will be impactful in its own process:

[1] *New Source Performance Standards for Greenhouse Gas Emissions From New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions From Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule*, 88 Fed. Reg. 33,240, 33,328 (May 23, 2023).

Non-SAF Plant/Feedstock Types

Corn Starch
- Nat Gas Dry Mill
- Coal Wet Mill
- Nat Gas Wet Mill

Corn Kernel Fiber
- Nat Gas Dry Mill
- Coal Wet Mill
- Nat Gas Wet Mill

Sorghum Starch
- Nat Gas Dry Mill

Sorghum Kernel Fiber
- Nat Gas Dry Mill

Proso Millet Starch
- Nat Gas Dry Mill

Proso Millet Kernel Fiber
- Nat Gas Dry Mill

Non-SAF Technologies List

CCS (Biogenic)
CCS (Non-biogenic)
Landfill RNG
Livestock RNG
Biomass Heat
Corn Stover to Process Heat
Combined Heat and Power (on -site)
Combined Heat and Power (over -the-fence)
Wet Distiller's Grains
Membrane Dehydration
Thermal Energy Storage
Power Energy Storage
Mechanical Vapor Recompression
Thermal Vapor Recompression
High-Yield Yeasts and Enzymes
Electrified Wastewater Boiler
Biomass Electricity
Wind Electricity
Solar Electricity
Nuclear Electricity
Hydro Electricity
Waste Electricity

****Bolded and italicized practices indicate those found in 40B****

7

SAF Plant/Feedstock Types

Corn Starch
- Nat Gas Dry Mill
- Coal Wet Mill
- Nat Gas Wet Mill

Corn Kernel Fiber
- Nat Gas Dry Mill
- Coal Wet Mill
- Nat Gas Wet Mill

Distiller's Corn Oil
- Nat Gas Dry Mill

Wet Mill Corn Oil
- Coal Wet Mill
- Nat Gas Wet Mill

Sorghum Starch
- Nat Gas Dry Mill

Sorghum Fiber
- Nat Gas Dry Mill

Distiller's Sorghum Oil
- Nat Gas Dry Mill

Proso Millet Starch
- Nat Gas Dry Mill

Proso Millet Kernel Fiber
- Nat Gas Dry Mill

SAF Technologies List (Feedstock Production)

CCS (Biogenic)
CCS (Non-biogenic)
Landfill RNG
Livestock RNG
Biomass Heat
Corn Stover to Process Heat
Combined Heat and Power (on -site)
Combined Heat and Power (over -the-fence)
Wet Distiller's Grains
Membrane Dehydration
Thermal Energy Storage
Power Energy Storage
Mechanical Vapor Recompression
Thermal Vapor Recompression
High-Yield Yeasts and Enzymes
Electrified Wastewater Boiler
Biomass Electricity
Wind Electricity
Solar Electricity
Nuclear Electricity
Hydro Electricity
Waste Electricity

****Bolded and italicized practices indicate those found in 40B****

8

Concerns with the 40B Climate-Smart Agriculture Pilot Program Requirements

As part of its implementation of the 40B Sustainable Aviation Fuel Credit, the Department of Treasury's guidance includes a new CSA Pilot Program that for the first time provides for quantification of GHG reductions from CSA practices in conjunction with a federal incentive. This guidance crosses an important threshold in carbon modeling, recognizing for the first time that farming techniques can reduce the CI of crops, and, by extension, bioethanol production. It is also the first time Treasury has used the Argonne National Laboratory's GREET model in federal tax policy. However, we have several notable concerns with the implementation of the 40B CSA Pilot Program. Most significantly, the pilot requires the "bundling" of cover crops, no-till, and enhanced efficiency nitrogen fertilizer together in order to get any GHG reduction credit for CSA practices for both corn and soybean acres. Using this restrictive all-or-nothing approach to recognizing the value of CSA practices will limit innovation and make farmers, blenders, and producers less – not more – likely to invest in emissions-reducing technologies. Numerous factors including local weather patterns, soil type and health, growing seasons, and equipment costs determine which CSA practices are feasible for a particular farm—and farmers should have the flexibility to implement the CSA practices that are most effective for their unique circumstances and allow producers the ability to maximize carbon reductions based on their specific farm. Just last week, the National Corn Growers Association (NCGA) along with the American Soybean Association (ASA) released an important analysis, "Qualifying Acres in the 40B Conservation Programs".[2] In their analysis for corn acres, the groups show that a maximum of 13.8M acres would qualify for the incentive based on the restriction while allowing for independent consideration would yield 400,000 more acres for cover crops and 56 million more acres for no-till. Their analysis goes further to show that, absent this restriction, nearly 70 percent of acres could potentially qualify while less than 20 percent would be eligible with the bundling requirement.

Moreover, the carbon intensity reduction of all three practices under the Pilot Program (10 gCO2e/MJ) substantially undervalues the GHG benefits of these practices when counted using the most recent data from the Argonne GREET analysis. It is unclear how the Pilot Program arrived at this estimate, but it is not supported by current science. Best available science using the GREET model instead indicates these practices together achieve two to three times greater GHG emissions reductions than established under the Pilot Program, depending on the region.

Moving forward, USDA and Treasury must be less prescriptive and more expansive—fully embracing the totality of innovations that can demonstrably reduce CI while also recognizing carbon reductions on a practice-by-practice basis.

Again, we appreciate the opportunity to comment on this important topic. Our responses to the questions outlined in the Request for Information (RFI) are as follows:

Qualifying Practices

(1) Which domestic biofuel feedstocks should USDA consider including in its analysis to quantify the GHG emissions associated with climate smart farming practices? USDA is considering corn, soybeans, sorghum, and spring canola as these are the dominant biofuel feedstock crops in the United States. USDA is also

[2] NCGA, ASA Release July 18, 2024, available at https://ncga.com/stay-informed/media/the-corn-economy/article/2024/07/qualifying-acres-in-the-40b-conservation-programs.

considering winter oilseed crops (brassica carinata, camelina, pennycress, and winter canola). Are there other potential biofuel feedstocks, including crops, crop residues and biomaterials, that USDA should analyze?

