growth energy™
America's Ethanol Supporters

701 8th Street, NW, Suite 450, Washington, D.C. 20001
PHONE 202.545.4000 FAX 202.545.4001 GrowthEnergy.org

December 2, 2022

Commissioner Douglas O'Donnell
Internal Revenue Service
CC:PA: LPD:PR (Notice 2022-58)
Room 5203
P.O. Box 7604
Ben Franklin Station
Washington, DC 20044

RE: Notice 2022-58, Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production

Dear Commissioner O'Donnell:

Thank you for the opportunity to comment on the Internal Revenue Service's (IRS) plan to issue guidance regarding important provisions of the Inflation Reduction Act (IRA) that will drive reductions in greenhouse gas (GHG) emissions and grow American jobs. Growth Energy is the nation's largest association of biofuel producers, representing 90 U.S. plants that each year produce more than 8 billion gallons of low-carbon, renewable fuel; 106 businesses associated with the 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 have substantial interests in ensuring the effective, efficient, and science-based implementation of the new Section 45Z Clean Fuel Production 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 in order to reduce U.S. GHG emissions. The Section 45Z tax credit is one of the most important tools Congress created to realize these goals, as it is central to further decarbonization of the U.S. transportation fuel supply. And 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]

[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), https://doi.org/10.1002/bbb.2225.

In order to be eligible for Section 45Z credits, a transportation fuel must have a lifecycle emissions rate below 50 kilograms of carbon dioxide equivalent per million BTU (CO_2e/mmBtu). As explained further below, biofuels producers may use many different technologies to produce ethanol below this threshold, including technologies and agricultural practices that result in a biofuel with *negative* lifecycle GHG emissions. Thus, for the Section 45Z credit to function as Congress intended, the Treasury Department and the IRS will need to implement the law to take into account and thereby incentivize the varied approaches that biofuel producers can employ to produce low-carbon renewable fuels.

Congress intended the Section 45Z credit to be available to biofuel producers based on the best available science on the lifecycle GHG emissions reductions of biofuels, as reflected in a lifecycle analysis (LCA) model developed and maintained by the Department of Energy's Argonne National Laboratory, which is the gold-standard for LCA modeling for biofuels.[2] As discussed in detail below, this DOE model—known as the Greenhouse gases, Regulated Emissions, and Energy use in Transportation, or "GREET" model—includes a wide variety of inputs and parameters that reflect many GHG emissions reduction techniques available to biofuels producers. Using all of the available inputs and parameters from the GREET model in Section 45Z implementation will ensure that that taxpayers have a clear path forward as they plan investments in biofuels-related technologies, while allowing ease of administration for the IRS.

This letter suggests how the Treasury Department and the IRS may structure the Section 45Z program in order 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.

I. The GREET-Based Emissions Rate Table for Ethanol Should Reflect the Key Technologies the Industry Uses to Reduce GHG Emissions

Congress enacted the clean energy tax credits in the IRA to incentivize and accelerate reductions in GHG emissions as a key tool in combatting climate change. *See* Exec. Order 14082 (listing "driving progress to achieve the climate goals of the United States" as an implementation priority for the IRA). Essential to this incentive structure is an accurate determination of lifecycle GHG emissions rates for determining the Section 45Z credit value a biofuel producer may receive. There is a wide variety of factors that influence a fuel's lifecycle emissions rate. To account for this, Section 45Z(b)(1)(B)(i) directs the IRS annually to publish a table that sets forth the emissions rate "for similar types and categories of transportation fuels" based on their lifecycle GHG emissions. This directive is best understood to mean that the nature of the fuel itself determines the "type" (*e.g.*, corn starch ethanol), that may be further categorized based on various factors affecting the fuel's

[2] 26 U.S.C. § 45Z(b)(1)(B)(ii).

lifecycle carbon intensity,[3] including in the case of ethanol, different production processes and agricultural practices used to grow the corn used as the feedstock. The Section 45Z emissions rate table should accurately reflect these distinctions in order to fulfill Congress's goal of incentivizing reductions in GHG emissions from transportation fuels using the GREET model.

