

April 2022

E15: 15 Percent Ethanol

Four decades have passed since the federal government began subsidizing corn ethanol, a biofuel that is generally blended with gasoline at a 10 percent level (E10). Historically, ethanol subsidies were centered around federal production tax credits, but more recently come in the form of government mandates, ethanol infrastructure tax breaks, subsidies for ethanol facilities, and policies favorable toward higher ethanol blends such as 15 percent ethanol (E15).



A corn field ready to be harvested in Nebraska

Congress eliminated certain ethanol subsidies a decade ago (specifically, the \$6 billion-per-year ethanol tax credit in 2011), but since then both Democratic and Republican Administrations have circumvented lawmakers adding subsidies and other special interest ethanol policies to an already distorted marketplace.

One area the Administration has expanded ethanol support is in the promotion of blends beyond the traditional 10 percent threshold. In 2011, the Environmental Protection Agency (EPA) first approved the use of 15 percent ethanol blends with gasoline in non-summer months. Then in 2019 EPA announced its decision to lift restrictions on E15 use in summer months. However, in July 2021, the court struck down EPA's interpretation of the law, finding that Congress only allowed for summertime use of E10, not E15, due to air quality concerns. In April 2022, President

Biden announced plans to allow emergency use of E15 during summertime months, beginning in June 2022, despite the recent court decision.

Alongside increasing the allowable ethanol blend limits, since 2011, the U.S. Department of Agriculture (USDA) has unilaterally (without Congressional approval) subsidized ethanol blender pumps through at least three different programs – the Rural Energy for America Program (REAP), the Biofuels Infrastructure Partnership (BIP), and the Higher Blends Infrastructure Incentive Program (HBIIP). Ethanol blender pumps are specialized gasoline pumps that are warranted to dispense higher ethanol blends such as E15.

Despite these subsidies and special interest carve-outs, the ethanol industry continues to lobby Congress and the Administration for more federal support and favorable policies. Due to a provision added to Dec. 2020 legislation, biofuels producers are on track to receive \$700 million in COVID-19 economic relief. Additional subsidies for E15 and biofuels infrastructure have also been proposed as part of legislation introduced in Congress.

With policymakers shifting focus to electric vehicles and away from biofuels – which have historically failed to meet greenhouse gas reduction thresholds once promised – additional investments in first-generation biofuels (such as corn- and soy-based fuels) would throw more money after bad. Not only would taxpayer dollars be wasted, but further subsidies would distort the marketplace, pick winners and losers by locking in first-generation biofuels, and fail to reduce climate risks. Congress should instead roll back decades-long subsidies and mandates for ethanol and other biofuels and invest in real climate solutions.

Background

The use of E15, a mixture of approximately 15 percent ethanol and 85 percent gasoline, was first approved in 2011. That year, EPA granted a partial request from an ethanol trade group – Growth Energy – to allow ethanol blends to increase from E10 to E15. Growth Energy sought an expansion of the already heavily subsidized industry to overcome the E10 blend wall, known as the maximum amount of ethanol that can safely be blended into U.S. gasoline. Because of E15's incompatibility with older vehicles and small engines, among other issues, the ethanol market was generally limited to E10 prior to 2011.

At the time, due to concerns with air quality and engine damage/failure, EPA prohibited E15 use in summertime months and only allowed the new fuel to be used in certain engines – specifically Model Year 2001 and newer light-duty vehicles. In EPA's 2011 decision, E15 use was thus prohibited in older vehicles, motorcycles, chainsaws, lawnmowers, outboard motors, ATVs, and other similar engines. Ethanol is more corrosive than gasoline, so some fueling infrastructure (such as gas pumps) and underground storage tanks also must be replaced if the equipment dispenses or stores E15 – often at taxpayer expense.

Despite these and several other problems with E15 (including higher food and feed prices¹, lower fuel economy², and greater greenhouse gas (GHG) emissions³), the Trump Administration

approved year-round E15 sales in 2019. The announcement was met with swift opposition from a diverse set of interests – anti-hunger advocates, food industry, environmentalists, and taxpayer advocates alike. At the time, some questioned whether the federal government alone retained the authority to expand E15 without Congressional approval, which proved correct in a July 2021 court ruling. Despite this, Midwestern lawmakers have reintroduced legislation⁴ to allow E15 sales during the summer, and the Biden Administration announced plans to allow emergency use of E15 during the summer of 2022.