For bioethanol, the focus should be on corn and sorghum feedstocks, which should also include the kernel fiber, stover, wet mill corn, distillers corn oil, and sorghum oil. While these are the primary feedstocks used in our facilities, some bioprocessing facilities are exploring the use of proso millet, barley, and wheat as secondary feedstocks, which also include the starch, fiber, oil, and other relevant components that are converted into biofuel. Additionally, some facilities are planning to use corn stover as a feedstock for biomass-based power for bioethanol production. USDA should develop sustainability protocols for stover collection based on the best available research and existing state protocols as part of this potential rulemaking. All feedstocks should be considered in conjunction with all bioethanol biorefinery processes including both dry and wet mills, which will include a variety of process heat energy sources and electricity sources.

(2) Which farming practices should USDA consider including in its analysis to quantify the GHG emissions outcomes for biofuel feedstocks? Practices that can reduce the greenhouse gas emissions associated with specific feedstocks and/or increase soil carbon sequestration may include, but are not limited to: conservation tillage, no-till, planting of cover crops, incorporation of buffer strips, and nitrogen management (e.g., applying fertilizer in the right source, rate, place and time, including using enhanced efficiency fertilizers, biological fertilizers or amendments, or manure). Should practices (and crops) that reduce water consumption be considered, taking into account the energy needed to transport water for irrigation? Should the farming practices under consideration vary by feedstock and/or by location? If so, how and why?

USDA should be as expansive and as inclusive as possible when considering farming practices that may provide a GHG reduction for biofuel feedstocks. In our previous work, we focused on practices specified further below; however, we encourage the agency to think as broadly as possible, including about the future potential of these practices. As you know, the agency produces an expansive list of Climate Smart Practices through the Natural Resources Conservation Service (NRCS). For Fiscal Year 2024, that list may be found here: Climate-Smart Agriculture and Forestry Mitigation Activity List (usda.gov). Given federal, state, and global incentives for the production of low-carbon biofuels, farmers supplying bioethanol producers will only continue to seek out additional opportunities for GHG reductions moving forward. While not all of the practices outlined by NRCS are relevant for biofuel feedstock production, USDA should not unnecessarily limit its consideration of all possible CSA practices for production of biofuel feedstock crops.

Low-Carbon Agricultural Practices

- *Use of cover crops*. Use of cover crops improves soil health and enhances soil organic carbon (SOC) sequestration. By sequestering atmospheric carbon dioxide in the soil, such use of cover crops offsets other carbon dioxide emissions from feedstock production and lowers the lifecycle GHG emissions ethanol produced from corn feedstock grown using this method. USDA currently offers cover crop initiatives as part of its climate smart agriculture programs and has issued national conservation practice standards to define the practice.[3]

- *Effect of tillage*. Another method to enhance SOC sequestration is switching to no-till or reduced-till practices. Reduced disturbance of the soil supports greater sequestration of atmospheric carbon dioxide. USDA has also issued national conservation practice standards for both no-till and reduced-till agriculture.[4]

- *Manure application*. Application of agricultural byproducts and waste products such as manure can materially increase SOC sequestration. GREET's FD-CIC model (discussed further below) can calculate changes in SOC emissions resulting from the use of swine, dairy cow, beef cattle, or chicken manure.

- *Improved fertilizer practices.* Precision application of fertilizer through "4R" techniques (right time, right place, right form, right rate) can significantly reduce emissions attributable to fertilizer usage. Similarly, applying bio-based fertilizers to corn, such as nitrogen-fixing biological products, legumes, or manure can significantly reduce the need for conventional fertilizer, providing a lower carbon-intensive source of fertilizer for the corn. In addition, nitrogen stabilizers can reduce the loss of nitrogen into the environment. This often leads to a reduced application rate of fertilizer, further reducing its environmental impact.[5]

- *Green or low-carbon ammonia*. Ammonia used to make fertilizer can be produced using renewable energy (where hydrogen from electrolysis of water reacts with atmospheric nitrogen) or with carbon-reducing technologies, reducing lifecycle GHG for producing corn feedstock to ethanol production.[6]

These feedstock production factors each reduce lifecycle GHG emissions from bioethanol and are among the most likely to be adopted by the industry. As calculated using GREET model emissions factors, these production factors can be adopted individually or in any combination that makes sense for farm growing conditions and individual grower decisions. The GREET model has default values for upstream

[3] USDA Press Release No. 0005.22, *USDA Offers Expanded Conservation Program Opportunities to Support Climate Smart Agriculture in 2022* (Jan. 10, 2022); USDA Conservation Practice Standard # 340, *Cover Crop (Ac.)* (Sep. 2014).
[4] USDA Conservation Practice Standard # 329, *Residue and Tillage Management, No Till (Ac.)* (Sep. 2016); USDA Conservation Practice Standard # 345, *Residue and Tillage Management, No Till (Ac.)* (Sep. 2016).
[5] GHG reductions from precision application of fertilizer and use of nitrogen stabilizers are available from standard values in GREET's FD-CIC module. GHG reductions from bio-based fertilizer can be calculated based on farming inputs.
[6] GHG reductions from green ammonia are available from standard values in GREET's FD-CIC module. GHG reductions for low carbon ammonia can be calculated based on the ammonia production process.

feedstock production absent these agricultural practices, and then provides incremental adjustments to account for each factor.

USDA may incorporate default values from GREET, including for feedstock production factors FD-CIC module, and where a default value does not exist, USDA could consider certain simplified assumptions as presented below.[7] Argonne National Laboratory and the DOE's Advanced Research Projects Agency developed the FD-CIC calculator as a transparent and easy-to-use tool for regulatory agencies to "enable an accurate measurement of key farming parameters that can help robust accounting of the GHG benefits of sustainable, low-carbon agronomic practices."[8] The tool both provides default values and allows biofuels producers to provide user-specific input values to determine individualized estimates of SOC emissions. For example, a feedstock producer that applies manure from its own farm would obtain higher GHG emissions reductions than the default in FD-CIC, based on reductions in the amount of energy used in manure transportation.[9] As part of GREET, FD-CIC is updated annually to incorporate the best available science in GHG accounting.