To this end, we recommend that the IRS use the Argonne National Laboratories' most recent GREET model[4] to produce an emissions rate table for corn starch ethanol (one "type" of transportation fuel)[5] that reflects the variety of methods by which a biofuel producer can significantly reduce their fuels' emissions rate (e.g., different "categories" of corn starch ethanol). The model is itself a kind of "table" (or matrix), in which various inputs correspond to incremental adjustments in lifecycle GHG emissions.

For example, a typical dry-mill corn starch ethanol plant may capture and sequester carbon dioxide process emissions and source its corn from farms using no till agricultural practices in order to reduce the carbon intensity of the fuel. The GREET model includes inputs to address these and other scenarios that should be included in an emissions rate table. The IRS should adopt this interpretation of GREET as a type of emissions rate table that is annually updated, and allow biofuel producers to utilize the model's outputs as the foundation for Section 45Z credit eligibility. An additional benefit to interpreting the statutory language in this manner is that it likely will minimize the number of provisional emissions rate petitions the IRS must process under Section 45Z(b)(1)(D).

Specifically, taking into account the practices producers and corn farmers are currently pursuing and actively considering to achieve GHG emissions reductions, we recommend that the emissions rate table include at least the following production process factors and agricultural factors described below that the GREET model accounts for:

<u>Low-Carbon Production Process Enhancements</u>

- *Carbon capture and storage (CCS) technologies*. Capture and sequestration of carbon dioxide process emissions from ethanol plants will soon be a common, impactful, and readily-verifiable method to reduce the lifecycle carbon intensity of

[3] "Carbon intensity" in this context is a measure of a fuel's lifecycle GHG emissions per unit of fuel energy. *See, e.g.*, 17 C.C.R. § 95481(a)(26) (defining "carbon intensity" under California's Low Carbon Fuel Standard).

[4] There are multiple versions of GREET used by various state jurisdictions in Low Carbon Fuel Standard programs, but Congress mandates use of the latest version of the model Argonne National Laboratory publishes. 26 U.S.C. § 45Z(b)(1)(B)(ii).

[5] Emissions rates for a type of transportation fuel should be limited to the fuel itself, and not include other substances or mixtures which may be blended into the final product prior to sale. For example, the "corn starch ethanol" fuel type should not include any added denaturant as denaturant is a separate substance that is added to the fuel to satisfy various regulatory requirements. The volume of denaturant would be excluded from a producer's calculation of volumes of clean fuel eligible under 45Z.

fuel ethanol. Different from carbon dioxide emissions from combustion processes, a substantial portion of carbon dioxide emissions in ethanol production result from anaerobic fermentation of corn starch, and are much more readily captured. Many ethanol plants already capture carbon dioxide for use in various food and beverage applications. The first EPA-approved permit for a CCS project was obtained by an ethanol producer, and the industry is poised to implement CCS on a large scale, which will result in substantial GHG emissions reductions.

- *Renewable electricity*. As the U.S. brings more renewable power onto the grid, GHG emissions attributable to a fuel production facility's power usage can decrease materially. Biofuels producers relying entirely on renewable power eliminate all emissions attributable to their power sources. As discussed below, biofuels producers' purchase of renewable energy credits (RECs) also should be recognized as a means of demonstrating the use of renewable power.

- *Use of biomass or renewable natural gas (RNG) for process heat*. Natural gas combustion is the largest contributor to carbon dioxide emissions in the ethanol production process. Facilities that use biomass or RNG to reduce or replace fossil natural gas as a heat source can therefore achieve substantial reductions in the ethanol's lifecycle GHG emissions rate. In addition, producers relying on shared commercial pipelines should be permitted to use "book and claim" accounting mechanisms—similar to RECs for renewable energy—as a means of demonstrating the use of RNG.[6]

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.[7] The IRS could incorporate the criteria in USDA's national standards by reference for purposes of the emissions rate table.

[6] GHG reductions from use of biomass can be calculated in GREET based on biomass use. GHG reductions from RNG use can be calculated based on RNG use and the carbon intensity of the RNG source.

[7] 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).

