February 4, 2022

The Honorable Michael Regan
Administrator
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460

RE: Docket No. EPA-HQ-OAR-2021-0324-0002

Dear Administrator Regan:

On behalf of more than 40,000 dues-paying corn farmers nationwide and more than 300,000 corn growers who contribute to corn checkoff programs in their states, the National Corn Growers Association (NCGA) appreciates the opportunity to comment on the Environmental Protection Agency's (EPA) proposed Renewable Fuel Standard (RFS) volumes for 2021 and 2022 and proposed revision to 2020 volumes.

As producers of the sustainable, primary feedstock for low carbon ethanol, corn farmers support a robust RFS and timely implementation of annual RFS volumes. The RFS is a successful energy and economic policy for consumers, our environment and for farmers. A return to consistent and timely RFS administration in 2022 is key to maximizing carbon and pollutant reductions, expanding our energy supply to lower consumer costs, and supporting rural economic growth.

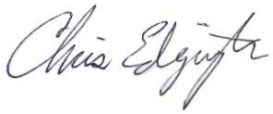
NCGA strongly supports the proposed 2022 RFS volumes, which include an implied volume of 15 billion gallons for conventional renewable fuel and an increase in total renewable fuel. NCGA also supports the proposed supplemental volume of 250 million gallons in response to the D.C. Circuit Court of Appeals remand of the 2016 RFS volume rule in the *Americans for Clean Energy v. EPA* (*ACE*) decision and EPA's stated intent for an additional 250 million gallons in 2023.

Regarding the 2021 volume proposal, NCGA urges EPA to set volume requirements according to the statute, using production and RIN generation data available when finalizing the proposal. EPA should rely on actual, full-year data when promulgating retroactive standards after the statutory deadline and calendar year, without other adjustments.

Finally, NCGA disagrees with EPA's proposed use of the RFS reset authority to revise final 2020 volume standards. EPA should rely on the self-adjusting nature of the RFS, which reduced 2020 volume requirements based on the decline in fuel production compared to the fuel projections used when EPA finalized the 2020 RFS volume standards.

EPA's proposal offers the promise of renewable fuel growth and return to RFS integrity in 2022, but the proposed reconsideration of 2020 volumes would undermine that progress, rewarding the use of more oil in place of clean renewables. Corn growers stand ready to help EPA achieve greater emission reductions and cleaner air through use of more renewable, sustainable, affordable ethanol, and our full comments on the proposal follow.

Sincerely,



Chris Edgington, President
National Corn Growers Association

WWW.NCGA.COM

NATIONAL OFFICE
632 Cepi Drive
Chesterfield, MO 63005
(636) 733-9004

WASHINGTON, DC OFFICE
20 F Street NW, Suite 900
Washington, DC 20001
(202) 628-7001

Proposed Volumes for 2022

NCGA supports EPA's proposed 2022 total renewable fuel volume of 20.77 billion gallons, which allows for an implied conventional biofuel volume of 15 billion gallons in line with the statute. We urge EPA to finalize the 2022 volumes, as proposed, as soon as possible. Congress intended renewable fuel use to increase over time through higher annual volume requirements. As EPA notes, the volume increase proposed for 2022 is consistent with EPA's policy from prior years of never establishing prospective requirements lower than the implied statutory volume targets, with a single exception. As EPA also notes, the D.C. Circuit Court of Appeals vacated that single exception in *ACE* decision.

As the producers of the primary feedstock for ethanol, which obligated parties have largely used to meet the implied conventional renewable fuel volume, corn growers believe maintaining the 15 billion gallon implied conventional volume in the 2022 rule upholds the statute and supports higher ethanol blends. Maintaining a 15 billion gallon requirement, no longer undermined by waivers or retroactive reductions, encourages greater ethanol blending and higher blends in the form of E15, often marketed as Unleaded 88, and E85 flex fuel, both lower cost and lower greenhouse gas (GHG) choices for drivers.

The D.C. Circuit's explanation of the purpose of the RFS in the *ACE* decision is instructive as EPA reviews implementation of the RFS and the statutory factors in setting the 2022 volume. Continued waivers, whether the faulty 500 million gallon general waiver in 2016 or more recent abuse of SREs totaling nearly 4 billion ethanol-equivalent gallons, diminish the potency of the market forcing policy of the RFS. As the D.C. Circuit Court stated:

> *"The central problem with EPA's "supply equals demand" argument (in addition to the text of the statute, of course) is that it runs contrary to how the Renewable Fuel Program is supposed to work. By setting annual renewable fuel volume requirements that increase progressively each year, Congress adopted a "market forcing policy" intended to "overcome constraints in the market" by creating "demand pressure to increase consumption" of renewable fuels…. In other words, the Renewable Fuel Program's increasing requirements are designed to force the market to create ways to produce and use greater and greater volumes of renewable fuel each year. EPA's interpretation of the "inadequate domestic supply" provision flouts that statutory design: Instead of the statute's volume requirements forcing demand up, the lack of demand allows EPA to bring the volume requirements down."*[1]

Along with the private sector, support from the U.S. Department of Agriculture's (USDA) infrastructure grant programs, and state programs, corn growers have invested in deployment of infrastructure for higher ethanol blends. Corn growers have specifically invested our resources to support installation of fuel dispensing equipment certified by Underwriters Laboratories (UL) to deliver fuels containing up to 25 percent ethanol (E25). NCGA's investment in higher ethanol blend fueling infrastructure has supported the installation of E25 certified dispensers in more than 10 percent of the total U.S. retail fuel market so far. Building higher ethanol blend capability into today's fueling infrastructure provides fuel retailers with the flexibility to maximize future consumer choice, opening the marketplace to greater ethanol consumption.