(3) For practices identified in question 2, how should these practices be defined? What parameters should USDA specify so that the GHG outcomes (as opposed to other environmental and economic benefits) resulting from the practices can be quantified, reported, and verified?

Definitions should follow other qualifications for USDA programs where eligible (such as EQIP for cover crops). Tillage methods should be defined by the Soil Tillage Intensity Rating (STIR) method using the RUSLE2 calculator. Enhanced Efficiency Fertilizer (EEF) should be defined from the list of eligible feedstocks that GREET follows.

As we noted above, we strongly urge USDA to use the latest GREET model and FD-CIC calculator to quantify the GHG impact of those feedstocks grown using these agronomic practices. While not exhaustive, the table below from Lifecycle Associates outlines values from the GREET FD-CIC for notable biofuel feedstock practices (see next page):

[7] Available at https://greet.es.anl.gov/tool_fd_cic.

[8] FD-CIC User Manual at 7, available at https://greet.anl.gov/tool_fd_cic.

[9] In addition, FD-CIC values could be averaged across a biofuels producer's feedstock sources to account for biofuels producers which contract with multiple suppliers with differing agricultural practices.

Table 1. Principal Options for GHG Reductions at Corn Ethanol Plants

Scenario	kg CO_2/MMBtu	Description	Assumption/ Calculation Basis[b]
Baseline	55.5	U.S. Average dry mill ethanol.	22,480 Btu/gal, 0.61 kWh/gal, 2.86 gal/btu
	CI Reduction[a]	**Low CI Production Technologies**	
CCS	-33.8	Store CO_2 underground	Capture 90% of fermentation CO_2
Renewable Power	-3.8	REC for electricity as well as on-site wind or solar power	0 g CO_2e/kWh, per GREET
Biomass Heat and Power	-20 to -25	Power and heat generated at corn ethanol plant.	Eliminates natural gas and electric power emissions. Calculate GHG emissions from biomass use in GREET.
RNG	-21	40% of natural gas from RNG	- 100 g CO_2/MJ diary, swine, or steer manure. Calculate GHG emissions based on RNG use and CI of RNG.
		Farming GHG Reductions	
Green NH_3	-6.1	Green Ammonia for Fertilizer	FD-CIC Green Ammonia
Low CI NH_3	-2 to -5	Ammonia with CO_2 capture	Calculate GHG emissions based on ammonia production process.
No Till	-3.4 to -6.5	Switch Reduced to No Till farming	FD-CIC Reduced Till to No Till depending upon region.
Fertilizer	-2.4 -5.2 -1 to -3	Nitrogen efficiency Precision application Bio-based fertilizer	FD-CIC Enhanced Efficiency Fertilizer FD-CIC (4R) Right time, place, form, rate Calculate based on farming inputs
Manure Application	-5.5 to -28	Mix of dairy, swine, cattle, poultry manure	FD-CIC Manure Application
Cover Crop	-20.4 to -39.1	Grow winter cover crop	FD-CIC Cover Crop

[a] Reductions apply to baseline for typical dry mill ethanol plant; where multiple technologies or practices apply, reductions may be added together to calculate the fuel's emission rate.
[b] GHG reductions are available from standard values in the FD-CIC or from additional calculations as indicated.

(4) For practices identified in question 2, to what extent do variations in practice implementation affect the overall GHG benefits of the practice (e.g., the date at which cover crops are harvested or terminated)? What implementation strategies maximize the GHG benefits of these climate-smart agriculture practices?

The timely implementation of 45Z, with a robust universe of CSA practices from the NRCS list qualifying under 45Z, would be an incredibly important way to best optimize the ability to incentivize a farmer to take up farming practices that would lower GHGs.

(5) What scientific data, information, and analysis should USDA consider when quantifying the greenhouse gas emissions outcomes of climate-smart agricultural practices and conventional farming practices? What additional analysis should USDA prioritize to improve the accuracy and reliability of the GHG estimates? How should USDA account for uncertainty in scientific data? How should USDA analysis be updated over time?

Please see our earlier discussion of the GREET model and FD-CIC for data, information, and analysis of GHG quantification. For other and future practices, we encourage USDA to work with Argonne National Laboratory (ANL) and the Department of Energy (DOE) to provide the most up to date agronomic and crop data.

(6) Given the degree of geographic variability associated with each practice, on what geographic scale should USDA quantify the GHG net emissions of each practice (e.g., farm level, county-level, state, regional, national)? What are the pros and cons of each scale? How should differences in local and regional conditions be addressed?

Different geographic regions have different growing conditions and yields, and we urge USDA to work towards the most granular geographic scale that can be supported by robust and sufficient data.

As an example, GREET FD-CIC can calculate CI values at the county level, so if users have the option to choose by county, it would only make sense to allow variability by county through the GREET model, provided there is sufficient data. To the extent bioethanol producers work with growers and other 3rd parties who can appropriately quantify and verify GHG reduction values at the farm level, USDA should allow for that option as well.

(7) How should USDA estimate the GHG emissions and soil carbon fluxes of baseline crop production?

Please see our earlier discussion of the GREET model and FD-CIC for data, information, and analysis of GHG quantification.

(8) Where models can be used to quantify changes in greenhouse gas emissions and sinks associated with climate smart agricultural practices, which model(s) are most appropriate for quantifying the greenhouse gas effects of these practices? What are the tradeoffs of different modeling approaches for accurately representing carbon, methane, and nitrous oxide fluxes under climate smart agricultural practices?

As we have stated previously, the GREET model and FD-CIC module are the most appropriate to quantify these reductions in GHG emissions. To the extent there is not a value in GREET and FD-CIC for an existing or emerging practice, USDA should work with Argonne National Laboratory and the Department of Energy to establish a value moving forward. Additionally, for emerging practices and to avoid any undue delays, USDA should establish an efficient mechanism for growers and bioethanol producers to receive a provisional GHG reduction value if such a value can be quantified appropriately.

(9) How should net greenhouse gas emissions, including soil carbon sequestration, be attributed among crops produced in a rotation, for example crops grown in rotation with one or multiple cover crops?

Initially, allocation of emissions for multi-crop rotation should follow the current methodology in GREET (allocation by biomass production of the crops in rotation).