Already the U.S. mandates that 15 billion gallons of conventional biofuels – primarily corn ethanol – be blended with gasoline each year. The federal government has also subsidized specialized gas pumps for higher ethanol blends, most recently with a 2021 announcement.⁵ However, the mature industry does not need any more duplicative taxpayer support.

Indirect Subsidies for E15

The federal government provides numerous indirect, market-distorting subsidies for higher ethanol blends such as E15, including the following:

Ethanol Mandates

- **Renewable Fuel Standard (RFS) mandate:** Biofuels consumption in the U.S. is already mandated through the federal RFS mandate. The RFS was first enacted in 2005 and subsequently expanded in the 2007 Energy Independence and Security Act (EISA). The RFS requires 36 billion gallons of biofuels to be blended with U.S. gasoline and diesel by 2022, but these volumes will fail to be met, let alone achieve the RFS's goals of significantly reducing GHG emissions and spurring the next generation of biofuels from non-food sources.⁶ The majority of RFS gallons consumed in the U.S. to date have been from ethanol, which is largely derived from corn. The 15 billion gallons of ethanol consumption each year translates into roughly an E10 blend, thus why the industry advocated for E15 use year-round. The ethanol industry has also lobbied, so far unsuccessfully, to allow corn ethanol to qualify as an "advanced" biofuel in the RFS, which would allow the industry to fill other pots of the RFS that were meant for second-generation, "advanced" biofuels derived from non-food crops.

Feedstock Subsidies

- **Corn subsidies:** Through a maze of commodity and crop insurance supports, the U.S. props up corn ethanol and E15 indirectly by subsidizing the very corn that later is converted into ethanol. Nearly 40 percent of the U.S. corn crop is used as a feedstock for ethanol production.⁷ Through the 2018 farm bill, farmers receive corn subsidies primarily through programs known as Price Loss Coverage (PLC), Agriculture Risk Coverage (ARC), and federal crop insurance. Corn subsidies such as ARC and PLC are expected to cost taxpayers billions of dollars each year, without factoring in additional COVID-19, ad hoc disaster, and other payments.⁸ In addition, the highly subsidized crop insurance program, in which corn receives more subsidies than any other crop⁹, is expected to cost taxpayers nearly \$10 billion annually over the next decade.¹⁰

Biofuels Infrastructure Projects – Ethanol Blender Pumps

- **Alternative Fuel Vehicle Refueling Property Credit:** Gasoline stations installing 85 percent ethanol (E85) blender pumps (which could also be used to dispense E15) have received a refueling property credit in the form of a 30 percent tax break. The credit expired at the end of 2021 but has been routinely extended by Congress. The tax credit is also available for electric vehicle charging stations and facilities dispensing natural gas or biodiesel. The tax credit as a whole was estimated to cost taxpayers \$323 million over three years (FY18-20).¹¹
- **Rural Energy for America Program (REAP):** Even though REAP, a farm bill energy title program, was intended to promote rural wind, solar, and hydropower projects, USDA continues to subsidize corn ethanol facilities even though the industry was never meant to benefit from this program. At least 15 ethanol facilities in states such as Nebraska, Iowa, and Minnesota received \$28.5 million in REAP subsidies from 2011-2021 primarily in the name of “energy efficiency” and “constructing a carbon capture processing and storage facility” in ND.¹² In addition, from 2011-2014, USDA unilaterally (without Congressional approval) allowed an additional \$3.2 million in REAP funding to subsidize ethanol blender pumps dispensing blends such as E15, in addition to other biofuels infrastructure projects.¹³ One of the largest REAP awards for biofuels infrastructure - \$448,500 – went to “United Cooperative, a full-service co-op that services south-central Wisconsin farmers and consumers... [for the] installation of 33 ethanol blender pumps and 17 biodiesel dispensers” in 2011.¹⁴
- **Commodity Credit Corporation – 2015 Biofuels Infrastructure Partnership (BIP) and 2020 Higher Blends Infrastructure Incentive Program (HBIIP):** After Congress prohibited ethanol blender pumps from receiving REAP funding in the 2014 farm bill, USDA circumvented Congressional intent again in 2015 by providing \$100 million in subsidies for ethanol blender pumps and storage tanks through a new program it created out of thin air - entitled the Biofuels Infrastructure Partnership.¹⁵ The program was funded through USDA’s Commodity Credit Corporation, which is normally reserved for dispensing farm subsidies to agricultural producers. Former USDA Secretary Tom Vilsack was awarded TCS’s Golden Fleece award for not only failing to heed Congressional intent but also for forcing taxpayers to spend money on these special interest projects.¹⁶ Adding more insult to injury, in 2020 and 2021, USDA announced an additional \$200 million in additional subsidies for ethanol infrastructure projects.¹⁷