We encourage EPA to complete the 2020 rulemaking on E15 labeling and compatibility demonstration, as well as proceed with a rulemaking to reduce fuel volatility standards per our December 9, 2021, request to the agency. These actions would remove additional barriers to greater availability of E15 as an immediate, available, and affordable solution to lowering carbon emissions in transportation and facilitate compliance with the 2022 RFS volume standards. EPA also missed an opportunity to incentivize greater flex-fuel vehicle production and provide a pathway for low carbon, high octane fuels and vehicles in the recently revised vehicle GHG standards for MY 2023-2026. The final rule left carbon reductions from greater use of low carbon E85 and other higher ethanol blends on the table, shortcomings EPA should address in standards for MY 2027 and later.

Corn growers expect positive impacts on the environment, energy security, job creation, rural economic development, environmental justice, and transportation costs, among other factors EPA analyzed, from the 2022 volume standard. We will provide more a detailed response to the assessment of the statutory factors later in our comments, but the 2022 proposed volumes will offer greater GHG emission reductions, a larger fuel supply to ease consumer costs, and

[1] *Americans for Clean Energy v. EPA.* No. 16-1005 (D.C. Cir., 2017)

consistent demand for farmers, among other benefits. Furthermore, increased crop yields, continued expansion of voluntary production practice improvements and ongoing technology advances ensure corn growers will continue to produce more feedstock with less land and fewer resources to meet higher standards. Compared to the petroleum products they replace, renewable fuels made from sustainable renewable feedstocks such a corn will continue to have a significantly smaller lifecycle GHG and environmental footprint, with a pathway to net zero emissions due to agriculture practices, soil carbon sequestration, ethanol production efficiencies and carbon capture.

In response to EPA's request for comment on projections for cellulosic biofuel, NCGA believes EPA should include the volume of cellulosic ethanol produced from corn kernel fiber in the standards, which EPA estimates at 210 million gallons. Ethanol producers' applications for registrations for cellulosic ethanol production from corn kernel fiber have been pending at EPA for a considerable amount of time, some registration applications for years. EPA is long overdue in processing these registrations, delaying the availability of additional low carbon ethanol in the marketplace to replace high carbon petroleum products.

Response to the *ACE* Remand and Supplemental Volume

NCGA, as one of the petitioners in *Americans for Clean Energy*, strongly supports the proposed 250 million gallon supplemental volume for 2022 in response to the *ACE* remand and the agency's stated intent to propose an additional 250 million gallon supplemental standard in 2023. In the 2017 *ACE* decision, the D.C. Circuit vacated EPA's use of the "inadequate domestic supply" waiver authority, which EPA used to improperly waive 500 million gallons from the 2016 total renewable fuel volume requirement.

EPA has a responsibility to respond to the Court's remand, and we agree with EPA's approach to treat the 250 million gallons as a supplement to the 2022 standards, rather than a supplement to the 2016 standards, which have passed. As EPA notes, there are insufficient 2015 and 2016 RINs available to meet a supplemental standard, and additional 2015 and 2016 RINs cannot be generated. However, both 2021 and 2022 RINs would be available to meet the 2022 supplemental standard, and obligated parties could meet the supplemental standard with additional renewable fuel blending or carryover RINs, given EPA's projections for the carryover RIN bank. Phasing in the supplemental standard over two years provides additional flexibility to the marketplace.

We believe EPA's approach is reasonable and avoids potential compliance burdens the agency described in the 2020 proposal. The agency's 2020 proposal relied on the same faulty reasoning used for the 2016 volume rule, which the D.C. Circuit vacated, again incorrectly weighing demand-side factors, and overlooking how the RFS works by setting strong standards to force demand up. Use of a supplemental standard for 2022, rather than reopening 2016 compliance and relying on 2015 and 2016 RINs, further avoids undue burdens on obligated parties. EPA is providing sufficient lead time for the supplemental standard, and EPA has proposed multiple mechanisms to facilitate compliance.

EPA must add an additional obligation of 500 million gallons to volume standards in response to the Court's remand, which was issued more than four years ago. EPA has considered alternatives, and the supplemental approach proposed for 2022 is an appropriate and meaningful response to the Court's vacatur and remand that should be finalized without further delay. Additionally, EPA must follow through on the stated intent to propose a second 250 million gallon supplemental standard in 2023 to complete the response to the Court's remand.

Use of RFS Reset Authority

NCGA agrees with EPA's decision not to propose use of the general waiver authority to modify prior volumes or to reduce the 2021 and 2022 volumes. As we stated in 2021 comments on requests for EPA to use general waiver authority to adjust 2020 volume standards, "Those requesting EPA grant a general RFS waiver have provided no evidence, analysis or demonstration of harm caused by the RFS, as the statute requires. Further, any general RFS volume waivers would undo the measurable economic and environmental benefits the RFS provides for consumers and our nation, as well as

cause economic harm for corn farmers."[2] NCGA believes EPA's interpretation of severe economic harm waiver authority made through denials of waiver petitions in 2008 and 2012 is appropriate and consistent with the statute. EPA should continue to rely on this thorough and well-documented interpretation.

