## **S**TAXPAYERS for COMMON SENSE

#### May 2021

# Understanding U.S. Corn Ethanol and Other Corn-Based Biofuels Subsidies



Since the creation of the domestic market for corn ethanol after the energy crisis of the 1970s, the federal government has nurtured and maintained the ethanol industry with a steady stream of subsidies. Originally sold as a way to achieve energy independence and reduce greenhouse gas (GHG) emissions, ethanol has been a favorite of policymakers from the Corn Belt. Ethanol producers have received favorable treatment under the tax code, tariff protection from foreign competition, a government mandate for its use, infrastructure subsidies, and more. As a result, taxpayers have spent tens of billions of dollars over the last 40 years subsidizing the mature biofuel. Decades of subsidies have failed, however, to reduce climate risks and serve as a bridge to next-generation, non-food-based biofuels, while spurring several unintended consequences, wasting taxpayer dollars, and distorting markets.

The largest current subsidy for corn ethanol is the federal Renewable Fuel Standard (RFS) mandate, administered by the Environmental Protection Agency (EPA). The RFS requires a certain volume of biofuels to be blended with U.S. gasoline and diesel each year. Approximately fifteen billion gallons of ethanol are now blended with gasoline annually, roughly 10 percent of gasoline (E10). While corn ethanol comprises a large majority of biofuels production in the U.S., corn is used to produce other biofuels (such as corn butanol and biodiesel) as well.

In addition to a government mandate, subsidies for corn ethanol and other corn-based biofuels litter the tax code - including tax breaks for ethanol blender pumps and biodiesel derived from corn oil - in addition to Department of Energy (DOE) programs and U.S. Department of Agriculture (USDA) subsidies. While the Alternative Fuel Vehicle Refueling Property Credit, which provides a 30 percent tax break for gasoline stations or other facilities installing biodiesel or 85 percent ethanol (E85) blender pumps, expired at the end of 2020 in addition to the cellulosic biofuel production tax credit, the market-distorting \$3 billion/year biodiesel tax credit is in place through 2022. Corn oil biodiesel qualifies for the latter credit.

Furthermore, the farm bill, a massive piece of legislation covering topics ranging from nutrition assistance to broadband internet, provides government subsidies for the now-mature ethanol industry, including corporate agribusiness giants such as Archer Daniels Midland. The majority of farm bill support for corn ethanol has come from energy title programs such as the Bioenergy Program for Advanced Biofuels (BPAB), trade programs such as the Market Access Program, and other commodity and crop insurance supports for corn and ethanol blender pumps (which dispense higher blends of corn ethanol, including E15, a mixture of 15 percent ethanol and 85 percent gasoline). While the Rural Energy for America Program (REAP) also subsidized ethanol blender pumps beginning in 2011, Congress prohibited such subsidies in the 2014 farm bill. In 2015, 2020, and again in April 2021, however, USDA unilaterally announced more blender pump subsidies through the Commodity Credit Corporation (CCC), a fund typically reserved for farm loans and other major farm subsidy programs.<sup>1</sup>

The December 2020 Consolidated Appropriations Act of 2021 was the latest legislative vehicle to include corn ethanol subsidies. The door is now

While the Rural Energy for America Program (REAP) also subsidized ethanol blender pumps beginning in 2011, Congress prohibited such subsidies in the 2014 farm bill. In 2015, 2020, and again in April 2021, however, USDA unilaterally announced more blender pump subsidies through the Commodity Credit Corporation (CCC), a fund typically reserved for farm loans and other major farm subsidy programs. open to subsidies for ethanol facilities due to COVID-19-related economic losses, with USDA announcing plans to subsidize biofuel industry losses in 2020. In addition, various carve-outs for ethanol and other biofuels have been proposed in recent infrastructure, budget, climate, and tax proposals both from the Administration and Congress. Instead of continuing to prop up special interests and provide taxpayer subsidies to biofuels that are doing more harm than good for the climate, policymakers should stop the waste and let the ethanol industry stand on its own two feet. To understand the nexus of corn-based biofuels subsidies this report will provide indepth analysis of the RFS biofuels mandate, farm bill energy title programs, specifically REAP and BPAB, and federal tax breaks.