(10) To what extent do interactions between practices either enhance or reduce the GHG emissions outcomes of each practice? Where multiple practices are implemented in combination, should the impacts of these practices be measured individually or collectively?

Pointing back to GREET FD-CIC, the practices can be measured individually, but they can also be stacked in any combination or stand alone. As stated above, unlike the CSA pilot for the Section 40B tax incentive, there should be no requirement that practices be bundled to show GHG reductions. Growers and bioethanol producers should have flexibility to do what makes the most sense based on agronomic and economic conditions and include the maximum acreage associated with these practices. Additionally, as biorefineries seek innovative plant practices such as corn stover used for power, stover collection should not be unduly penalized when it is then used for a quantifiable GHG reduction practice at a bioethanol facility.

(11) How should the GHG emissions of nutrient management practices (e.g., applying fertilizer according to the ''4Rs'' of nutrient management—right place, right source, right time, and right rate; variable rate technology; enhanced efficiency fertilizer application; manure application) be quantified? What empirical data exist to inform the quantification? What factors should USDA consider when quantifying the GHG emissions outcomes of these practices?

Again, we point back to GREET FD-CIC for quantification of these nutrient management practices including the "4Rs", enhanced efficiency fertilizer application, and manure. As seen in the table above, specific values can be quantified through the GREET FD-CIC module.

<u>**Soil Carbon**</u>

(12) How should the GHG outcomes of soil management practices that can increase carbon sequestration or reduce carbon dioxide emissions (e.g., no-till, cover crops) be quantified? What empirical data exist to inform the quantification? Over what time scale should practices that sequester soil carbon be implemented to achieve measurable and durable GHG benefits?

The GHG benefits of soil management practices can be derived using values from GREET FD-CIC.

(13) For practices that can increase soil carbon sequestration or reduce carbon dioxide emissions, how should the duration and any interruptions of practice (e.g., length of time practice is continued, whether the practice is put in place continually or with interruptions) be considered when assessing the effects on soil carbon sequestration?

The GREET FD-CIC module should be utilized to determine the CI impact of disrupted practices that may shorten the expected duration of a particular CSA practice.

(14) How should the baseline rates of change in soil carbon and uncertainty around the greenhouse gas benefits of these practices be characterized? Does this uncertainty and variability depend on the type or longevity/permanence of the practice?

The GHG emissions of the baseline crop production could be derived using values from GREET FD-CIC. When setting the baseline, USDA should be careful not to unnecessarily disadvantage early adopters of reduced/no-till and other CSA practices.

<u>Verification and Recordkeeping</u>

(15) What records, documentation, and data are necessary to provide sufficient evidence to verify practice adoption and maintenance? What records are typically maintained, why, and by whom? Where possible, please be specific to recommended practices (e.g., refer to practices identified in question two).

Some practices could be verified by relatively simple documentation such as invoices, scale tickets, and sales receipts for seeds to plant cover crops. To the maximum extent practicable, USDA should strive to use the simplest methods to verify practice adoption and maintenance.

(16) How can market participants leverage remote sensing and/or other emergent technologies as an option to verify practice adoption and maintenance?

Remote sensing tools such as satellite imagery continue to improve and can be a valuable tool to detect and verify no-till and cover crop practices where it may be necessary*.* These tools can be used to reduce and eventually replace on-site audits.

(17) Are there existing reporting structures that can potentially be leveraged?

A number of bioethanol producers use the International Sustainability & Carbon Certification (ISCC) program.

ISCC has been administering and tracking CI traceability for grain for over 15 years. Though many of the qualitative requirements for ISCC do not fit the context of the recently approved incentives from the Inflation Reduction Act, many quantitative CI measures and traceability principles in ISCC could also work well in the US biofuel supply chain.

(18) Should on-site audits be used to verify practice adoption and maintenance and if so, to what extent, and on what frequency?

The documents needed to support a feedstock carbon intensity score can be supported by data that can be digitally supported and shared. On-site audits would not be needed to review these documents.

In the event that a CI score is provided, the third-party CI provider will be able to provide all of the supporting data that went into that CI score. This creates a centralized place for the verification to occur and avoids much (if any) direct contact with the grower.

(19) If only a sample of farm/fields are audited on-site, what sampling methodology should be used to determine the sample of farms selected for an on-site audit, and how can the sampling methodology ensure that selected farms are representative across geographies, crops, and other factors?

ISCC guidance requires that the square root of participating growers' crop cultivation acreage be audited each year. The method gathers data from enough users to effectively mitigate the risk of fraud without creating an excessive administrative burden.

(20) What system(s) should be used to trace feedstocks throughout biofuel feedstock supply chains (e.g., mass balance, book and claim, identity preservation, geolocation of fields where practices are adopted)? What data do these tracking systems need to collect? What are the pros and cons of these traceability systems? How should this information be verified?

Either a mass-balance or book-and-claim approach could be used to track sustainability attributes and commodity embedded CI values and avoid other impractical solutions. Because functional characteristics of the crop do not change with the method of production, there is no need for identity preservation or further segregation. Given varying supply chain and logistics approaches across the bioethanol industry, it is essential that those choosing to use a mass-balance approach be able to do so across an entire enterprise including but not limited to operators of multiple biorefineries. In addition, workable traceability requirements should allow verification of CSA contracts to be passed through intermediaries, such as feedstock providers and biofuel producers, without requiring a direct contract between farmers and the final fuel processor.

Longer term, a book and claim type system could be established that would allow the value to be detached from the crop and potentially monetized by the grower. This type of system could operate in a similar fashion to other markets such as renewable energy certificates (REC).

Verifier Qualifications/Accreditation Requirements

(21) How could USDA best utilize independent third parties (i.e., unrelated party certifiers) to bolster verification of practice adoption and maintenance and/or supply chain traceability? What standards or processes should be in place to prevent conflicts of interest between verifiers and the entities they oversee?