Instead of proposing to exercise the general waiver authority to revise 2020 volumes, EPA instead proposes to use the RFS reset authority to revise 2020 volumes and set 2021 volumes. Although we would have greater concern with unjustified use of the general waiver authority, we also have concerns with EPA using the reset authority in this manner.

As EPA notes, the agency is proposing to use the reset authority to reset the obligation for total renewable fuel well after the statutory deadline of December 11, 2019. EPA is two years too late to use this authority. The purpose of the reset authority is to adjust future volumes in the statutory volume tables should permissible waivers of statutory volumes exceed specified thresholds. The conditions for resetting advanced biofuel volumes were met by the 2014 and 2015 annual standards, and the conditions for resetting total renewable fuel volumes were met by the 2018 and 2019 annual standards. Yet EPA has not proposed to reset annual volumes until two years later and after finalizing 2020 volumes.

While the proposed 2022 volumes are independently justified under the RFS cellulosic waiver authority, EPA relies on the RFS reset authority for the proposals for 2021 and 2020 volumes. For 2020, EPA is setting a new and concerning precedent of revising previously finalized volumes, calling into question the certainty of final annual volume standards going forward. EPA is misusing the RFS reset authority to exceed EPA's maximum discretion to adjust volumes based on annual cellulosic waiver authority. Instead, EPA should rely on the self-adjusting nature of the RFS to address the decline in fuel production and consumption in 2020 related to the COVID-19 pandemic and follow past practices for promulgating standards retroactively, such as used for 2014 and 2015 standards, for setting 2021 standards.

Reconsideration of 2020 Volumes

EPA proposes to revise the previously finalized 2020 RFS volumes, reducing the total renewable fuel requirement from 20.09 billion gallons to 17.13 billion gallons, including a 2.5 billion gallon reduction in the implied conventional biofuel volume from 15 billion to 12.5 billion gallons. EPA states the revised total volume is equal to the volume of renewable fuels consumed in the 2020.

We do not believe it is appropriate for EPA to revise previously finalized RFS standards and to do so nearly two years after those volumes were finalized. We agree with EPA's historical practice of not revising RFS standards after finalizing them and believe EPA should maintain that practice. Retroactively revising final standards is inconsistent with the statute, adds uncertainty, and would, "render the standards a moving target," according to past positions taken by EPA.[3] The change in precedent with this proposal is inconsistent and is also unnecessary.

As EPA explains, the RFS self-adjusts for reductions in fuel consumption during the compliance year, such as occurred in 2020. Because RFS volumes are applied as a percentage of an obligated party's gasoline and diesel production, when the actual production is less than the projected production used when annual volume standards are set, the volumetric obligation decreases, as occurred in 2020. This self-adjusting function of the RFS reduced the effective volume of renewable fuel required under the 2020 volume standard by 2.1 billion gallons, or to 17.99 billion gallons, without EPA having to take any actions.

The 2020 final volume rule, for the first time, included projections of gallons of gasoline and diesel fuel from small refineries expected to be exempt from renewable fuel blending. This addition to the standards formula was made in response to the significant increase in retroactive small refinery exemptions (SRE) granted for the 2016, 2017 and 2018 compliance years, with 85 exemptions totaling 4.04 ethanol equivalent gallons. EPA correctly revised the definitions in the standards formula and rightly included a projection for exempted gallons granted after the final rule. While NCGA

[2] NCGA comments submitted to docket EPA-HQ-OAR-2020-0322, February 18, 2021
[3] *Growth Energy v. EPA.* No. 19-1023. D.C. Cir. Initial brief for respondent U.S. EPA (January 2, 2020).

disagreed with the prior justification provided for the expansion of SREs and joined legal actions to address the use of SREs, we nonetheless urged EPA to account for expected SREs to maintain the integrity of annual RFS volumes in the face of SREs nearing 10 percent of annual standards.

We support EPA's separate proposed denial of SRE petitions pending for the 2020 compliance year and urge EPA to finalize that proposed action. While EPA may have been uncertain about a course of action on pending SREs when drafting the proposed volume rule, EPA's subsequent proposal to deny the SRE petitions pending for 2020 indicates a clear direction and limited use of SREs as a pathway to undercut biofuels use in the future. Such a change in policy is in line with the statute and recent court decisions, including the Tenth Circuit Court of Appeals decision in *Renewable Fuels Association, et al v. EPA.*

Using the RFS reset authority to revise the final 2020 volume requirement downward, in addition to the self-adjustment that has already occurred based on the decline in fuel production compared to projections, is presented as the only option to address concerns about carryover RIN availability. However, net RIN generation for 2020 totaled 18.28 billion RINs, including 12.98 billion conventional biofuel RINs. RIN generation for 2020 is greater than the effective volume of renewable fuel required for 2020, or 17.99 billion gallons. While EPA does not propose to reconsider the final 2020 volume based on a change in policy on SREs, if EPA does not grant the SREs projected and reallocated for in the 2020 final rule, the total renewable fuel volume of 18.76 billion gallons, after the RFS self-adjustment, is only slightly greater than 2020 RIN generation. EPA projects a carryover RIN bank of 1.85 billion RINs after compliance with 2019 RFS standards, which would leave flexibility for meeting the 2020 volume requirement without the need for additional revisions to the standard.

