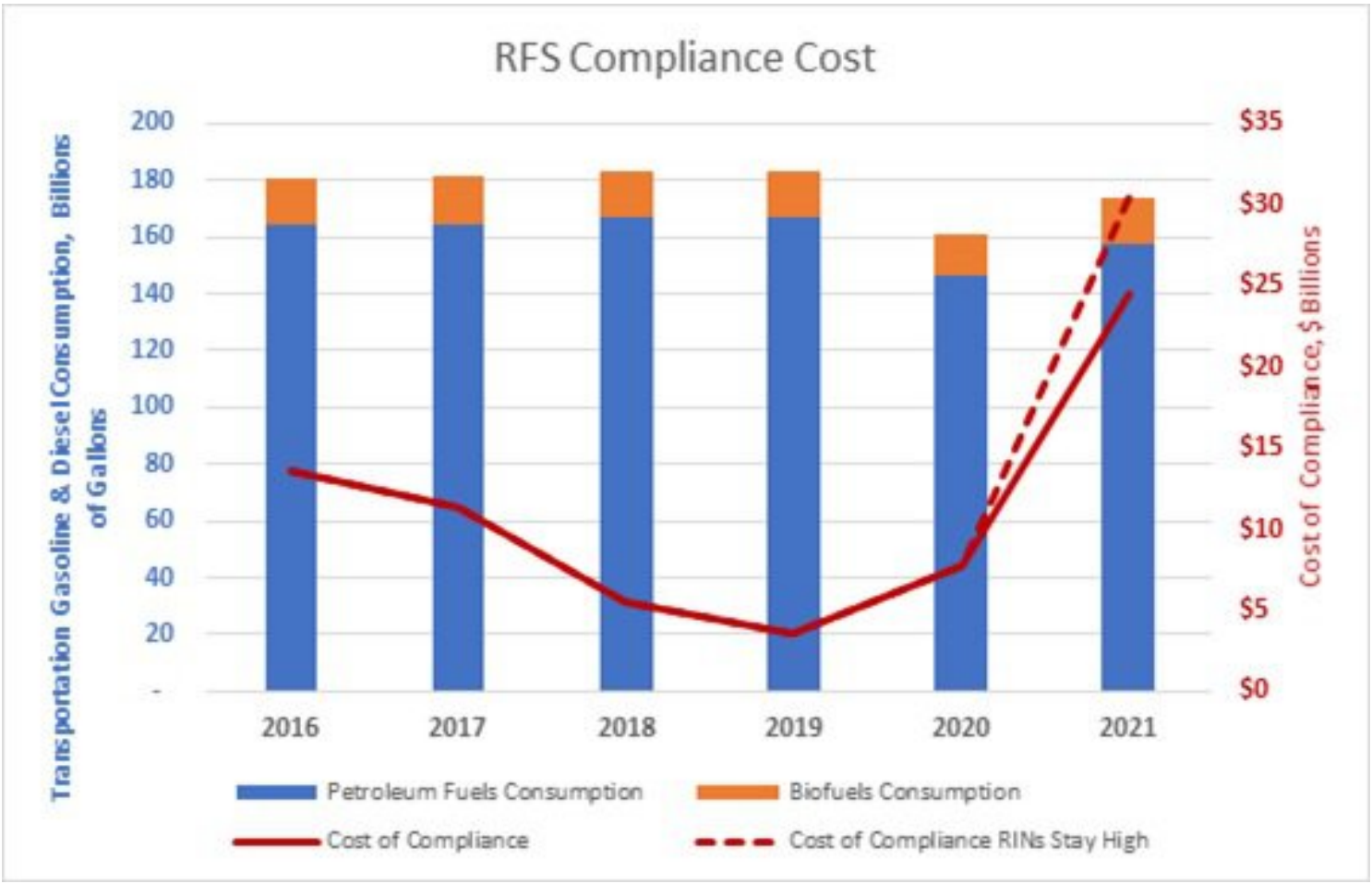
Refining industry forced to spend more on RFS bills than total employee compensation

The Renewable Fuel Standard is more expensive in 2021 than at any other point in the program's 15-year history. Refiners this year have faced ethanol credits (D6 RINs) priced nearly 19Xs higher than in January 2020, and record-priced biomass-based diesel credits (D4 RINs). The total cost of RFS compliance[i] is surging and could be as high as $30.5 billion for 2021—more than twice the record-high annual program costs set in 2016, and 8.5 times higher than in 2019, the year the United States reached record ethanol blending.[ii] By comparison, the refining sector spends $16.4 billion on workforce pay and benefits.[iii] The situation is so dire that labor groups and Democratic Governors have requested relief from the Environmental Protection Agency.



Estimated 2021 RFS compliance costs are modeled in the graph above. Current RIN prices (at roughly a 15 cpg RVO) are represented by the solid red line. RIN prices closer to last week's all-time highs (approximately a 23 cpg RVO) are represented by the dashed red line.