Currently, renewable fuel producers under the RFS are required to conduct third-party engineering reviews as part of the RFS registration process. The independent engineering review validates all of the information provided by the producer to register its fuel with the EPA. That information includes, for example, descriptions of (i) the feedstocks used at the facility (ii) the facility's production processes, (iii) the types of co-products produced with the renewable fuel, and (iv) the process heat fuel supply plan for the facility, among other detailed aspects of the producer's operations that would affect the overall lifecycle GHG analysis of the fuel.[10] Additionally, bioethanol producers have various registration requirements under the federal renewable fuel standard (RFS) and various state low carbon fuel standards (LCFS). For example, the California LCFS requires validation and verification by an independent third party. This includes validation of information in the "fuel pathway", including, for example, (i) the methods used by the producer to quantify and report data, (ii) the data management systems and accounting procedures used to track data for the fuel pathway application, and (iii) information about the entities in the supply chain upstream and downstream of the fuel producer that contribute to site-specific carbon intensity data.[11] These existing regulatory frameworks include standards relevant to addressing conflicts of interest.

(22) What qualifications should independent third-party verifiers of practice adoption and/or supply chain traceability possess?

Verification should be done by third-party verifiers commonly accepted by USDA, DOE, the California Air Resources Board (CARB), or other states with verifiers accepted for LCFS compliance.

(23) What independent third-party verification systems currently exist that may be relevant for use in the context of verifying climate-smart agricultural practices (as identified under questions 1 and 2) and/or biofuel supply chains?

We believe that existing third-party verification systems should be utilized by USDA, including verification systems that utilize third-party verifiers commonly accepted by USDA, DOE, the California Air Resources Board (CARB), or other states with verification systems utilized for LCFS compliance.

(24) How should oversight of verifiers be performed? What procedures should be in place if an independent third party verifier fails to conform to verification and audit requirements, or otherwise conducts verification inappropriately?

---

[10] See 40 CFR 80.1450(b)(1)
[11] See Cal. Code Regs. Tit. 17 Section 95501(b)(1)(A)

USDA should maintain a database that tracks inaccurate CSA verification, and those verification entities that are found to have inappropriate verification and certification of CSA grain should have consequential actions that would impact their future ability to verify CSA claims.

(25) What procedures should be in place to prevent potential inaccurate or fraudulent claims regarding feedstock production practices or chain of custody claims, how should monitoring occur to identify such inaccurate claims, and what should the remedy be when such inaccurate claims are discovered?

CSA practice claims should be supported by comprehensive documentation that includes verification materials that support recordkeeping that identifies specific practices on specific land for a specific crop. As stated above, some CSA practices could be verified by relatively simple documentation such as invoices, scale tickets, and sales receipts for seeds to plant cover crops. To the maximum extent practicable, USDA should strive to use the simplest methods to verify practice adoption and maintenance, and proper recordkeeping should be a first line of defense to ensure that there are not potential inaccurate or fraudulent claims.

(26) What preemptive measures are appropriate to guard program integrity against both potential intentional fraud and inadvertent reversal or nonaccrual of credited GHG emissions benefits?

It is incumbent that USDA develop a strong regulatory framework to help guide CSA practice and compliance up front, making sure to utilize existing rubrics that are currently in place for other related compliance and regulatory efforts. As this marketplace is generally limited today, ensuring the application and usage of existing resources will be helpful in addressing any potential malfeasance on CSA program integrity.

* * * *

Thank you for your consideration. We are happy to be a resource as USDA continues to move forward with quantification of CSA practices for bioethanol production.

Sincerely,

Chris Bliley
Senior Vice President of Regulatory Affairs
Growth Energy

ATTACHMENT 2

Growth Energy™
Expanding America's Bioeconomy

October 15, 2024

The Honorable Janet Yellen
Secretary
Department of the Treasury
1500 Pennsylvania Avenue, NW
Washington, DC 20220

The Honorable Danny Werfel
Commissioner
Internal Revenue Service
Room 5203
P.O. Box 7604
Ben Franklin Station
Washington, DC 20044

RE: Key Considerations for 45Z Clean Fuel Production Credit Guidance or Rulemaking

Dear Secretary Yellen and Commissioner Werfel:

Growth Energy would like to take the opportunity to comment on the Clean Fuel Production Credit under Internal Revenue Code Section 45Z, as enacted under the Inflation Reduction Act (IRA), in anticipation of the Internal Revenue Service's (IRS) plan to issue guidance (whether through rulemaking or other IRS guidance) on this very important incentive, which will drive reductions in greenhouse gas (GHG) emissions, expand the rural economy, and grow American jobs.

Growth Energy is the nation's largest association of biofuel producers, representing 97 U.S. plants that each year produce more than 9.5 billion gallons of low-carbon, renewable fuel; 121 businesses associated with the biofuel production process; and tens of thousands of biofuel supporters around the country. Our members are critical to the decarbonization of transportation fuel in the United States, and they have substantial interests in ensuring the effective, efficient, and science-based implementation of the Section 45Z credit. Our industry is poised to assist the administration in achieving the ambitious climate goals Congress sought in enacting the IRA as we remain committed to helping our country diversify its energy portfolio and provide consumers with better and more affordable choices at the fuel pump.

A core goal of the IRA is to facilitate innovation in clean energy technologies and to incentivize development of these technologies at scale to reduce U.S. GHG emissions. The Section 45Z credit is one of the most important tools Congress created to realize these goals, as it is a central component to further decarbonize of the U.S. transportation fuel supply. Ethanol has long been the primary driver of GHG emissions reductions in transportation fuels, resulting in the avoidance of approximately 544 million metric tons of CO_2e emissions between 2005 and 2019.[1] And, as demonstrated in a report issued in September 2024 by the Energy Futures Initiative Foundation (EFIF), led by former Secretary of Energy Ernest J. Moniz, ethanol is poised to play a key role in future decarbonization of the entire transportation sector.[2] For the Section 45Z credit to function as Congress intended, IRS guidance must take into account and incentivize the varied approaches that biofuel producers can employ to produce low-carbon renewable fuels.

We are concerned that the Section 40B guidance and related 40BSAF-GREET 2024 model issued to date does not include critical available GHG emissions reductions pathways and does not fully reflect the best available science with respect to related GHG emissions reductions measures. We elaborate below with regard to various enhancements to the 40B framework that the IRS should consider before issuing its forthcoming guidance on the 45Z credit. The adjustments recommended below include fully incentivizing the range of low-carbon practices that farmers and biofuels producers across the country may employ to reduce the carbon intensity of both on-road and aviation fuels, as well as providing the clarity and flexibility necessary to spur continued low-carbon innovations in our industry.