#### Renewable Fuel Standard (RFS) Biofuels Mandate

While the corn ethanol industry benefits from various federal subsidies, the RFS mandate currently stands as the industry's most important. Three out of every four gallons in the RFS mandate are made up of corn ethanol even though Congress intended for non-food-based biofuels to fill a larger share of the RFS by now. While the ethanol tariff and the \$6 billion-peryear ethanol tax credit (known as VEETC) ended in 2011, a maze of ethanol subsidies still allows the federal government to pick winners and losers, distort energy and agriculture markets, and contribute to the expansion of corn into areas unsuited for intense agricultural production, which increases taxpayer costs of agricultural subsidy programs.

The RFS mandate requires oil and gas companies to blend increasing amounts of biofuels with gasoline and diesel each year, rising to 36 billion gallons in 2022. However, independent analysts predict the U.S. is highly unlikely to reach this goal due to lower-than-expected volumes of advanced and cellulosic biofuels derived from non-food crops and residues. The corn ethanol (conventional) mandate requires 15 billion gallons to be blended with gasoline each year, in addition to a 2022 mandate of 21 billion gallons of advanced biofuels (which includes cellulosic biofuels, biomass-based diesel such as diesel and



renewable diesel, and other advanced biofuels such as sugarcane ethanol and corn butanol).

However, production of advanced biofuels (particularly cellulosic biofuels) has fallen *significantly* below Congressional mandates set in 2007. Therefore, the climate and environmental goals of the RFS will not be met as once envisioned. Mandates for cellulosic ethanol have been waived more than 90 percent in recent years due to low production levels (see Figure 1 for differences between mandated biofuels volumes set in law in the 2007 energy bill vs. final Renewable Volume Obligations – RVOs – set by EPA each year). In 2020, for instance, the final cellulosic biofuels mandate set by EPA was just 5.6 percent (590 million gallons) of the original 10.5-billion-gallon mandate set in statute. Over the last 15 years, cellulosic after cellulosic facility either closed or went bankrupt. Many failed projects received federal taxpayer subsidies, including Range Fuels and Abengoa. As a result of these failures. EPA has been forced to waive down the cellulosic, advanced biofuel, and the overall RFS mandate each of the past several years, as seen in Figure 1.

#### EPA Policy Changes Expanded Corn-Based Biofuels Market Share

Corn-based biofuels other than corn ethanol have increasingly filled a greater share of the RFS since the mandate's inception. Even though Congress envisioned that cellulosic biofuels (nextgeneration, "advanced" biofuels) would be derived from perennial grasses, agricultural residues, and/ or wood chips — which have generally not come to fruition despite years of federal subsidies -EPA allowed the conventional ethanol industry to make its way into the cellulosic biofuel pool by converting corn kernel *fiber* into ethanol to circumvent a Congressional prohibition on the use of corn kernel starch for ethanol in the advanced biofuels mandate. Instead of using the inedible stalks or cobs for ethanol feedstocks, this pathway utilizes portions of the corn kernel that would otherwise be used as animal feed, creating competition with food and feed crops and distorting markets.

This is just one example of corn-based biofuels finding their way into other buckets of the RFS mandate that were meant for non-food-based



# Figure 1: Corn Ethanol Dominates RFS While Advanced Biofuels Fail to Meet Targets in billions of gallons



biofuels. Other examples include:

- Corn oil biodiesel: Biodiesel has increasingly been produced from corn oil, in addition to animal fats, vegetable oils such as palm and soy, used cooking oil, etc. Corn oil-based biodiesel qualifies as an "advanced biofuel" in the RFS.
- 2) Corn butanol: In 2016, EPA approved biofuel company Gevo's corn butanol produced at its Luverne, MN, facility as an "advanced biofuel" in the RFS. Like corn ethanol, corn butanol also uses corn kernels as its feedstock that would otherwise be used for animal feed. food, exports, etc. But unlike corn ethanol which is not compatible with some current gasoline pumps, storage tanks, etc., corn butanol is known as a "drop-in" biofuel so it does not face the same infrastructure challenges that the corn ethanol industry faces. Corn butanol also circumvents the restriction on corn starch ethanol qualifying for the advanced biofuels pool of the RFS since it is not ethanol but rather a different fuel – butanol.