The carryover RIN bank has been inflated in recent compliance years due to the large expansion of retroactive SREs. The SREs granted for the 2017 compliance year added nearly 1 billion carryover RINs, and the 1.43 billion RINs from the 2018 SREs pushed the carryover RIN bank near its maximum of 20 percent of the total annual renewable volume requirement. With the proposal to set the delayed 2021 volume at actual renewable fuel production for the year, more than 1 billion RINs would carry over and remain available for compliance with the 2022 standards as well.

The proposal to revise and reduce the 2020 volume requirement appears intended only to increase the carryover RIN bank, incentivizing use of more petroleum fuels instead of cleaner renewables. However, this proposed reduction is unnecessary to address the sharp decline in 2020 fuel demand due to the COVID-19 pandemic or for EPA's proposed denial of 2020 SREs. The self-adjustment of the RFS, the 18.28 billion RINs generated in 2020, and the existing carryover RIN bank provide EPA and obligated parties with compliance flexibility to meet the already finalized 2020 RFS volumes. EPA has no need to undermine the certainty of final RFS volumes, and call into question the certainty of future final volumes, by making the proposed retroactive reductions. EPA should maintain the 2020 volumes as finalized in 2019.

Proposed Volumes 2021

EPA proposes to set 2021 volumes, which were not proposed and finalized on schedule in 2021, at the volume of renewable fuels used last year. This approach of setting volumes after the fact when the annual volume rule was delayed is far from ideal and undermines the benefits of the RFS. However, the approach appears consistent with the approach EPA used for delayed 2014 and 2015 standards, if EPA uses consumption numbers without adjustment.

EPA proposes a total renewable fuel volume of 18.52 billion gallons, which includes an implied conventional biofuel volume of 13.32 billion gallons. This proposal appears lower than the 13.88 billion gallons of conventional biofuel in later U.S. Energy Information Administration (EIA) data for 2021. In addition, EPA reports 14.24 billion conventional biofuel RINs generated in 2021 and 19.84 billion total RINs generated in 2021. 2021 RIN generation is much greater than the 2021 volume proposed, providing EPA with an opportunity to increase the 2021 volume requirement from the proposal or avoid revising the 2020 volume due to the resulting higher carryover RIN bank. Like the 2020 proposal, EPA's approach for 2021 appears intended to maximize the carryover RIN bank rather than maximize the use of renewable fuels in place of petroleum products.

Because EPA will finalize this proposal in 2022, EPA will have the benefit of final fuel production and consumption data for 2021. We urge EPA to use final 2021 data from EIA, without adjustments, when setting the final 2021 volume. There is no need for EPA to rely on projections or partial 2021 information.

The failure to propose and finalize 2021 RFS volumes on the statutory timeline impacts the ability of the RFS to drive increases in renewable fuel consumption. The RFS statute requires volumes to be set by November 30 for the following compliance year. As such, the 2021 volume requirement is more than a year too late to have the ability to influence use of cleaner biofuels like ethanol. Expanding use of renewable fuels like ethanol is an immediate and affordable means to meet GHG reductions commitments, and failure use to the RFS as an effective tool in 2021 is a missed opportunity to further reduce transportation emissions.

Amendments to RFS Regulations

NCGA supports EPA's proposal to change treatment of information contained in certain requests under the RFS program. Basic information regarding petitions for small refinery exemptions, pathway petitions, and compliance demonstration reports should not be considered confidential business information (CBI).

Under this proposal, EPA would release the name and location of the facility, the date the submission was transmitted to EPA, the general purpose and nature of the submission and the relevant time period of the request. If an EPA action or decision is required and made, EPA would also release the extent to which EPA either granted or denied the request and relevant terms or conditions.

NCGA agrees this basic information is not CBI and making this information public provides additional RFS transparency. Until late 2018, for example, EPA provided almost no information regarding refinery exemptions, depriving all market participants other than the waiver recipient of important RIN market information and contributing to RIN market volatility. The aggregate information EPA began posting online in 2018 provided a widow into total numbers of petitions, petition status and total exempted gallons, but still did not disclose which refineries petition for exemptions and the extent of the exemptions EPA grants or denies.

While release of the aggregate information was a step in the right direction, the further step of releasing individual petitioner basic information ensures reasonable transparency and protection of CBI. We support finalizing the proposal alongside the RFS volumes.

Assessment of Statutory Factors

Because EPA is using the RFS reset authority to revise the prior 2020 volume requirements, EPA is required to assess the factors listed in the RFS statute, including environmental, energy security, transportation costs, and agriculture and rural economic impacts. EPA is also required to assess RFS implementation and has authority to consider other factors. EPA lists size of the carryover RIN bank, soil quality and environmental justice among the other factors considered in this proposal. NCGA offers input on assessment of the statutory factors, as well as agriculture production considerations for the RFS. Since EPA must assess the same factors for the pending post-2022 set rulemaking, the Draft Regulatory Impact Assessment (DRIA) also offers insight into information EPA may rely on, or is lacking, for the post-2022 rulemaking.