We also urge the IRS to swiftly promulgate the 45Z guidance well before the January 1, 2025, statutory deadline to reduce current market uncertainty for biofuel producers. At a minimum, the IRS should issue a proposed rule no later than November 1, 2024, including any proposed new models or model upgrades, and finalize the proposal as expeditiously as possible thereafter in keeping with the statutory deadline.

This letter supplements our prior letters dated November 4, 2022,[3] December 2, 2022,[4] July 7, 2023,[5] and October 27, 2023,[6] which offered detailed recommendations of how the IRS may structure the Section 45Z credit program to achieve the IRA's important GHG reduction goals in an effective and efficient manner. We look forward to continued discussions with the IRS on these important issues.

---

[1] Lee et. al, *Retrospective Analysis of the U.S. Corn Ethanol Industry for 2005–2019: Implications for Greenhouse Gas Emission Reductions* (May 4, 2021), *available at* https://doi.org/10.1002/bbb.2225.

[2] Energy Futures Initiative Foundation, *A Strategic Roadmap for Decarbonizing the U.S. Ethanol Industry* (September 2024) (EFIF Report), *available at* https://efifoundation.org/foundation-reports/a-strategic-roadmap-for-decarbonizing-ethanol-in-the-united-states/.

[3] https://growthenergy.org/2022/11/04/growth-energy-sends-letter-to-treasury-on-action-to-slash-aviation-emissions/

[4] https://growthenergy.org/2022/12/02/growth-energy-comment-clean-fuel-carbon-capture-credits/

[5] https://growthenergy.org/wp-content/uploads/2023/07/Growth-Energy_40B-and-45Z-Response-Letter_US_173815329_15-003.pdf

[6] https://growthenergy.org/2023/10/27/growth-energy-irs-saf-tax-incentives/

I. The IRS Should Expand the Recognized Processes that Reduce GHG Emissions at Fuel Production Facilities

We commend the IRS for recognizing the GHG-reduction benefits of carbon capture and sequestration (CCS), low-carbon hydrogen, landfill RNG, and wind electricity in the 40BSAF-GREET 2024 model. However, these processes are but a small fraction of the possible lower-carbon production processes that create quantifiable and verifiable emissions reductions.[7] For the 45Z credit to function properly, the IRS should reward renewable fuel producers that maximize their GHG reductions through the full scope of lower-carbon production processes that can be employed at biofuel production facilities.

Fortunately, the GREET model includes a broad range of at-the-plant technologies that could be incorporated into any 45Z model used in the SAF context and the emissions rate table used for 45Z on-road eligibility. At a minimum, any model or emissions rate table designed to estimate carbon intensity using best available practices should include adjustments for biomass power or heat, including corn stover to process heat, combined heat and power, wet distiller's grains, membrane dehydration, vapor recompression, advanced yeasts and enzymes, energy storage, and zero-CI electricity from solar, nuclear, geothermal, hydropower, and biomass facilities, among others.

In addition, the IRS should recognize established mechanisms to demonstrate the use of zero-CI electricity taken from a shared grid without the numerous constraints set forth in the Section 45V proposed regulations for energy attribute certificates (EACs). We understand the IRS has received extensive comments on appropriate ways to refine parameters for EACs to ensure it does not stifle innovation while taking into account induced grid emissions concerns and encourage IRS to carefully consider that input in proposing any parallel restrictions under the 45Z framework.

II. 45Z Guidance Should Recognize Numerous Existing Clean Fuel Production Pathways and Establish a Clear Process for Additional Pathways to Obtain a Provisional Emissions Rate

To maximize the quantity of clean fuel in the U.S. market, the 45Z guidance should include a wide range of established, currently used pathways for production of low carbon intensity ethanol. Corn kernel fiber ethanol, sorghum ethanol (both starch and kernel fiber), and corn wet mills are each sufficiently established feedstocks for biofuel production pathways with substantial climate benefits, and they should be given a default pathway under 45Z.

IRS should also establish a straightforward and efficient process to set provisional emissions rates (PERs) for novel pathways pursuant to 26 U.S.C. § 45Z(b)(1)(D). For example, some bioprocessing facilities are exploring the use of secondary feedstocks like proso millet, wheat, and barley. For biofuels production pathways using these feedstocks the 45Z credit will likely be necessary for the pathway to be economically

---

[7] *See* EFIF Report, *supra* note 2, at Chapter 3.

viable initially. To steer investment towards innovation for these and other feedstocks, biofuel producers must have certainty that novel production pathways can become eligible for the 45Z credit within a reasonable period of time.

The IRS's approach in the proposed Section 45V regulations, which allows a taxpayer to file a PER petition when the lifecycle GHG emissions rate cannot be determined using 45V-GREET because the production processes or feedstocks are not included in the model, is generally a reasonable one, though it places great weight on the IRS including a wide range of options in a forthcoming 45Z-GREET model for SAF and the emissions rate table for on-road fuels. *See* 88 Fed. Reg. 89,220 89,226 (Dec. 26, 2023). In the 45V proposed regulation, the IRS suggests the Department of Energy (DOE) will establish specific procedures for a PER petition process. *Id.* To the extent that IRS proceeds similarly in the 45Z context, Growth Energy requests that stakeholders are provided an opportunity to evaluate and weigh in on the specifics of DOE's procedures for applying for an emissions rate consistent with the Administrative Procedure Act. For example, requiring application for a PER only after a FEED study is completed is not reasonable. *See id.* Neither is only allowing taxpayers to claim credit once a PER is approved (rather than allow them to claim retroactively). *See id.* at 89,227.

In sum, a flexible and efficient approach to PER petitions that allows a petition to be filed as soon as the fuel's CI may be determined supports innovation and capital investments by providing new and advanced low-carbon processes and technologies equivalent access to the financial incentives provided by the Section 45Z credit.