As 2022 — the end of the RFS's legislative mandates (which in reality, are targets) — looms, biofuels approved as "advanced" in the RFS will become more lucrative if the conventional corn ethanol mandate no longer exists beginning in 2023 and the rest of the RFS is met with only advanced biofuels. This is how the RFS is currently written in law, but EPA will have more leeway after 2022 to set volume mandates.

Corn ethanol's past dominance in the RFS, coupled with other biofuels derived from corn and soybeans, has resulted in a government mandate that to-date has primarily been filled with land-intensive, food-based biofuels. Experts believe this is unlikely to change in the future even if the corn ethanol mandate is eliminated because soy-based biofuels are expected to play a larger role in future advanced biofuels mandates.

The RFS has already created numerous unintended consequences and long-term liabilities such as higher food prices and greater — instead of *lower* — GHG emissions. The maze of federal ethanol subsidies (and those for biomassbased diesel, among others) also works at cross-



purposes with other federal programs aimed at clean air and water, climate mitigation, and land conservation since policies promoting the use of more food-based biofuels inevitably result in greater competition between food and fuel crops on sensitive, carbon-rich land.

To make matters worse, in 2011, EPA approved the use of a higher blend of ethanol (moving from E10 to E15) for vehicles manufactured after 2001. In addition, in 2019, EPA approved the controversial use of E15 during summer months (which had previously been prohibited) despite air quality concerns. While these decisions have allowed more corn ethanol into the marketplace, consumer purchases have been limited due to other concerns about E15's risks to small and offroad engines, warranty and liability issues with both older and newer vehicles, etc.

Unless Congress eliminates special interest corn ethanol subsidies, including mandates for biofuels that do more harm than good, they will continue to burden taxpayers, consumers, the climate, and the environment.

# **Corn Ethanol Supports in Agriculture Programs**

Realizing that the corn ethanol industry had already received its fair share of federal handouts, Congress prohibited corn starch ethanol from qualifying for new energy title spending in the 2008 farm bill, which was reauthorized in both the 2014 and 2018 farm bills. The intent was to allow the next generation of biofuels to receive a greater share of grants, loan



guarantees, and other subsidies. But despite corn ethanol being prohibited from receiving energy title funding, at least four farm bill programs have subsidized corn-based biofuels over the past decade (and some — such as REAP — continue to do so). Other USDA programs indirectly subsidize corn ethanol as well (see Table 1 for details).

As an example of the persistence of subsidies flowing to the industry, in 2011, the ethanol lobby convinced USDA to add blender pumps to its list of projects eligible for farm bill energy funding (specifically through REAP). Because ethanol is more corrosive than gasoline, older gasoline pumps and storage tanks must be replaced to prevent leaks, often at taxpayer expense. Before Congress put the brakes on using REAP subsidies for ethanol blended pumps in 2014, \$3 million was squandered on the mature corn ethanol industry. Nevertheless, in May 2015, USDA again announced new funding for blender pumps through a different USDA spending account – the CCC – again, without Congressional approval. And in 2020, USDA announced another \$100 million of CCC funding for the Higher Blends Infrastructure Investment Program (HBIIP). Together, at least \$203 million

in taxpayer subsidies have been spent (or will be spent) on biofuels infrastructure projects at USDA, not to mention the tax code as well.

Corn ethanol subsidy recipients continue to circumvent other energy title program eligibility rules by presumably refining biofuels from corn oil and milo (sorghum) instead of (or in addition to) corn starch, producing fuels like butanol and biodiesel instead of ethanol, and receiving energy efficiency upgrade subsidies to retrofit corn ethanol facilities in REAP (please see Tables 2 and 3 in the next sections for more information). These loopholes simply waste taxpayer dollars and do nothing to help the climate or environment as the programs were once intended.

Farm bill and other USDA programs supporting corn-based biofuels are listed in Table 1. Four programs have subsidized corn-based biofuels in the farm bill's energy title (one of these — the Repowering Assistance Program — was finally eliminated in the 2018 farm bill), while other programs subsidize ethanol through the trade, crop insurance, and commodity titles of the farm bill and/or the CCC.