The RFS and Agriculture Production

For 2021, USDA projects the U.S. corn crop to total 15.1 billion bushels, valued at $82.4 billion. Between 2016 and 2021, U.S. corn ending stocks have averaged more than 1.5 billion bushels annually, illustrating availability of additional feedstock to increase renewable fuel production, while continuing to meet and exceed current demands for food, feed, and exports.

Since the Renewable Fuel Standard was expanded in 2007, corn farmers have increased corn production, not by bringing more land into production, but through higher yields that have resulted in more corn produced with less land and fewer resources. For example, planted corn acres in 2021, at 93.36 million acres, were just less than planted acres in 2007, the year the RFS was expanded, at 93.5 million acres, yet corn production is forecast to increase by 15.9 percent for 2021 compared with 2007. USDA data also shows the area planted to principal crops in the United States is not expanding overall. Planted acres totaled 328.6 million in 2000 and have not reached that level since. In 2021, planted acres totaled 317.2 million. Changes in corn acres come from changes in the mix of crops planted rather than an expansion of total cropland.

Corn production has increased primarily because crop yields have increased from an average of 150.7 bushels per acre in 2007 to 177 bushels per acres in 2021. With the average yield in 1980 at just 91 bushels per acre, productivity growth is a long-term trend. Because of increased corn productivity, increases in feedstock supply to meet higher RFS volume requirements, such as those proposed for 2022, do not require conversion to crop land or other land use changes. As EPA notes in the DRIA using USDA data, domestic corn production has grown steadily at a 25-year average rate of around 2 percent or 250 million bushels per year, "with no apparent correlation to ethanol production numbers.[4]

We also agree with EPA's assessment in the DRIA that the Conservation Reserve Program (CRP) is relevant to land use change, with Congress reducing acres allowed in CRP from 36.8 million in 2007 to 21.9 million in 2020.[5] Some of the land leaving CRP is returned to crop production, while some is retained as pastureland, according to USDA's 2017 National Resources Inventory, accounting for land cover changes. To be eligible for CRP enrollment, land must have been agriculture land.

Specific to land cover change and land use, NCGA encourages EPA to make use of the attached published analysis addressing limitations of the Cropland Data Layer (CDL) for use in estimating land cover change and the three-part assessment of the CDL, the National Resources Inventory (NRI) and demand drivers to further clarify and understand factors regarding land cover/land use change.[6] [7]

Our Sustainability Commitment

Corn is an abundant and environmentally and economically competitive feedstock. Thanks to technology advancements, corn farmers can produce more corn with fewer inputs than ever before, increasing feedstock supply while reducing corn's carbon intensity (CI). U.S. corn farmers have a long history of continuous improvement, constantly looking for and implementing practices that make them more efficient and environmentally and economically sustainable. NCGA's 2021 Sustainability Report details this history and provides a look toward what the future may hold.

The corn industry's evolution in sustainability, the documented environmental, economic, and social improvements over the last several decades, point back to a farmer's willingness to embrace change. Most notably, it has meant embracing numerous advancements in technology. Ultimately, technology granted farmers the ability to grow more with less. As the largest sector in American agriculture, corn farmers impact hundreds of thousands of jobs, infuse billions of dollars into the economy and care for our most critical resources, all while seeing substantial improvements in production.

Field to Market released updated an updated National Indicators Report in 2021. These science-based measurements of outcomes associated with commodity crop production from 1980-2020 show that farmers decreased the amount of land required to produce a bushel of corn by 56 percent and reduced greenhouse gas (GHG) emissions per bushel by 52 percent. Additionally, farmers reduced soil loss by 60 percent per acre, cut irrigation water use by 44 percent and

---

[4] Environmental Protection Agency, Draft Regulatory Impact Analysis: RFS Annual Rules, EPA-420-D-21-002, December 2021, Page 206.
[5] Draft Regulatory Impact Analysis, Page 94.
[6] Copenhaver, Ken & et al., "Examining the Characteristics of the Cropland Data Layer in the Context of Estimating Land Cover Change," (2021). https://doi.org/10.3390/ijgi10050281
[7] Pearson, Randall & et. al., "Assessment of the National Resources Inventory (NRI), the Census of Agriculture, the Cropland Data Layer (CDL), and Demand Drivers for Quantifying Land Cover/Use Change," (2020). https://erc.uic.edu/wp-content/uploads/sites/633/2021/06/LUC_Report_Version-3_25_2020_Updated.pdf

reduced energy use by 45 percent.[8] Looking ahead to 2030, corn farmers are committed to: increase land use efficiency by 12 percent; reduce soil erosion by 13 percent; increase irrigation water use efficiency by 15 percent; increase energy use efficiency by 12 percent and reduce GHG emissions by a further 13 percent.

The most recent Census of Agriculture completed by USDA demonstrates how farmers continue to reduce tillage and adopt conservation practices such as cover crops. According to 2017 Census data, farmers have increasingly moved to reduced tillage practices or no-till practices, and away from conventional tillage, reducing tillage on millions of acres of farmland. The 2018 USDA NASS Agricultural Chemical Survey revealed that 65 percent of planted corn acres are operated as no-till or minimum-till. These changes in tillage practices help the soil retain nutrients and water, as well as sequester and store more carbon in the soil. These tillage changes, supported by crop production technology, also reduce tractor passes through fields, lowering fuel consumption and energy use.