III. Section 40B's Inadequate Incentives for Climate-Smart Agriculture Leave Substantial GHG Benefits on the Table, which IRS Should Correct in Section 45Z

Climate-smart agricultural (CSA) practices are well-understood to have an important impact on reducing GHG emissions.[8] Indeed, recent research by EFIF shows that on-farm practices can reduce the carbon intensity of biofuels by up to 56%,[9] and if adequately incentivized CSA can reduce the agricultural sector's GHG emissions by 71% by 2036.[10] These practices provide other important environmental co-benefits, including improved water quality and soil health.[11]

We applaud the initial step of recognizing the GHG-reduction benefits of CSA in the 40B pilot program; however, in practice that program's overly narrow and rigid approach erodes any practical effect the 40B credit could have had to incentivize CSA practices.

---

[8] *See, e.g.* Executive Order on Tackling the Climate Crisis at Home and Abroad, E.O. 14008, (Jan. 27, 2021).

[9] *See* EFIF Report, *supra* note 2, at 36.

[10] Northrup, et al. *Novel technologies for emission reduction complement conservation agriculture to achieve negative emissions from row-crop production*, Argonne National Laboratory (June 21, 2001), *available at* https://doi.org/10.1073/pnas.2022666118.

[11] *Procedures for Quantification, Reporting, and Verification of Greenhouse Gas Emissions Associated With the Production of Domestic Agricultural Commodities Used as Biofuel Feedstocks*, 89 Fed. Reg. 53,585 (June 27, 2024).

The CSA practices recognized in 40B—no-till, cover crops, and enhanced efficiency fertilizer (EEF)—are but a small sample of the many available CSA practices with verifiable emissions reductions that should be incentivized.[12] And the requirement that all three CSA practices be implemented together ("bundled") to receive *any* credited GHG reduction is not supported by valid scientific or regulatory explanation, and it must be abandoned.

Adopting a wholistic crediting framework for CSA practices in the 45Z guidance would create minimal additional regulatory burden on the IRS because there are ample resources currently available that identify and quantify emissions reductions from a broad array of CSA practices. USDA has developed a detailed, annually updated list of agricultural practices that provide real and verifiable GHG emissions reductions.[13] Additionally, Argonne National Laboratory's R&D GREET FD-CIC provides highly credible GHG emissions calculations for many of the practices on USDA's Climate-Smart Agriculture List. Argonne National Laboratory and the DOE's Advanced Research Projects Agency developed the FD-CIC calculator as a transparent and easy-to-use tool for regulatory agencies to "enable an accurate measurement of key farming parameters that can help robust accounting of the GHG benefits of sustainable, low-carbon agronomic practices." FD-CIC User Manual at 7. The IRS can readily incorporate these off-the-shelf resources into any 45Z model or emissions table by providing default CI adjustment values for each agricultural practice that is both included on USDA's CSAF list and scored under the R&D GREET FD-CIC calculator. FD-CIC also provides additional flexibility to account for GHG emissions because it incorporates regional and local data to account for geographic variability. By incorporating the USDA List and FD-CIC, the 45Z credit can incentivize substantial additional GHG reductions that are ignored by the 40B credit. *See* December 2022 Growth Energy Letter at Table 1.

At a minimum, the 45Z guidance should expand from 40B to include the following recognized CSA practices:

- *Manure application (up to approximately 28 kg CO2/MMBtu reduction)*[14]: Application of agricultural byproducts and waste products such as manure can materially increase SOC sequestration. GREET's FD-CIC model can calculate changes in SOC emissions resulting from the use of swine, dairy cow, beef cattle, or chicken manure.

- *Precision fertilizer application (approximately 5.2 kg CO2/MMBtu reduction):* Precision application of fertilizer through "4R" techniques (right time, right place, right form, right rate) can significantly reduce emissions attributable to fertilizer usage, as well as provide other environmental co-benefits including improved water quality.

---

[12] *See* EFIF Report, *supra* note 2, at Chapter 3.
[13] Climate-Smart Agriculture and Forestry (CSAF) Mitigation Activities List for FY2024, USDA, https://www.nrcs.usda.gov/sites/default/files/2023-10/NRCS-CSAF-Mitigation-Activities-List.pdf.
[14] These estimates are derived from GREET's FD-CIC tool.

- *Bio-based fertilizer (up to approximately 3 kg CO2/MMBtu reduction):* Applying bio-based fertilizers to corn, such as nitrogen-fixing biological products, legumes, or manure can significantly reduce the need for conventional fertilizer, providing a lower carbon-intensive source of fertilizer for the corn as well as other environmental co-benefits.

- *Green or low-carbon ammonia (approximately 5.4 kg CO2/MMBtu reduction)*: Ammonia used to make fertilizer can be produced using renewable energy (where hydrogen from electrolysis of water reacts with atmospheric nitrogen) or with carbon-reducing technologies, reducing lifecycle GHG for producing corn feedstock to ethanol production.

There is not a one-size-fits-all approach to CSA. Farmers should be encouraged to adopt as many CSA practices as possible, with the flexibility to choose the CSA practices that work best for the specific circumstances at their farms. Farmers across the country face distinct challenges and advantages based on the location of their farm, types of crops grown, soil health, weather patterns, local equipment costs, and individual risk tolerance, among many other factors. For example, while cover cropping is a valuable CSA practice on many farms, it may not be feasible for farms in particularly dry or cold environments. But these farms could still implement a variety of other important CSA practices to achieve a similar GHG-reduction effect, such as manure application and no-till farming, which—like cover cropping—improves soil health and increases soil carbon sequestration. Under the rigid 40B "bundled" approach, farms that are unable to implement cover crops would not be incentivized to implement *any* CSA practices. The IRS should instead adopt a wholistic and flexible approach for 45Z that incentivizes farmers to adopt whichever verifiable CSA practices are most feasible and efficient for the particular circumstances of their farm.

Moreover, the 10 kgCO_2/MMBTU GHG reduction credit for the bundle of CSA practices that the 40B pilot program does include substantially undervalues these practices' climate benefits. Using GREET FD-CIC, the combined use of cover crops, no-till, and EEF reduces the carbon intensity of the feedstock from two to four times the value set forth under the 40B guidance, depending on the region. We are unaware of how Treasury and USDA arrived at the 10 kgCO_2/MMBTU credit, and see no scientific basis for it, even if taking a conservative approach to valid estimates of the climate benefits of the three CSA practices. For 45Z, the IRS must update the CSA GHG reduction credit to reflect best available science, using the vetted, well-developed GREET's FD-CIC tool as the foundation.