Farm Bill Section	Program/fund name	Description	Corn-based crops or biofuels projects receiving funding	Funding for corn-based biofuels from 2009-21, unless otherwise noted
Energy Title	Bioenergy Program for Advanced Biofuels (more info in Table 3 below)	Payments to advanced biofuels facilities to expand annual production	1 corn oil biodiesel facility and several corn ethanol facilities, presumably because some also use milo (in addition to corn) as a feedstock in the refining process.	\$60 million (grants and loans)
	Biorefinery Assistance Program	Grants and Ioan guarantees for advanced biofuels and heat and power facilities	SoyMor, a facility using corn and soybean oil for biodiesel production, received a conditional loan guarantee in 2009.	\$25 million (conditional Ioan guarantee)
	Repowering Assistance Program (program eliminated in 2018 farm bill)	Reimbursements for biorefineries to replace fossil fuel power sources with biomass (like wood chips, municipal solid waste, or perennial grasses)	Two corn ethanol facilities received taxpayer funding to replace natural gas and fossil energy with a biomass boiler and a biogas digester.	\$6.9 million (reimbursement payments)
	Rural Energy for America Program (more info in Table 2 below)	Intended to subsidize solar, wind, hydropower, energy efficiency, and other renewable energy projects, but in reality has also subsidized ethanol and biodiesel	14 corn ethanol facilities received grants/loans to install "energy efficiency" upgrades and retrofit equipment, in addition to 2011- 2014 subsidies for new ethanol blender pumps and other special fueling infrastructure.	\$6.7 million spent on corn ethanol facilities and ethanol blender pumps
Trade Title	Market Access Program	Market trade promotion program designed to expand agricultural exports, including corn ethanol	In FY17, the U.S. Grains Council received \$6,670,888 for its overall trade missions, but the amount spent on ethanol specifically is unknown. <sup>10</sup> The Council notes that the Renewable Fuels Association and Growth Energy also accompanied it on ethanol trade missions, but these 2 organizations aren't direct recipients of MAP subsidies. <sup>11</sup>	Unknown

# Table 1: Corn-Based Biofuel Subsidies in USDA Programs, 2009-2021

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Farm Bill Section	Program/fund name	Description	Corn-based crops or biofuels projects receiving funding	Funding for corn-based biofuels from 2009-21, unless otherwise noted
Commodity Title	Commodity Credit Corporation (CCC) (*however, note that Congress did <b>not</b> authorize USDA to use CCC funds for biofuels infrastructure projects)	Traditionally a fund reserved to pay out farm subsidies and farm loans, but USDA has also used CCC funds to subsidize biofuels (and continues to do so)	In May 2015, USDA announced CCC funding for biofuels infrastructure, which primarily benefits corn ethanol, through BIP. In 2020, another \$100 million was announced through a similar biofuels infrastructure subsidy program — HBIIP. In the Consolidated Appropriations Act of 2021, Congress opened the door to additional CCC subsidies flowing to biofuels facilities due to the COVID-19 pandemic even though biodiesel production <i>increased</i> in 2020.	\$100 million allocated in 2015 (BIP), with another \$100 million announced in 2020 (HBIIP), and \$18 million was announced on April 22, 2021 (through HBIIP but funds may be left over from \$100 million announced in 2020). USDA is also beginning to dispense separate biofuels payments due to COVID- 19-related economic damages. <sup>12</sup>
	Commodity subsidies (Agriculture Risk Coverage, Price Loss Coverage, etc.)	Farm programs that pay farmers for dips in crop prices or revenue (price x yield) over a certain time period	Subsidies for biofuels feedstock crops used in ethanol production — primarily corn.	Estimated cost of all corn subsidies for FY21 is \$1.4 billion <sup>13</sup> , but this does not include other trade war subsidies announced during the Trump Administration, nor Coronavirus Food Assistance Program payments of more than \$5 billion just for corn in 2020, as of April 23, 2021.* <sup>14</sup>
Crop Insurance Title	Federal Crop Insurance Program premium subsidies (just one portion of taxpayer costs in the overall program)	Crop insurance premium subsidies for yield losses (due to natural disasters) or revenue losses (for dips in annual revenue as little as 15%)	Subsidies for biofuels feedstock crops used in ethanol production — primarily corn.	\$2.2 billion for corn crop insurance premium subsidies in the 2020 crop year alone.* <sup>15</sup>

## Table 1: Corn-Based Biofuel Subsidies in USDA Programs, 2009-2021, cont'd.

Notes: \* Note that approximately 40 percent of the U.S. corn crop is sent to ethanol facilities each year.