- *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, which may be incorporated by the IRS here.[8]

- *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.[9]

- *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.[10]

These ethanol production and feedstock production factors each reduce lifecycle GHG emissions from corn starch ethanol and are among the most likely to be adopted by the industry. As calculated using the GREET model emissions factors, these production factors can be adopted in any combination. The GREET model has default values for upstream corn feedstock production absent these agricultural practices, and then provides incremental adjustments to account for each factor. Thus, each distinct combination of factors may be considered a "category" of ethanol fuel with a specific lifecycle emissions rate as determined using the GREET model.

Furthermore, for most such "categories" of ethanol, the IRS may incorporate default values from GREET, including for feedstock production factors GREET's Feedstock Carbon

[8] 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).

[9] 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.

[10] 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.

Intensity Calculator (FD-CIC) module, and where a default value does not exist, the IRS could incorporate in the emissions rate table certain simplified assumptions as presented below.[11] 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 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.[12] As part of GREET, FD-CIC is updated annually to incorporate the best available science in GHG accounting.

Similarly, for categories of ethanol produced using low-carbon production processes, GREET supplies default numbers to account for various production factors. Book and claim accounting methods can be used to track power and process heat inputs. These well-established methods use contractual commitments to attribute clean energy entered onto a shared distribution network corresponding to the same amount of energy removed from the shared network. For example, RECs are issued to renewable energy producers for each megawatt-hour of electricity generated and put on the electricity grid. An ethanol producer who purchases those RECs from the renewable energy producer may then show that its facility is powered by renewable energy sources, and GREET accounts for that emissions reduction.[13]

Below is an illustrative example of a carbon intensity reduction table using GREET default values for a typical dry mill ethanol plant that includes certain production processes and agricultural practices to reduce the emissions rate of ethanol production. For a more detailed discussion of the factors included in this table, see the attached Life Cycle Associates report *GHG Analysis of Dry Mill for Corn Ethanol Production under IRA*.

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

[12] 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.

[13] Of course, a producer may also have an exclusive power purchase agreement or directly utilize an on-site wind farm for renewable electricity as well.

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.

Because inputs for these factors are readily-ascertainable from GREET, we encourage the IRS to move promptly in publishing the emissions rate table. Increased certainty in the expected value of Section 45Z credits will stimulate investment in fuel technologies and practices with the greatest GHG emissions reduction benefits. Beyond these recommended starting factors and associated categories, the IRS can and should expand the table to include additional categories as appropriate through the annual update process. 26 U.S.C. § 45Z(b)(1)(B)(i). We also encourage the IRS to consult with the DOE and the USDA, which each have extensive experience studying accounting methodologies for GHG reductions from lower-carbon biofuel production processes and lower-carbon agricultural practices, respectively.[14] We look forward to a continuing dialogue with the IRS to develop a precise and manageable Section 45Z emissions rate table.

In addition to the emissions rate table that includes categories of ethanol produced using various low-carbon practices as summarized above, the IRS should allow biofuels producers to use the GREET model to calculate facility-specific emissions rates that take into account a wider range of practices than those summarized in the annually-promulgated emissions rate table. We look forward to working with the IRS to further develop recordkeeping requirements and other reasonable verification procedures relevant to a biofuel producer's calculation of its fuel's emissions rate based either on an emissions rate table or facility-specific GREET inputs.

Finally, regardless of the specifics of the emissions rate table, it is critical that the table take into account ethanol produced with *negative* lifecycle GHG emissions (meaning that more GHGs are sequestered than generated, so that the lifecycle GHGs are below an emissions rate of 0 kg CO2e/mmBTU). This is consistent with the text of Section 45Z, which specifically contemplates negative emissions rates. *See* 26 U.S.C. § 45Z(b)(1)(C)(ii) (recommending a rounding method for an emissions rate of -2.5 kgCO2e/mmBTU). Taking into account such negative emissions rates incentivizes production of the most advanced fuels that achieve the greatest GHG reductions.

