

# Taxpayer and Consumer Costs of the Renewable Fuel Standard

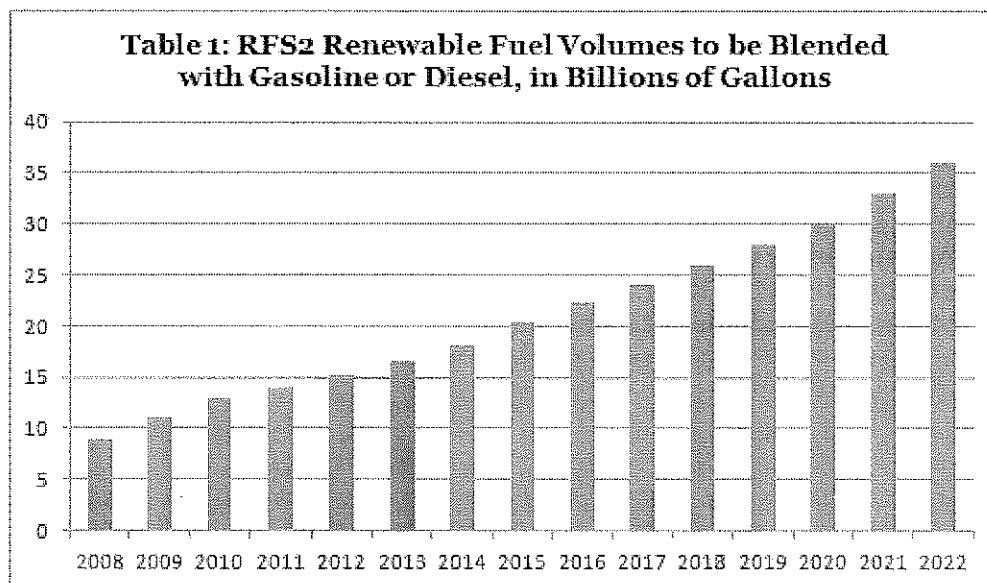


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For the past decade, biofuels have been sold as a way to help achieve U.S. energy independence, reduce greenhouse gas (GHG) emissions, and spur rural economic development. However, the industry has fallen short of achieving these goals while spurring numerous unintended consequences and long-term liabilities that have resulted in more harm than good. Taxpayers have also paid out billions of dollars in subsidies, special interest tax breaks, and other supports to farmers who produce biofuels crops, ethanol and biodiesel companies which produce the fuel, oil and gas companies that blend biofuels into gasoline or diesel, and several others along the supply chain. On top of this, biofuels enjoy a guaranteed market since production is mandated by the government through the Renewable Fuel Standard (RFS). Corn ethanol and advanced biofuels are two types of renewable fuel that receive both taxpayer subsidies and a guaranteed market through the RFS. Most U.S. gasoline contains 10 percent ethanol (E10), which is primarily produced from corn. Since production of next-generation biofuels derived from non-food crops has fallen drastically short of its federal mandate, several independent analysts – including the Congressional Budget Office (CBO) and the National Academy of Sciences – question the future of the RFS and note its unintended consequences on taxpayers and consumers.<sup>1</sup>

## History of the RFS

In the U.S., biofuels policy is supported by three major pieces of legislation, the 2005 and 2007 energy bills and the 2014 farm bill. The 2005 energy bill mandated 7.5 billion gallons of renewable fuels to be blended with gasoline or diesel by 2012. In the 2007 energy bill, the RFS was greatly expanded to require 36 billion gallons of biofuels to be consumed by 2022 (see Table 1 for more information). By 2014, the U.S. is required to use 14.4 billion gallons of corn ethanol and 3.75 billion gallons of advanced biofuels, defined as those that reduce greenhouse gases by more than 50 percent. The production of advanced biofuels – particularly cellulosic ethanol derived from perennial grasses and agricultural residues – has failed to meet its production mandate due to various economic and technological challenges. In addition, the U.S. has hit the “blend wall” – or the amount of gasoline that can safely be blended with gasoline (approximately ten percent, or E10) without problems with engine warranties and other fuel compatibility concerns. For these reasons, in late 2013, the Environmental Protection Agency (EPA) proposed using its waiver authority to reduce the advanced biofuels and corn ethanol mandates by about 16 percent, for a total renewable fuel mandate of 15.2 billion gallons.