In addition, the 2017 Census shows an increase in land planted to cover crops. 2012 to 2017 saw a 50 percent increase nationally, with increases of over 100 percent in top corn states including Iowa and Illinois. The USDA Economic Research Service (ERS) reported last year in Cover Crop Trends, Programs, and Practices in the United States that farmers reported planting 15.4 million acres of cover crops.[9] This farming practice also reduces soil erosion, improves nutrient management, and helps soils hold more carbon.

In recent biofuel environmental reviews, EPA failed to provide a comprehensive assessment of biofuels' environmental benefits. Unfortunately, some have erroneously used this incomplete analysis to conclude the RFS is causing environmental harm. By issuing a review that only told part of the story and drew conclusions based on limited data from past years, EPA neither fully captured the environmental benefits of biofuels nor the negative environmental impacts from the fossil fuels that biofuels like ethanol and corn feedstock production replace.

Environmental Impacts: GHG Emission Reductions

The RFS supports the role of renewable fuels in meeting President Biden's commitment to halve U.S. GHG emissions by 2030. From 2008 through 2020, the RFS has already resulted in nearly 1 billion metric tons of cumulative GHG savings, significantly exceeding projections, largely due to the reduced carbon intensity of corn ethanol.[10] Maximizing the RFS through increased volumes proposed for 2022 will immediately increase GHG reductions, supporting President Biden's commitment without waiting until 2050. Today's low carbon ethanol is positioned, with the right policies, to achieve net-zero emissions and continue to decarbonize transportation. The transportation mix is changing, but low carbon liquid fuels are essential to decarbonize transportation successfully and affordably, and ethanol is available now

Lifecycle Analysis

In the DRIA, EPA relies on outdated 2010 lifecycle analysis (LCA) to provide an "illustrative analysis" of potential GHG emissions of the proposed standards over a 30-year period.[11] As EPA acknowledges, "new and relevant data is now available that can help inform future assessments," and EPA commits to engaging with stakeholders outside this rulemaking to improve future assessments.[12] We urge EPA to do so. EPA's illustrative analysis shows corn ethanol GHG emissions from an initial pulse of land use change in 2021 and 2022 that did not and will not occur. While the scenarios show a larger GHG benefit from biofuel production displacing fossil fuel use over time, these scenarios fail to capture much of the GHG reduction benefits from biofuels.

---

[8] Field to Market, 20201 National Indicators Report, accessed at https://fieldtomarket.org/national-indicators-report/
[9] U.S. Department of Agriculture, Economic Research Service, "Cover Crops Trends, Programs and Practices in the United States; accessed at https://www.ers.usda.gov/webdocs/publications/100551/eib-222_summary.pdf?v=3793.4
[10] Unnasch, S. & Parida, D., "GHG Emissions Reductions due to the RFS2: A 2020 Update," February 2021; https://ethanolrfa.org/wp-content/uploads/2021/02/GHG-Emissions- Reductions-Due-to-the-RFS2-2020-Update.pdf
[11] Draft Regulatory Impact Analysis, Page 68.
[12] Draft Regulatory Impact Analysis, Page 68.

NCGA recognizes the Department of Energy's Argonne National Laboratory's Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) as the "gold standard" federal government model for biofuels LCA. We urge EPA to use GREET to assess biofuels LCA going forward. GREET's system boundaries include the significant direct activities and indirect effects from the "wells-to-wheels" supply chain for biofuels production, from feesdstock production, fuel production and engine combustion, including land use change (LUC) emissions. GREET currently assigns a LUC impact of 7.4 grams of carbon per megajoule.

Argonne's published analysis concludes corn ethanol's CI decreased 23 percent from 2005 to 2019 due to increased corn yield, reduced fertilizer intensity and improved ethanol production efficiency, with corn ethanol now between 44 and 52 percent lower in CI than the gasoline it replaces.[13] Argonne's analysis is consistent with recent research from Environmental Health and Engineering, with contributors from Harvard and Tufts Universities, that corn ethanol today is 46 percent lower in CI than gasoline.[14] Furthermore, according to California Air Resources Board (CARB) data, the CI of ethanol under the state's Low Carbon Fuel Standard (LCFS) is more than 30 percent lower today than it was in 2011 and at least 40 percent lower than the CI of gasoline.[15]

USDA's research and analysis also demonstrates how ethanol's carbon footprint is shrinking due to advances in both corn and ethanol production. USDA's 2018 study found that ethanol currently results in 39 to 43 percent fewer GHG emissions than gasoline. Building on this progress, additional improvements on farms and in ethanol production supported by expanding markets for low carbon fuels could result in ethanol with up to 70 percent fewer GHG emissions than gasoline, according to USDA's work.[16]

Corn-based ethanol can reach net zero emissions with continued on-farm improvements and soil carbon sequestration, along with carbon capture technology and new efficiencies in ethanol production. Corn farmers are proud of our leadership in adopting conservation and best management practices, planting cover crops, reducing tillage, and using GPS, variable rate application for inputs, remote sensing, in-field electronic sensors, section and row control on planters, sprayers and fertilizer applicators and spatial data management systems to help reduce inputs and to place inputs where they are needed, which reduces emissions and energy use. Biologicals are another technology that is increasing in use among farmers, which has the potential to further reduce CI of corn production. In addition to reducing feedstock CI, these production practices protect and enhance both soil and water quality.