II. The IRS Should Ensure Efficient Processing of Provisional Emissions Rate Petitions

The IRA establishes a petition process for a provisional emissions rate if a particular transportation fuel is not included within the emissions rate table. 26 U.S.C. § 45Z(b)(1)(D). For the Section 45Z credit, Congress defines "transportation fuel" based in part on the fuel's

[14] For example, USDA has published a list of climate change mitigation practices, many of which are relevant to determining the emissions rates of biofuels feedstocks. *See Climate-Smart Agriculture and Forestry (CSAF) Mitigation Activities List FY2023*, USDA, (Oct. 2022) https://www.nrcs.usda.gov/sites/default/files/2022-10/CSAF%20Mitigation%20Activities%202023_1028.pdf.

lifecycle emissions rate. *Id.* § 45Z(d)(5)(ii) (defining "transportation fuel" as a fuel that "is suitable for use as a fuel in a highway vehicle or aircraft," "has an emissions rate which is not greater than 50 kg CO_2e/mmBTU," and "is not derived from coprocessing" certain materials with a non-biomass feedstock). The statute specifies that, where the emissions rate table does not establish the transportation fuel's emissions rate—such as where the table does not account for production processes or agricultural practices that reduce the fuel's emissions rate—the taxpayer producing the fuel may file a petition with the Secretary for determination of the emission rate for that fuel. *Id.* § 45Z(b)(1)(D). Assuming the emissions rate table incorporates a full range of process and practice improvements using GREET under Section 45Z(b)(1)(B), the Section 45Z(b)(1)(D) provisional petition process could be tailored to producers of novel fuel categories with inputs that are not yet contained within GREET. Modeling tools used to establish provisional emissions rates for such fuels should be credible and of an equivalent caliber as GREET.

We recommend that the IRS allow producers to petition early in the technology/process development to ensure certainty related to investment decisions. For example, California's Low Carbon Fuel Standard (LCFS) contains regulatory provisions that allow a biofuel producer to establish a new fuel pathway under certain circumstances. 17 Cal. Code Reg. § 95488.9(c). The carbon intensity value can be adjusted later if necessary as additional data become available, thereby avoiding risk to the integrity of a provisional carbon intensity value. Similarly in the Section 45Z context, if a producer files a provisional emissions rate petition and the IRS is unable to process the petition in a timely manner by year-end, the producer should be allowed to rely on the provisional rate submitted in the application with a requirement to later amend a tax return as needed. A flexible and efficient approach to provisional emissions rate 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. Any Successor Model to GREET Will Need to be Equally Comprehensive, Consistent with the Best Available Science, and Adopted Only After Public Notice and Comment

Congress anticipated that, at a future time, it may be necessary to utilize a successor model to GREET to determine the emissions rates of some categories of transportation fuel. 26 U.S.C. § 45Z(b)(1)(B)(ii). Currently—and likely through the 2027 end date for the Section 45Z credit's initial eligibility period—there is no need to identify or develop a successor model for fuel ethanol. GREET is an annually updated model recognized as the gold-standard of lifecycle analysis science.[15] If, at a later date, the IRS considers adopting a successor model, that model should be equally comprehensive as GREET in addressing full

[15] *See, e.g.* Upstream Energy Analysis, Argonne National Laboratory (Sep. 27, 2022) https://www.anl.gov/esia/upstreamenergy-analysis (noting that GREET is "the gold standard for evaluating energy emissions and impacts").

lifecycle emissions. This should include the capacity to model the elements or inputs for a particular fuel's various production process and feedstock elements to calculate GHG lifecycle emissions (rather than relying on over-broad or imprecise default values). Further, before the IRS adopts a successor model for biofuels' lifecycle GHG emissions, it should obtain input from stakeholders and experts including DOE, USDA, and through a public notice-and-comment process in which biofuels industry experts and others can participate.

IV. GREET is a "Similar Methodology" to CORSIA Which Producers May Use to Determine the Emissions Rate of Sustainable Aviation Fuel

As explained in greater detail in the attached letter previously submitted to the IRS, Section 45Z establishes that the IRS should use the CORSIA model or a "similar methodology" that satisfies the criteria specified in the Clean Air Act Renewable Fuels Standard program to calculate lifecycle GHG emissions associated with aviation fuel. This flexibility allows producers of ethanol-to-jet sustainable aviation fuels to calculate emissions rates for their fuels using GREET. 26 U.S.C. § 45Z(b)(1)(B)(iii)(II). The U.S. government-developed GREET model amply satisfies the statute's requirements as an acceptable "similar methodology" that satisfies RFS program criteria. *Id.* Further, as explained in detail in the previously-submitted letter, GREET generates more credible results than the international CORSIA method, which substantially overestimates induced land use change (iLUC) allegedly caused by U.S. corn production. As with non-aviation fuels, a model for emissions rates that reliably addresses a wide range of inputs is important both to incentivize sustainable aviation fuels with the highest GHG-reduction potential and to ensure the integrity of the lifecycle emissions calculation. GREET satisfies these objectives.