#### **Corn-Based Biofuel Subsidies in the Rural Energy for America Program**

Aside from the \$3 million in blender pump subsidies funded through REAP from 2011-2014, the USDA program spent another \$3.5 million on corn ethanol facilities even though the farm bill energy title is meant to spur development of other renewable energy sources. In particular, REAP was intended to support rural wind, solar, hydro, and other projects. Congress thus placed a prohibition on REAP funds subsidizing corn ethanol.<sup>16</sup>

However, subsidies continue to flow to the mature industry in the name of energy efficiency projects. As recently as Dec. 2019, USDA announced new REAP subsidies for ethanol facilities in Iowa, Minnesota, Nebraska, and North Dakota.<sup>17</sup> See Table 2 for recipient details.

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State	Recipient	Project Description	Jan. 2011 Grant/Loan Amount	Oct. 2015 Grant/Loan Amount	Oct. 2016 Grant/Loan Amount	Dec. 2019 Grant/Loan Amount	Total Amount of Grants & Loans, 2010-2019
NE	Siouxland Ethanol LLC	To purchase and install the equipment for the retrofitting of an ethanol facility.			\$500,000		\$500,000
NE	Nebraska Mid America Agri Products/ Wheatland LLC	Ethanol production		\$500,000			\$500,000
WI	Badger State Ethanol LLC	To purchase and install the equipment for the retrofitting of an ethanol facility.			\$492,327		\$492,327
IA	Iowa Golden Grain			\$250,000			\$250,000
MN	Chippewa Valley Ethanol Cooperative LLP	To make energy efficiency improvements with the evaporator of an ethanol refinery.			\$250,000		\$250,000
IA	Lincolnway Energy LLC	Creating Biofuel from Ethanol Production				\$250,000	\$250,000
MN	Heartland Corn Products	Creating Biofuel from Ethanol Production				\$250,000	\$250,000
ND	Hankinson Renewable Energy, LLC	Creating Biofuel from Ethanol Production				\$250,000	\$250,000
NE	E Energy Adams, LLC	Creating Biofuel from Ethanol Production				\$250,000	\$250,000
IA	Little Sioux Corn Processors LLC	To make energy efficiency improvements with the retrofitting of an ethanol refinery.			\$165,000		\$165,000
IA	Siouxland Energy Cooperative	To make energy efficiency improvements with the retrofitting of an ethanol refinery.			\$165,000		\$165,000
IL	Lincolnland Agri-Energy LLC	To purchase and install a fermenter for ethanol production.			\$77,984		\$77,984
MN	DENCO II, LLC	Ethanol production	\$50,000				\$50,000
NJ	East Coast Energy Solutions	Ethanol biorefinery with 5 MW CHP using natural gas.	\$47,500				\$47,500
		TOTAL	\$97,500	\$750,000	\$1,650,311	\$1,000,000	\$3,497,811

# Table 2: REAP Subsidies for Corn Ethanol Facilities, Nov. 2010 to Apr. 2021<sup>18</sup>

#### Corn-Based Biofuel Subsidies in the Bioenergy Program for Advanced Biofuels

Similar to REAP, BPAB — another farm bill energy title program — has also subsidized the mature corn ethanol industry despite the program's title which implies support for *advanced* biofuels, and again, not to mention the energy title's prohibition on subsidies for corn starch ethanol. Corn ethanol is not classified as an advanced biofuel in the farm bill or any energy bills (meaning the RFS mandate too). Corn ethanol facilities presumably apply for BPAB payments if they also produce ethanol from milo (known as sorghum) in addition to corn.

Table 3 lists the corn-based biofuels facilities that received more than \$60 million in BPAB subsidy payments over the past decade. Not only do these payments defy Congressional intent and fail to achieve their objectives, but they also waste tens of millions of taxpayer dollars.