Because Argonne regularly updates GREET, this model, including Argonne's Carbon Calculator for Land Use and Land Management Change from Biofuels Production (CCLUB), is capable of most accurately capturing updated crop yields, GHG emission reductions from farmers' improved production practices, and can incorporate other ongoing, voluntary climate-smart improvements in agriculture production. NCGA stands ready to collaborate with DOE and USDA on further data and enhancements to GREET that allow for incorporation of additional feedstock CI considerations, including soil organic carbon sequestration and other GHG reductions from farming practices. EPA's work would benefit from these updates as well.

Environmental Impacts: Air Quality

Compared to gasoline refining and use, ethanol's lower production cost and offset emissions lower end-costs to consumers, reducing both economic costs and social costs related to health and environment, key considerations in advancing

---

[13] Lee, Uisung & et al. ANL, "Retrospective Analysis of the U.S. Corn Ethanol Industry for 2005–2019: Implications for Greenhouse Gas Emission Reductions," (2021). https://onlinelibrary.wiley.com/doi/10.1002/bbb.2225

[14] Scully, Melissa J., et al, "Carbon intensity of corn ethanol in the United States: state of the science," (2021) Environmental Research Letters 16 043001. https://iopscience.iop.org/article/10.1088/1748-9326/abde08

[15] California Air Resources Board, Low Carbon Fuel Standard Reporting Tool Quarterly Summaries, based on data through Q2 2021 at https://ww3.arb.ca.gov/fuels/lcfs/lrtqsummaries.htm

[16] Lewandrowski, Jan and et al., "The Greenhouse Gas Benefits of Corn Ethanol – Assessing Recent Evidence," March 25, 2019 https://www.tandfonline.com/doi/full/10.1080/17597269.2018.1546488

environmental justice and avoiding adverse impacts from oil refineries and areas with heavy concentrations of highways and vehicle traffic on communities that have historically borne them.

Increased volumes of ethanol in fuel displace the most harmful compounds from gasoline.[17] These aromatic hydrocarbon additives (i.e., benzene, toluene, ethylbenzene, xylene – or BTEX) have high cancer-causing potential. Increasing the ethanol volume in fuel has a positive impact on tailpipe emissions of toxins, including significant reductions in particulates and carbon monoxide. These same aromatic hydrocarbons are also precursors to the formation of secondary organic aerosols (SOA), which in turn are a major contributor to particulate matter emissions (PM 2.5).

According to EPA's review for the 2020 Anti-backsliding Study, ethanol does not form SOA directly or affect SOA formation. However, as EPA states, toluene is a large contributor to SOA. Ethanol's high octane value "greatly reduces the need for other high-octane components including aromatics such as toluene."[18]

As explained in EPA's Fuel Trends Report: Gasoline 2006-2016, "Ethanol's high octane value has also allowed refiners to significantly reduce the aromatic content of the gasoline, a trend borne out in the data." EPA's data shows that aromatics' share of gasoline volume dropped from nearly 25 percent to 19.3 percent, and benzene volume dropped from 0.99 percent to 0.58 percent between 2000 and 2016, the same time as ethanol blending increased from 1 percent to at least 10 percent.

EPA's data demonstrates the air quality and human health benefits of increased ethanol blending in gasoline by replacing harmful aromatics with clean octane from ethanol. Limiting the aromatics content of gasoline and using higher ethanol blends would further reduce risks from SOA formation and exposure to PM 2.5, which causes serious respiratory, cardiovascular, and other health harm, including premature death, according to the American Lung Association.

Petroleum-based aerosol particles represent a significant source of pollution, especially in population-dense urban areas. Lowering the volume of petroleum in the domestic gasoline pool can reduce health issues related to PM and other emission-based pollutants, which can be accomplished by increasing octane with higher ethanol blends and replacing more hydrocarbon aromatics with ethanol.

Agriculture Commodity Prices and Supply, Food Prices and Rural Economy Considerations

The RFS has increased U.S. farm income and supported commodity prices, with negligible impact on food prices. We ask EPA to use the attached published analysis on RFS impacts related to agriculture commodities to help inform this proposal and future proposals.[19] This analysis reviewed impacts of both the RFS and biofuels production, separating impacts of with and without the RFS, focusing on two time periods, 2004 -2011 and 2011-2016 and considered both short-run and long-run impacts.

In general, biofuel production has increased annual farm incomes, while only modestly affecting commodity prices. Without biofuels production, U.S. farm income would have dropped by $10.6 billion. However, the long-run effects of biofuels production and the RFS on food prices are very small at 0.04 percent, and when the impact of the RFS alone is considered, biofuels production has had some small impact on food prices, but the RFS did not.

---

[17] Environmental and Energy Study Institute. Ethanol and Air Quality – Separating Fact from Fiction. October 12, 2018. https://www.eesi.org/articles/view/ethanol-and-air-quality-separating-fact-from-fiction

[18] U.S. Environmental Protection Agency, Clean Air Act Section 211 (v)(1) Anti-backsliding Study, (2020) Appendix A, Page 61.