V. Clean Fuel Producers Utilizing CCS Should Have Flexibility in Electing Section 45Z or Section 45Q Credits

Ethanol production processes have particularly high potential for deployment of carbon capture and sequestration (CCS) technologies due to the highly concentrated stream of carbon dioxide generated from the fermentation process that produces ethanol from corn starch.[16] Combining the sequestration of atmospheric CO_2 through photosynthesis by bioenergy feedstocks with the capture of high purity CO_2 streams from the bioenergy production process, ethanol production has enormous potential to reduce GHG emissions in liquid transportation fuels. The largest and most mature application of BECCS technologies is deployment of CCS onto U.S. ethanol production facilities.[17] Indeed, 25% of the ethanol

[16] International Energy Agency (IEA), *Bioenergy with Carbon Capture and Storage, Tracking Report* (Sep. 2022) https://www.iea.org/reports/bioenergy-with-carbon-capture-and-storage

[17] *See, e.g.* Bioenergy and Carbon Capture and Storage, Global CCS Institute (2019) https://www.globalccsinstitute.com/wp-content/uploads/2020/04/BIOENERGY-AND-CARBON-CAPTURE-AND-STORAGE_Perspective_New-Template.pdf

industry already captures carbon dioxide, and many other members are planning to install capture technology in the near future.[18]

To encourage the biofuels industry's continued deployment of CCS, the IRS should ensure producers have flexibility to elect either the Section 45Q or Section 45Z credit each year without compromising their ability to claim Section 45Q credits subsequently through the 12-year eligibility period. The statute does not prevent a taxpayer who previously received Section 45Q credits from later electing the Section 45Z credit in a different tax year. 26 U.S.C. § 45Z(d)(4). We request that the IRS clarify in guidance or regulation that the election to receive a particular credit in a taxable year applies only to that taxable year and is not an irrevocable election that locks a taxpayer into selecting the same tax credit for all subsequent years. Further, we request that the IRS clarify that any election previously made under Section 45Q with respect to a facility in a pre-IRA taxable year will not preclude such facility from qualifying as a "qualified facility" under Section 45Z in future taxable years.

VI. We Urge the IRS to Adopt Rounding Practices for Emissions Rates that Incentivize GHG Emissions Reductions

The IRS has discretion to choose an appropriate rounding methodology to determine a fuel's emissions rate. The statute specifies that "the Secretary may round the emissions rates under subparagraph (B) to the nearest multiple of 5 kilograms of CO_2e per mmBTU" (and may round a rate between 2.5 and -2.5 kg/mmBTU to zero). 26 USC § 45Z(b)(1)(C) Since the statute is permissive and thus does not require rounding, the IRS has discretion to round by smaller increments than 5 kg. The IRS should round to the nearest 0.1 kg/mmBTU in order to encourage emissions reductions that achieve lifecycle emissions reductions of less than 5 kg/mmBTU.

Process improvements that result in a less than 5 kgCO2e/mmBTU reduction in emissions rate can still have substantial impacts on total GHG emissions when spread across many gallons of biofuel production. For example, an emissions rate decrease of only *0.1* kg CO2e/mmBTU, if applied across the full U.S. ethanol production capacity, would result in an emissions reduction of approximately 130,000 metric tons of carbon dioxide[19]—the equivalent of taking over 28,000 gasoline vehicles off the road or operating 35 wind turbines for a year (in lieu of marginal sources of grid electricity).[20] The IRS should

[18] Growth Energy, *Putting Carbon to Work: Biorefineries' Critical Contributions to Net-Zero* (June 2022) https://growthenergy.org/wp-content/uploads/2022/06/GROW-22019-Issue-Brief-Carbon-Capture-2022-06-22-R8.pdf; *see e.g.,* "Navigator CO2, POET Sign Letter of Intent to Capture, Transport, and Store Five (5) Million Tons of CO2 Annually," https://poet.com/pr/navigator-co2-poet-sign-letter-of-intent.