In addition, the 40B pilot program unnecessarily prohibits farmers who supply CSA feedstocks for fuel production from participating in the voluntary carbon credit market. Growth Energy urges the IRS and USDA to remove such restrictions from any CSA feedstock framework incorporated under Section 45Z. Combination of incentives for innovative climate solutions is important to scaling such solutions and is commonly used in other contexts. For example, a gallon of low carbon intensity ethanol can generate credit under California's Low Carbon Fuel Standard and also generates a RIN under EPA's Renewable Fuel Standard program. There is nothing inherently inappropriate about the combination of such incentives. As such, farmers should be able to participate in the voluntary carbon credit market where allowable under the specific protocols and procedures of that marketplace as well as provide feedstock eligible for a 45Z CSA carbon intensity reduction.

Finally, the IRS can utilize existing mechanisms to ensure the accuracy of CSA carbon intensity values through third-party verification. Third-party verifiers have long been used by California and other state LCFS programs as well as the federal DOE, and their methods could be readily adapted to verify the GHG reductions from CSA practices for feedstocks used to produce 45Z-eligible fuels. Relatedly, there is no need to drastically constrain the feedstock marketplace by requiring the end-fuel producer to have a direct contract with the farmer implementing the CSA practices as under the 40B pilot program. We encourage the IRS to adopt workable traceability procedures that allow CSA contracts to accompany the feedstock through various intermediaries, such as biofuel producers or feedstock providers. Again, a pre-existing analogue for this process can be drawn from the Renewable Fuel Standard (RFS) certification process for demonstrating that feedstocks satisfy RFS eligibility requirements. *See* 40 CFR § 80.1454. The International Sustainability & Carbon Certification (ISCC) provides yet another model IRS can draw from to design workable traceability requirements for CSA crops in 45Z. And we encourage the IRS to coordinate with USDA as that agency continues to develop innovative techniques, such as remote sensing, that can improve the verification process.

Eventually, a contract-based system could be expanded to include a "book and claim" market, where farmers may detach and trade the environmental attributes of the CSA crop. Such a market for low-carbon crop commodities would be similar to the renewable electricity certificates (REC) market for low-carbon electricity, which has been endorsed by the IRS in 45V,[15] as well as by EPA,[16] DOE, and many states as a reliable method to account for the low-carbon attributes of a distributed commodity. The most important component for the tracking and verification of CSA practices is to have flexibility to allow a taxpayer to adopt a system for incentivizing CSA practices that works best for them.

IV. 45Z Should Clearly Distinguish Between SAF and On-Road Processes for Determining Emissions Rates.

Congress established distinct and separate processes for determining emissions rates of on-road fuels and aviation fuels. *See* 26 U.S.C. § 45Z(b)(1)(B)(ii-iii). For on-road fuels, the IRS is mandated to use the "most recent determinations" of the GREET model that was in effect at the time the IRA was enacted, as published by Argonne National Laboratory. *Id.* Congress did not grant the IRS authority to adjust Argonne's model or impose any additional inputs or requirements for on-road fuels, though it could determine after appropriate notice-and-comment that a "successor" model must be used. *Id.* As a result, the IRS should base its emissions table for on-road fuels on the

[15] 88 Fed. Reg. 89,220, 89,248.
[16] 45V Letter to Asst. Sec. Batchelder (Dec. 20, 2023).

most recent update to the GREET published by Argonne by the commencement of the tax year, including any companion modules such as FD-CIC and CCLUB, as that model represents Congress's preference and is the best available science for lifecycle GHG modeling for biofuels.[17] Further, it is clear from the statute that the "special rules" around certification and traceability set forth in 26 U.S.C. § 45Z(f)(1)(A)(i)(II) do not apply to on-road fuels.

For aviation fuel, the IRS has additional flexibility to develop a methodology that is "similar" to the international CORSIA model. Thus, for aviation fuels only, the IRS may either adopt the existing GREET model—which itself is sufficiently "similar" to CORSIA—or develop an alternative version of GREET that is specific to the 45Z credit. However, even if IRS chooses to develop a bespoke 45Z model, that model must be based on the best available science and be faithful to Congress's framework for incentivizing emissions reductions. Any 45Z model should therefore include the full range of optionality that exists in the GREET model.

V. 45Z Should Revise the Definition of "Low-GHG Ethanol" to Allow for Export

Initial Section 45Z guidance, issued on May 31, 2024, as IRS Notice 2024-49, defined "low-GHG ethanol" as ethanol that meets the specifications of ASTM International D4806, which requires that the ethanol be denatured. This requirement significantly hampers the ability of ethanol producers that otherwise meet the conditions of Section 45Z from being able to export ethanol, because many foreign countries require that any imported ethanol be undenatured. There is no restriction under Section 45Z on exporting ethanol that otherwise meets Section 45Z fuel specifications. In future guidance, IRS should clarify that the definition of "low-GHG ethanol" includes *either* ethanol that meets ASTM International D4806 or "similar international standards for undenatured fuel ethanol" to provide producers the flexibility to export ethanol that otherwise qualifies for credit under Section 45Z.

* * *

Growth Energy appreciates the IRS's consideration of this input as it develops Section 45Z guidance. We look forward to engaging USDA further on this important work and would be happy to meet with your staff to present on these issues in more detail and answer any questions.

Sincerely,

Emily Skor
Chief Executive Officer
Growth Energy

[17] *See supra* notes 3-6 for Growth Energy's prior comment letters addressing the GREET model.

cc:

The Honorable Tom Vilsack, Secretary, U.S. Department of Agriculture
The Honorable Jennifer Granholm, Secretary, U.S. Department of Energy
The Honorable Pete Buttigieg, Secretary, U.S. Department of Transportation
The Honorable Michael Regan, Administrator, U.S. Environmental Protection Agency
The Honorable Brenda Mallory, Chair, White House Council on Environmental Quality