Ethanol Production

- **Bioenergy Program for Advanced Biofuels (BPAP):** Despite a statutory prohibition on corn ethanol receiving any farm bill energy title funding, corn ethanol facilities continue to receive subsidies for the expansion of ethanol production through BPAB. More than \$60 million in taxpayer dollars have been wasted on corn-based biofuels projects from 2009-20 even though the program was aimed at spurring the next generation of “advanced” biofuels (as the program’s title suggests) – not conventional, first-generation biofuels such as corn ethanol.¹⁸ Similar to REAP, this is yet another example of corn ethanol having its hand in programs not meant for the mature industry.

Other than the RFS, none of the subsidies or programs above require minimum environmental standards to be met in exchange for taxpayer subsidies. While the RFS technically requires corn ethanol facilities to reduce GHG emissions by at least 20 percent, most facilities were grandfathered into the program. Hence, GHG reductions are not required in practice, and other land use protections in the RFS have not been properly implemented by EPA, resulting in native grasslands, wetlands, and other sensitive land being converted into biofuels feedstock production. Thus, the majority of biofuels produced to meet the RFS – and meet demand for higher ethanol blends such as E15 - fail to benefit the climate. This is unlikely to change in the future.¹⁹ Other ethanol subsidy programs in the farm bill energy title, such as REAP and BPAB, do not require GHG emissions reductions to be met either in exchange for taxpayer subsidies. In effect, ethanol and corn subsidies benefiting E15 end up working at cross-purposes with other federal programs aimed at clean air and water, land conservation, climate protection, restoration of wildlife habitat, etc., wasting taxpayer dollars in the process.