[19] Taheripour, F., Baumes, H., & Tyner, W., "Impacts of the U.S. Renewable Fuel Standard on Commodity and Food Prices," (2020). https://www.gtap.agecon.purdue.edu/resources/download/10238.pdf

We agree with EPA's assessment in the DRIA that, "Considering historical trends over the past two decades indicating the ability of production to rise to meet demand, the modest increases in ethanol volumes associated with this rulemaking, if they have any impact on the supply of corn to food, exports or other uses would only be expected to have only a small short-term effect."[20]

For 2021, USDA projects the U.S. corn crop to total 15.1 billion bushels, valued at $82.4 billion. With 5.3 billion bushels of the 2021 crop expected to be used for ethanol production, including the more than 1.1 billion bushels of distillers grains co-products returned from ethanol production to animal feeds, ethanol production and demand for low carbon fuel provides an important market for corn growers. Ethanol production facilities and related industries, largely located in rural communities, support rural jobs and rural economic growth.

Ethanol Infrastructure

Through NCGA and state corn grower associations, farmers have invested their resources to back biofuels infrastructure compatible with distributing higher ethanol blends such as E15, including assisting retailers in determining compatibility of their equipment with higher blends and supporting greater availability and installation of equipment compatible with higher blends, such as E25 compatible pumps. We have found that the requirements and cost to add E15 and higher blends are often exaggerated and widely misunderstood, partly due to the complex nature of requirements regarding fuel, but also due to misleading and inaccurate claims from the petroleum industry interested in protecting its market share.

NCGA supports EPA's 2020 proposed changes to Underground Storage Tank (UST) compliance demonstration allowances and compatibility requirements for new and replacement equipment as a cost-effective means to ensure retailers can more easily bring low carbon future fuels to the marketplace. We urge EPA to finalize this proposal. The proposed allowances are an important first step, and EPA must include the greatest possible extent of equipment known to be compatible in the final rule. NCGA believes EPA can safely reduce the threshold for these demonstration requirements because of the lifespan of tanks and equipment and the length of time fully compatible equipment has been standard in the marketplace, supporting greater market availability of low carbon E15.

E15 Compatibility with UST

Compatibility has not been the issue, but proving compatibility has. With the 2020 proposal, EPA's compatibility standards are not changing, but EPA is allowing station owners and operators simpler, logical methods to demonstrate their infrastructure is compatible with E15. EPA's proposals increase recognition of existing compatibility and help dispel the myths holding retailers back.

We appreciate EPA's proposals to expand options for UST owners and operators to meet compatibility requirements and the forward-looking proposal for new UST systems and replacement equipment and components to be compatible with up to 100 percent ethanol, cost effectively future-proofing UST investments for changing fuel markets and new, low carbon fuel choices. However, we believe EPA's proposal could do more to expand allowances for already compatible equipment that retailers have in place that can safely and effectively be used for E15.

EPA identified equipment for which UST owners and operators would not need to demonstrate compatibility because certain categories of equipment are known to be compatible with higher blends. NCGA supports this change and including the specific equipment EPA identifies in the proposal - all steel and fiberglass tanks manufactured after July 2005 and all fiberglass reinforced plastic piping. Listing these tanks and piping is a good first step, but EPA must include the greatest possible extent of equipment known to be compatible is in the final rule.

According an audit by the U.S. Department of Energy's National Renewable Energy Laboratory (NREL), the majority of installed tanks can store blends above E10, and UST manufacturers have approved their tanks for blends up to E100 for

[20] Draft Regulatory Impact Analysis, Page 207.

several decades, including all steel tanks and double-walled fiberglass tanks since 1990.[21] Appendix C of NREL's report includes a compatibility list for tanks, Appendix D is a list of compatible pipes, and Appendix E provides compatibility information for other UST equipment.[22] As demonstrated in these listings, NREL's audit provides an extensive list of equipment compatible with blends such as E15 and higher, and NCGA encourage EPA to use this resource. Manufacturers have introduced new products since NREL published this report in 2015, and we agree with NREL's assessment that there is a higher likelihood that new products will be compatible with E15.

As the NREL audit demonstrates, most existing UST equipment since 2015 is compatible with blends above E10, raising the question of why burdensome compatibility demonstrations by retailers remain necessary. NCGA believes EPA can safely reduce the threshold for these demonstration requirements because the lifespan of tanks and equipment, prior requirements for UST owners and operators and the length of time fully compatible equipment has been standard in the marketplace makes these piece-by-piece demonstrations increasingly unnecessary today.

Finally, for new or replacement UST system equipment and components, EPA proposes that these be compatible with ethanol blends up to 100 percent. NCGA strongly supports this proposal. We agree with EPA that because UST systems remain in use for decades, "Implementing this requirement now will help ensure future fuels storage infrastructure can reliable store a larger variety of fuels." As EPA notes, all UST system equipment and components are readily available with 100 percent ethanol compatibility in the market today. For many pieces of equipment and components, 100 percent ethanol compatibility is the standard and there is no additional cost for this higher blend compatibility.

[21] Moriarty, Kristi and Yanowitz, Janet. "E15 and Infrastructure." National Renewable Energy Laboratory, May 2015, p vi. Available at https://afdc.energy.gov/files/u/publication/e15_infrastructure.pdf
[22] Moriarty, Kristi and Yanowitz, Janet. "E15 and Infrastructure." National Renewable Energy Laboratory, May 2015. Available at https://afdc.energy.gov/files/u/publication/e15_infrastructure.pdf