### Table 3: Corn-Based Biofuels Facilities Receiving Advanced Biofuels Payments, 2009-2020

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Facility Name (*facility produces biodiesel)	State	Feedstock	Total Payments <sup>19</sup>
White Energy, Inc.	ТХ	corn/milo	\$10,623,924
Arkalon Ethanol, LLC	KS	corn/milo	\$10,015,914
Western Plains Energy LLC	KS	corn/milo	\$8,331,119
Kansas Ethanol, LLC	KS	corn/milo	\$5,949,346
Pinal Energy, LLC	AZ	corn	\$4,652,688
Prairie Horizon Agri-Energy, LLC	KS	corn/milo	\$4,446,288
Levelland/Hockley County Ethanol, LLC (renamed Diamond Ethanol)	ТХ	corn/milo	\$3,393,856
Bonanza Bioenergy, LLC	KS	corn/milo	\$3,131,689
Abengoa Bioenergy Corporation	MO	corn/milo	\$3,108,385
Chief Ethanol Fuel Inc	NE	corn/milo	\$2,308,795
Reeve Agri Energy Inc	KS	corn/milo	\$1,728,593
Nesika Energy, LLC	KS	corn	\$776,062
Central Indiana Ethanol, LLC	IN	corn	\$506,369
Corn Plus LP	MN	corn	\$311,081
Walsh Bio Fuels, LLC	WI	corn	\$271,431
Trenton Agri Products LLC	KS	corn/milo	\$234,855
Pacific Ethanol Holding Co., LLC	CA	corn	\$165,043
Nugen Energy, LLC	SD	corn	\$99,765
East Kansas Agri-Energy LLC	KS	corn	\$58,834
Pratt Energy LLC	KS	corn/milo	\$34,280
Aventine Renewable Energy	IL	corn	\$18,175
Cornhusker Energy Lexington, LLC	NE	corn	\$15,795
Chippewa Valley Ethanol Coop LLP	MN	corn	\$14,597
Best Biodiesel Cashton, LLC*	WI	corn/soy	\$10,487
Kaapa Ethanol, LLC	NE	corn	\$8,693
Maple River Energy, LLC*	IA	corn/soy	\$7,845
Quad County Corn Processors Co-Op	IA	corn	\$2,011
TOTAL			\$60,225,920



#### **Corn-Based Biofuel Supports in the Federal Tax Code**

While the \$6 billion-per-year, \$0.45-per-gallon ethanol tax credit ended in 2011, subsidies for corn ethanol and other corn-based biofuels are still scattered throughout the tax code. Four of the most prominent are listed in Table 4, including tax breaks for ethanol infrastructure projects and the biodiesel tax credit which benefits corn oil biodiesel. Cost estimates are generally derived from the Joint Committee on Taxation (JCT), with specific references listed in the table. Please note that while some tax credits expired at the end of 2020, they have been routinely extended by Congress in the past, sometimes retroactively. The \$1-per-gallon biodiesel tax credit most recently received a fiveyear extension (two years retroactively for 2018 and 2019 and three years prospectively for 2020, 2021, and 2022).<sup>20</sup> At an estimated \$3 billion annual cost, JCT predicts the credit will cost taxpayers \$15 billion over five years, making it the most expensive energy tax extender.<sup>21</sup>

Tax Credit Name	Description	Total 1-, 3- or 5-Year Projected Costs		
Alternative Fuel Vehicle Refueling Property Credit*	Facilities dispensing certain alternative fuels can receive a refueling property credit in the form of a 30% tax break. Eligible facilities include gasoline stations, those installing biodiesel or <b>85% ethanol (E85) blender pumps</b> , or repowering sites for electric vehicles. Stations dispensing natural gas, liquefied natural gas (LNG), and liquefied petroleum gas (LPG) are also eligible. <sup>22</sup>	Estimated cost of \$331 million for 3-year extension (calendar years 2018-2020). <sup>23</sup>		
Master Limited Partnerships (MLPs)	MLPs are "exchange-traded investments that are focused on exploration, development, mining, processing, or transportation of minerals or natural resources [and] have certain characteristics that can make them attractive to some investors, including partnership tax consequences, limited liability to investors for the MLP's debts, and anticipated consistent distributions of cash." <sup>24</sup> Of the 100 entities benefiting from the MLPs' special tax treatment, most are in the oil and gas industry, but in 2008, the transportation and storage of <b>ethanol, biodiesel, and other alternative fuels</b> also became eligible. <sup>25</sup>	Total projected cost for all MLPs of \$1.7 billion (for FY19-23). <sup>26</sup>		
Second generation biofuel (cellulosic) producer tax credit* (cellulosic producers also receive special tax depreciation allowances)	\$1.01-per-gallon producer tax credit for "liquid fuel produced from any lignocellulosic or hemicellulosic matter that is available on a renewable basis or any cultivated algae, cyanobacteria, or lemna," such as cellulosic ethanol derived from <b>corn kernel fiber</b> , ag residues, perennial grasses, etc. <sup>27</sup>	Estimated cost of \$43 million for 3-year extension (calendar years 2018-2020). <sup>28</sup>		
Volumetric Biodiesel Excise Tax Credit and Renewable Biodiesel Tax Credit Tax Credit Tax Credit Cred		Estimated cost, on average, of more than \$3 billion annually (for calendar years 2018-2022). <sup>30</sup>		