## Costs of the Federal RFS Mandate

The RFS increases costs for both consumers and taxpayers. Listed below are the primary costs of the federal mandate.

### Consumer Costs

- **Increased Fuel Prices:** CBO recently found that if RFS volumes are not reduced, the price of E10 will increase by 13-26 cents per gallon and diesel will increase by 30-51 cents per gallon.<sup>2</sup> This is partially due to the fact that ethanol has less energy content than gasoline and hence results in lower gas mileage for drivers.<sup>3</sup>
- **Increased Food Prices:** Prices of meat, poultry, eggs, and dairy – foods with a large percentage of input costs derived from corn – increased as greater levels of corn ethanol production contributed to increased corn prices between 2007 and 2012.<sup>4</sup> CBO found in 2009 that one-fifth of the increase in corn prices between 2007 and 2008 could be attributed to increased corn ethanol production.<sup>5</sup> The International Food Policy Research Institute (IFPRI) agreed, estimating that “40 percent of the rise in corn prices between 2000 and 2007 was due to global ethanol demand.”<sup>6</sup> In 2014, CBO concluded that food and feed prices would continue to increase if the RFS mandate continues on auto-pilot.<sup>7</sup>
- **Environmental and Public Health Costs:** Even though the RFS was sold as a way to reduce GHG emissions, the mandate has failed to spur production of fuels that would achieve this goal. CBO noted in 2014 that several studies question the GHG reduction potential of the RFS – particularly corn ethanol.<sup>8</sup> And the National Academy of Sciences concluded in 2011 that the U.S. is not expected to meet the RFS mandate by 2022, and hence, “the RFS may be an ineffective policy for reducing global greenhouse gas emissions. Achieving this standard would also likely increase federal budget outlays as well as have mixed economic and environmental effects.”<sup>9</sup> In addition, since 2007, the number of U.S. acres planted to corn increased drastically – partially due to incentives for corn ethanol production, and some farmers discontinued annual crop rotations to plant corn year after year instead. Since corn is the largest user of nitrogen fertilizer and pesticides, nearly half of U.S. inputs are applied to corn (46 and 43 percent, respectively). With more acres converted into input-intensive corn production and farmers attempting to maximize short-term profits at the expense of long-term soil productivity, fertilizer and chemical runoff increased, resulting in increased pollution cleanup costs for downstream users such as water treatment facilities, fishermen, and other industries.
- **Increased Infrastructure and Consumer Costs of Higher Blends of Ethanol:** As the country’s fueling infrastructure struggles to keep up with the shift to higher blends of ethanol (such as the Environmental Protection Agency’s 2010-2011 approval of 15 percent ethanol, or E15), consumer costs increase, including damage to vehicles, cost of replacing blender pumps and storage tanks at fueling stations, and replacement of snowblowers, chainsaws, outboard motors, and other small equipment non-compatible with higher blends of ethanol.<sup>10</sup> In 2014, the Government Accountability Office (GAO) criticized EPA for failing to account for higher infrastructure costs in its initial Regulatory Impact Analysis (RIA) of the RFS; GAO noted that if full capital costs are included, the net cost of the RFS, as calculated in 2010, is \$64.5 to \$77.5 billion.<sup>11</sup>