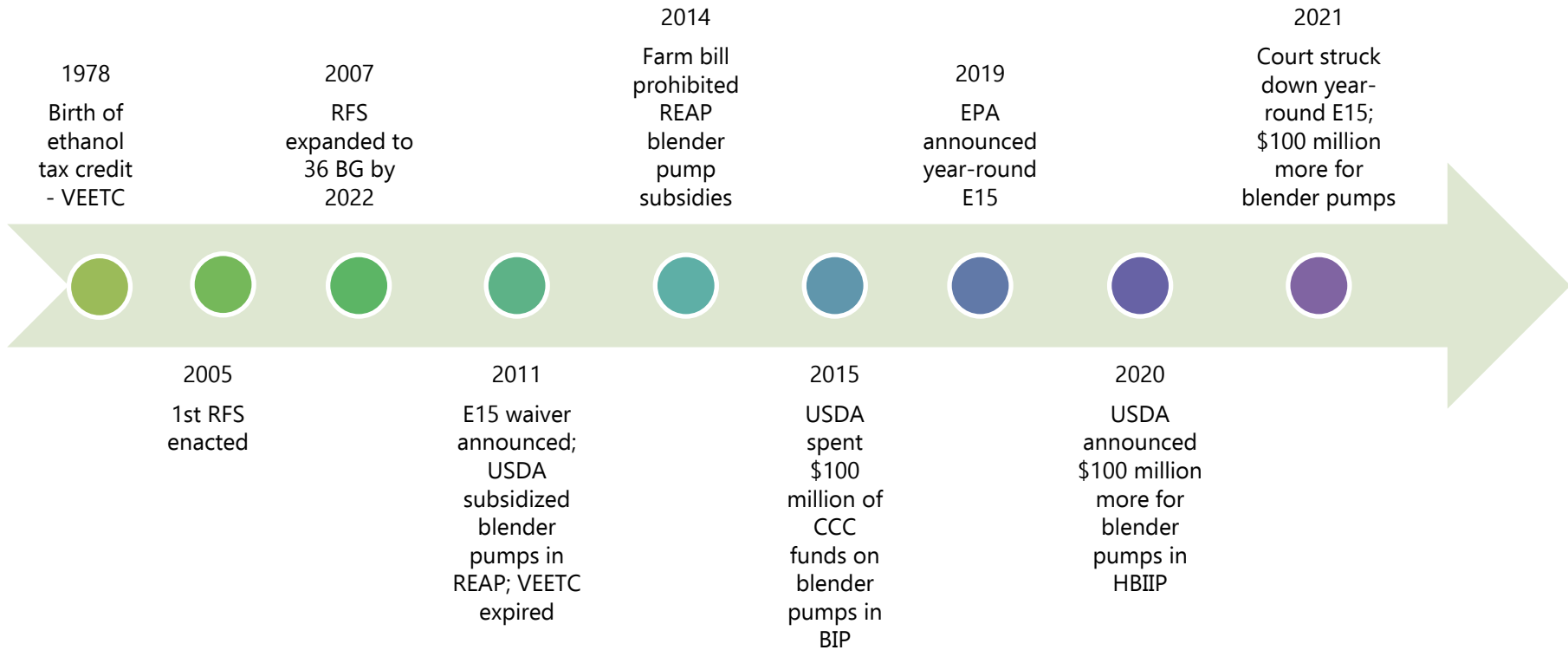
How We Got Here

For 40 years, the corn lobby has pushed for support from the federal government – support in the form of more demand for its industry and extensive taxpayer subsidies regardless of market conditions or industry profitability. While the corn and ethanol lobbies' asks of federal taxpayers have changed over time, the underlying request is always the same – more federal supports and government-led expansion of corn and ethanol markets. This continues today despite the mature state of the industry.

In 1978, the corn ethanol industry received what later became the ethanol tax credit (known as the Volumetric Ethanol Excise Tax Credit, or VEETC). Prior to 2005, the industry lobbied hard for the first RFS and in 2007 for the RFS2 (expansion of the initial RFS biofuels mandate). Before 2007, corn prices were low, and the corn lobby sought greater demand for corn to prop up prices. The combination of VEETC, the RFS, and the ethanol tariff did just this; corn prices doubled through 2012 when a drought also contributed to record \$8-per-bushel corn prices. Farm income reached all-time highs, and farmers were satisfied for the time being. But as ethanol approached the E10 blend wall and reached its 15-billion-gallon mandate in the RFS, the industry began to seek E15 approval and lobby for ethanol infrastructure subsidies to dispense higher ethanol blends. By moving from E10 to E15, the ethanol industry projected production would increase, but this was limited by the slow uptake of E15.

Ethanol blender pump subsidies – to dispense E15 and other higher ethanol blends - are layered on top of a government mandate for biofuels use. With the addition of COVID-19 subsidies for both the biofuels and corn industries, among other federal supports, government subsidies to first-generation biofuels industries continue. More information on the U.S. government's decades-long support for the mature ethanol industry can be found in the timeline below.

Timeline of E15 Approval & Other Ethanol Subsidies



ACRONYMS

BG: billion gallons

BIP: Biofuels Infrastructure Program

CCC: USDA's Commodity Credit Corporation

HBIIIP: Higher Blends Infrastructure Incentive Program

REAP: Rural Energy for America Program

RFS: Renewable Fuel Standard

VEETC: Volumetric Ethanol Excise Tax Credit

USDA: U.S. Department of Agriculture

Future With E15

EPA's own analysis found that corn ethanol production may fail to deliver climate benefits.²⁰ Independent experts warn that corn ethanol may actually *increase* – instead of decrease – GHG emissions.²¹ Ethanol expansion has also resulted in the conversion of millions of acres²² of sensitive land into input-intensive corn production even though the RFS prohibited new land from being plowed to grow biofuels feedstocks such as corn. An EPA triennial report on the environmental impacts of the RFS agreed, finding that corn ethanol worsens air, soil, and water quality, in addition to negatively impacting water quantity and wildlife habitat.²³

In addition, the ethanol industry once argued that the need for E15 and blender pump subsidies was to leave room in the fuel market for cellulosic ethanol,²⁴ a second-generation biofuel derived from non-food biomass feedstocks such as perennial grasses or agricultural residues. However, the industry no longer uses this talking point since it has become clear that the cellulosic industry is far away from achieving its lofty RFS targets. In recent years, for instance, actual cellulosic blending volumes have been reduced by approximately 95 percent from statutory biofuels volume mandates set by Congress in 2007.²⁵ The National Academies of Sciences predicted in 2011 that the RFS would unlikely achieve its goals of lower GHG emissions, improved energy security, and rapid development of the advanced biofuels industry.²⁶