#### Table 4: Corn Ethanol and Corn-Based Biofuel Supports in the Federal Tax Code

Notes: \*Credit expired at the end of 2020, but Congress has routinely extended (sometimes retroactively).



#### Conclusion

It's time the mature corn ethanol industry survived on its own two feet without special interest taxpayer support. After more than four decades of federal backing, market-distorting corn ethanol subsidies scattered throughout the RFS, tax code, farm bill/USDA, and elsewhere should be eliminated once and for all. Corn ethanol production is tied to numerous market distortions and long-term liabilities, costs, and risks. The industry has also failed to significantly reduce GHG emissions and benefit the environment as once intended. Eliminating current corn-based biofuels subsidies (and mandates) and resisting efforts to layer on new ones will benefit consumers, taxpayers and the climate.

#### Endnotes

<sup>1</sup> https://www.fsa.usda.gov/programs-and-services/energy-programs/bip/index

<sup>2</sup> <u>https://www.epa.gov/renewable-fuel-standard-pro-</u>

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<sup>3</sup> <u>https://www.epa.gov/renewable-fuel-standar</u>d-program/final-renewable-fuel-standards-2020-and-biomassbased-diesel-volume

<sup>4</sup> https://www.epa.gov/renewable-fuel-standard-program/final-renewable-fuel-standards-2020-and-biomassbased-diesel-volume

<sup>5</sup> https://www.energy.gov/lpo/abengoa-bioenergy

<sup>6</sup> <u>https://www.epa.gov/sites/production/files/2017-01/</u> documents/gevo-butanol-deter-ltr-2016-12-22.pdf

<sup>7</sup> https://www.cbo.gov/publication/45477, http://www. nap.edu/catalog/13105/renewable-fuel-standard-potential-economic-and-environmental-effects-of-us <sup>8</sup> https://www.usda.gov/media/press-releas-

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<sup>9</sup> https://www.rd.usda.gov/hbiip

<sup>10</sup> https://www.fas.usda.gov/programs/market-access-program-map/map-funding-allocations-fy-2017

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<sup>14</sup> https://www.cbo.gov/system/files/2020-03/51317-2020-03-usda.pdf

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<sup>16</sup> https://www.rd.usda.gov/files/RD-REAPAwardsOct2016.pdf

<sup>17</sup> https://www.rd.usda.gov/sites/default/files/2019-12/ USDA\_REAP\_NR\_CHART121019.pdf

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<sup>19</sup> <u>https://www.rd.usda.gov/files/RD\_AdvBiofu-</u> elsChart\_2016.pdf, https://www.rd.usda.gov/files/RD\_AdvancedBiofuelsChart.pdf, http://biomassmagazine.com/ articles/8321/usda-announces-payments-to-pellet-biogas-producers, https://www.usda.gov/media/press-releases/2012/07/27/agriculture-secretary-vilsack-announces-support-producers-grow

<sup>20</sup> https://www.eia.gov/todayinenergy/detail. php?id=42616

<sup>21</sup> https://www.jct.gov/publications.html?func=download&id=5237&chk=5237&no\_html=1

<sup>22</sup> <u>http://www.law.cornell.edu/uscode/text/26/30C</u>

<sup>23</sup> <u>https://www.jct.gov/publications/2019/jcx-54r-19/</u>

<sup>24</sup> https://www.sec.gov/oiea/investor-alerts-bulletins/ ib\_mlpintro.html

- <sup>25</sup> https://www.everycrsreport.com/reports/R41893.html
- <sup>26</sup> https://www.jct.gov/CMSPages/GetFile.aspx-
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- <sup>28</sup> <u>https://www.jct.gov/publications/2019/jcx-54r-19/</u>
- <sup>29</sup> https://www.irs.gov/pub/irs-prior/i8864--2017.pdf
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