### Taxpayer Costs

- **Higher Nutrition Program Costs:** Higher crop prices increase the cost of food and decrease purchasing power of programs such as the Supplemental Nutrition Assistance Program (SNAP, or food stamps) and the Women, Infants, and Children (WIC) Program. CBO estimated in 2009 that the RFS increased SNAP and WIC costs by up to \$900 million in Fiscal Year 2009 alone.<sup>12</sup>
- **Federally-Funded Conservation Clean-up Programs:** As agricultural subsidies spur producers to plant crops on risky, marginally productive lands, federal conservation program funding is often used to clean up the resulting agricultural pollution and undo damage caused by misguided federal biofuels supports. GAO criticized EPA in 2014 for failing to monetize negative effects of the RFS on water quality and incorporate these into overall RFS cost-benefit estimates.<sup>13</sup>
- **Increased Crop Insurance Payments:** Increased corn ethanol production not only contributed to higher crop prices but also resulted in an expansion of corn and soybean acres, leading to more crop insurance subsidies covering farmland with a high probability of crop loss. A study by South Dakota State University researchers found that between 2006 and 2011, 1.3 million acres of grassland were converted to corn and soybeans partially as a result of biofuels mandates and subsidies.<sup>14</sup> Because crop insurance premium subsidies are tied to crop prices, as prices increase, so does the total cost of the highly subsidized federal crop insurance program. In addition, taxpayers subsidize risky production practices such as planting input-intensive crops on land that has never been cropped such as pastures or native grassland (the 2014 farm bill added restrictions in certain states but generally, taxpayers still subsidize risky decisions).
- **Increased Costs to Federal Dairy Programs:** The 2014 farm bill created taxpayer-subsidized profit margin insurance for dairy producers since high corn prices cut into profits after 2007. Corn, the primary input in dairy feed, quadrupled in price between 2007 and 2012 (partially due to the fact that 40 percent of the corn crop is used for ethanol production).
- **Taxpayer-Funded Disaster Programs:** Similar to crop insurance, when farmers plant corn in risky areas (for instance, poor growing areas in North or South Dakota or dry areas of Nebraska), the cost of disaster programs increases as the probability of crop losses increases.
- **Increased Food Aid and Countries' Import Bills:** Higher crop prices, partially due to corn ethanol production, increase the cost of food aid to needy countries and reduce purchasing power for developing countries already working with stagnant or decreasing budgets. Tufts University researchers found that from 2006 to 2011, U.S. ethanol production cost net corn importing countries \$11.6 billion in higher corn prices; ActionAid notes that "more than half this cost was borne by developing countries."<sup>15</sup> Corn exports also decreased in recent years as more corn was used for ethanol production.<sup>16</sup>

## Conclusion

The RFS mandate has failed to reduce GHG emissions, achieve American energy independence, and spur production of biofuels that don't compete with our food supply, compete with other crops for land, void engine warranties, or cause other unintended consequences. For these reasons, it should be eliminated, or at a minimum reduced and made more flexible so it conforms to today's realities instead of yesterday's expectations.

*For more information, contact Taxpayers for Common Sense at 202-546-8500.*

<sup>1</sup> <http://www.cbo.gov/publication/45477>, [http://www.nap.edu/catalog.php?record\\_id=13105](http://www.nap.edu/catalog.php?record_id=13105)

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- <sup>2</sup> <http://www.cbo.gov/publication/45477>
- <sup>3</sup> [http://web.mit.edu/knittel/www/papers/knittelsmith\\_latest.pdf](http://web.mit.edu/knittel/www/papers/knittelsmith_latest.pdf)
- <sup>4</sup> <http://www.ers.usda.gov/media/126752/wrs1103.pdf>, <http://www.gao.gov/assets/160/157719.html>
- <sup>5</sup> <http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/100xx/doc10057/04-08-ethanol.pdf>
- <sup>6</sup> <http://www.ers.usda.gov/publications/eib-economic-information-bulletin/eib79.aspx>
- <sup>7</sup> <http://www.cbo.gov/publication/45477>
- <sup>8</sup> <http://www.cbo.gov/publication/45477>
- <sup>9</sup> [http://www.nap.edu/catalog.php?record\\_id=13105](http://www.nap.edu/catalog.php?record_id=13105)
- <sup>10</sup> <http://www.gao.gov/new.items/do7713.pdf>
- <sup>11</sup> <http://oversight.house.gov/wp-content/uploads/2014/08/GAOreport.pdf>
- <sup>12</sup> <http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/100xx/doc10057/04-08-ethanol.pdf>
- <sup>13</sup> <http://oversight.house.gov/wp-content/uploads/2014/08/GAOreport.pdf>
- <sup>14</sup> <http://www.pnas.org/content/early/2013/02/13/1215404110.full.pdf+html?sid=11181637-caa2-4bo9-ad2b-964b57fc7bd1>
- <sup>15</sup> [http://www.ase.tufts.edu/gdae/Pubs/rp/ActionAid\\_Fueling\\_Food\\_Crisis.pdf](http://www.ase.tufts.edu/gdae/Pubs/rp/ActionAid_Fueling_Food_Crisis.pdf)
- <sup>16</sup> <http://www.actionaidusa.org/press/us-ethanol-policy-costs-mexico-250-500-million-each-year-fuels-hunger>,  
<http://www.purdue.edu/newsroom/releases/2012/Q4/u.s.-unlikely-to-dominate-future-corn-exports,-economist-says.html>