“Absent major technological innovation or policy changes, the RFS2-mandated consumption of 16 billion gallons of ethanol-equivalent cellulosic biofuels is unlikely to be met in 2022.”³

*National Academies of Sciences,
2011*

Conclusion

More than four decades of government-set mandates and subsidies for the corn ethanol industry have distorted markets, picked winners and losers, and worked at cross purposes with other federal programs aimed at protecting consumers, the climate, and environment. Expanding the use of E15 in the short-term would likely have limited effects. Expanding E15 use long-term through legislative action – or worse yet, subsidizing it – would only worsen the negative impacts of ethanol use, without benefiting the climate. Instead of continuing to expand corn ethanol's market share, policymakers should invest in real climate solutions such as agricultural conservation practices that sequester carbon long-term. Otherwise, taxpayers will be forced to further subsidize mature first-generation biofuels while negative impacts persist.

For more information, please visit www.taxpayer.net.

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- ¹ <https://www.cbo.gov/sites/default/files/111th-congress-2009-2010/reports/04-08-ethanol.pdf>,
<https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/45477-Biofuels2.pdf>
 - ² <https://www.nrel.gov/docs/fy12osti/55778.pdf>
 - ³ <https://www.nap.edu/read/13105/chapter/2#2>
 - ⁴ <https://growthenergy.org/2021/07/14/following-court-decision-u-s-senate-moves-to-ensure-e15-year-round/>
 - ⁵ <https://www.usda.gov/media/press-releases/2021/12/07/usda-make-800-million-available-provide-economic-relief-biofuel>
 - ⁶ <https://www.nap.edu/read/13105/chapter/2>
 - ⁷ <https://www.usda.gov/oce/commodity/wasde/wasde1019.pdf>
 - ⁸ <https://www.cbo.gov/system/files/2020-01/51317-2020-01-usda.pdf>
 - ⁹ https://www3.rma.usda.gov/apps/sob/current_week/crop2018.pdf
 - ¹⁰ <https://www.cbo.gov/system/files/2020-01/51317-2020-01-usda.pdf>
 - ¹¹ https://www.jct.gov/publications.html?func=download&id=5237&chk=5237&no_html=1
 - ¹² <https://www.taxpayer.net/agriculture/rural-energy-for-america-program-fact-sheet-2/>
 - ¹³ <https://www.taxpayer.net/agriculture/rural-energy-for-america-program/>
 - ¹⁴ <http://ethanolproducer.com/articles/8169/usda-gives-2-million-for-blender-pumps-in-22-states>
 - ¹⁵ <https://www.fsa.usda.gov/programs-and-services/energy-programs/bip/index>
 - ¹⁶ <https://www.taxpayer.net/agriculture/golden-fleece-blinders-for-blender-pumps/>
 - ¹⁷ <https://www.usda.gov/media/press-releases/2020/05/04/usda-announces-100-million-american-biofuels-infrastructure>, <https://www.usda.gov/media/press-releases/2021/12/07/usda-make-800-million-available-provide-economic-relief-biofuel>
 - ¹⁸ <https://www.taxpayer.net/energy-natural-resources/bioenergy-program-for-advanced-biofuels-fact-sheet-2/>
 - ¹⁹ <https://www.nap.edu/read/13105/chapter/2>
 - ²⁰ <http://www.catf.us/resources/whitepapers/files/20130405-CATF%20White%20Paper-Corn%20GHG%20Emissions%20Under%20Various%20RFS%20Scenarios.pdf>
 - ²¹ <https://www.nap.edu/read/13105/chapter/2#2>
 - ²² <http://iopscience.iop.org/article/10.1088/1748-9326/10/4/044003/meta>
 - ²³ https://cfpub.epa.gov/si/si_public_file_download.cfm?p_download_id=536328&Lab=IO
 - ²⁴ <http://www.biofuelsdigest.com/bdigest/2011/06/08/e15-ethanol-bridge-to-tomorrow-or-bridge-to-nowhere/>
 - ²⁵ <https://www.epa.gov/newsreleases/epa-finalizes-rfs-volumes-2018-and-biomass-based-diesel-volumes-2019>
 - ²⁶ <https://www.nap.edu/read/13105/chapter/2#2>