[19] Calculated using ethanol production capacity data from the U.S. Energy Information Administration (data as of Jan. 1, 2022), https://www.eia.gov/petroleum/ethanolcapacity/ and ethanol energy content values from the U.S. Department of Energy, Alternative Data Center Fuel Properties Comparison, https://afdc.energy.gov/files/u/publication/fuel_comparison_chart.pdf.

[20] U.S. EPA Greenhouse Gas Equivalencies Calculator, https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#

therefore round emissions rates to no greater interval than the nearest 0.1 kg CO2e/mmBTU in order to maximize the emissions-reduction potential of the Section 45Z credit, consistent with Congress's GHG emissions reduction goals and the Administration's priorities.

VII. Gallon Equivalence Should Only be Applied to Gaseous Fuel

The IRA specifies the clean fuel production credit as an amount equal to the product of "the applicable amount per gallon (or gallon equivalent)" produced and sold by the taxpayer and the emissions factor specified in the statute. 26 USC § 45Z(a)(1)(A). The reference to "gallon equivalent" provides a mechanism to address gaseous transportation fuels. For liquid transportation fuels, use of gallons are readily measured and any further accounting for differences in energy density are most directly addressed in calculating the fuel's lifecycle emissions rate. Specifically, the statute directs that emissions rates for a gallon of fuel is calculated on the basis of kg of CO2e/mmBTU, so that the emissions (of CO2e) for the gallon of fuel are already specified on the basis of the energy (mmBTU) contained in that gallon. Accordingly, differences in energy density between various liquid fuels are already incorporated into the amount of credits that a producer receives.

VIII. The IRS Should Clarify that Sale to an "Unrelated Person" in Section 45Z Has the Same Meaning as in Section 45

The IRS should clarify that "sale" as described in paragraph (a)(4) of Section 45Z includes the sale of fuel to an unrelated party through a related intermediary. In practice, it is common for a biofuel producer to transfer title to fuel it produces to a distributor under a common parent company for purposes of resale to an unrelated consumer. These types of sales should be included for purposes of Section 45Z credit generation because the end result—sale of fuel to an unrelated party—is the same, regardless of whether the fuel is first transferred to an affiliated distributor.

This is consistent with the concept of sales to an unrelated person in the Section 45 renewable electricity tax credits with respect to Indian coal facilities, which for such purposes allows sales "to an unrelated person (*either directly by the taxpayer or after sale or transfer to one or more related persons*)" to qualify for an increased credit. 26 U.S.C. § 45(e)(10)(A)(ii)(I)(emphasis added). Although Section 45Z does not include the same explanatory parenthetical as Section 45 with respect to sales or transfers to one or more related persons, it is reasonable to conclude that Congress intended to keep the concept of a sale "to an unrelated person" consistent throughout the Sections 45 - 45Z tax credits. Both Sections 45 and 45Z provide that, "[i]n the case of a corporation which is a member of an affiliated group of corporations filing a consolidated return, such corporation shall be treated as selling electricity to an unrelated person if such electricity is sold to such a person by another member of such group." 26 U.S.C. § 45(e)(4); 26 U.S.C. § 45Z(f)(3). There is no apparent reason that Congress would have intended that sales through an affiliated

distributor would disqualify a producer from the 45Z credit but not the Section 45 renewable electricity tax credit for Indian coal facilities.

For these reasons, we encourage the IRS in its Section 45Z guidance to adopt language clarifying that sales through a related party to an unrelated person will fall within the meaning of paragraph (a)(4) of Section 45Z.

* * *

Growth Energy appreciates the IRS' consideration of this input as it implements the IRA's tax credit provisions in a robust and precise manner, relying on the best available science to maximally incentivize GHG emissions reductions. We look forward to engaging 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,

Chris Bliley
Senior Vice President of Regulatory Affairs
Growth Energy

CC:
The Honorable Janet Yellen, Secretary, U.S. Department of the Treasury
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