Amid surging RIN prices, a new analysis of data[iv] from the U.S. Energy Information Administration and Argus estimates potential 2021 RFS compliance costs for all refineries and fuel importers and shows how annual costs have increased dramatically, and look likely to reach unprecedented levels, even while

consumption of biofuels has remained stable:

- **Total RFS compliance costs for 2021 could break all-time records and exceed $30 billion,**[v] even though biofuel consumption is not projected to change significantly. On a per-gallon basis, this would indicate RFS compliance adding as much as 23-cents to the cost of wholesale fuel production. [vi]
- This year, ethanol RIN price records that had held since 2013 have been broken numerous times. D6 RINs for conventional ethanol **have reached prices roughly 19Xs higher** than in January 2020.
- D4 RIN prices for biomass-based diesel have also traded at all-time highs.
- Amid these prices, some individual refineries are facing quarter one (2021) RFS obligations that exceed their entire annual RFS bills from prior years.
- *One Pennsylvania facility had an **annual RFS bill of $58 million in 2019. In the first three months of 2021, reports say they've already amassed a $350 million RFS liability**.*[vii]

Will we run out of RINs?

Soaring RFS prices signal that the RIN bank could run dry. Renewable identification numbers (RINs) are the currency of RFS compliance. They are numeric credits that refineries and importers submit to EPA every year to fulfill their RFS obligations and maintain the ability to sell fuels to the U.S. market. The RIN bank is the aggregate of "extra' RINs that provide liquidity to the market. RINs are generated when RFS-eligible biofuels are blended (in the case of ethanol) or produced (in the case of biomass-based diesel). When RIN credits from the prior compliance year go unused (meaning there were more RINs available that year than the annual RVO required), the bank grows. The RIN bank depletes as credits are submitted to EPA for RFS compliance, or as credits expire. The Department of Energy reported that 2020 RIN generation was 800 million below the compliance requirement, a further drain on the RIN bank. [viii]

Businesses that acquire RINs from direct ethanol blending often don't have an RFS obligation of their own so they're able to sell their "banked" RINs to refineries that do. [ix] When annual biofuel mandates are achievable, there are plenty of RINs to go around. But RFS mandates now regularly exceed the limits of the ethanol blend wall,[x] and refineries have few other options to acquire the RINs necessary to meet their obligations. All of this means there's a lot more competition now for the RINs that remain, and eventually we're going to run out.

If President Biden and EPA Administrator Regan don't act to right-size RFS mandates, there could be **total depletion of the RIN bank in the next one or two compliance years.** Insufficient RINs would make the law impossible to satisfy.

An absence of RINs would leave refiners with a few very bad options:

1. **Refineries can cut production of gasoline and diesel for the U.S. market**, to reduce their RFS RIN obligation. This would mean **less fuel for drivers**here in the United States, the **potential closure of more U.S. refineries**, and **possible job losses** on top of the more than 10,000 direct jobs that have already been shed since 2017.
2. **Refineries can continue manufacturing gasoline and diesel** knowing they won't be able to

turn in the total number of RINs required by the RFS. Obligated parties may declare a deficit providing they satisfy their outstanding obligations the following year. However, there is little assurance that the next year's standards will be achievable or that enough RINs will be available to satisfy both the current and prior year obligations.

3. **In the event of a RIN shortage, obligated parties would face fines from the EPA**. This has never happened before, and EPA hasn't communicated how it would handle such a scenario.

Refiners, ethanol blenders, and fuel retailers can't immediately increase the amount of ethanol that can be absorbed into U.S. gasoline. More permanent changes, such as converting petroleum refining capacity into biorefining, would be cost prohibitive for many companies, take significant time, and still involve a long-lasting decline in total U.S. fuel production.

What can be done?

President Biden and Administrator Regan have tools to provide relief and keep RFS compliance from becoming an even bigger crisis. Each of these measures would work to reduce the frenzy over RINs that's driving regulatory costs higher, and they would do so without prompting a decline in ethanol demand:[xi]

- **Economic harm waivers:** The President and EPA can respond to petitions filed by six governors, including Democratic Governors Tom Wolf (PA) and John Bel Edwards (LA), citing severe economic harm because of the RFS. An economic harm waiver would reduce the total number of RINs required for compliance in a given year.
- **Correct reallocation:** The 2020 RFS mandates were inflated by 770 million gallons in anticipation of small refinery relief waivers that have not been granted. The excess gallons should be deducted from the next compliance year.
- **Right-size future mandates:** Most importantly, President Biden and Administrator Regan can limit the size of future mandates so they better reflect the realities of today's gasoline and diesel markets. In this scenario, ethanol would maintain strong market demand as a key source of octane in finished gasoline. We'd just get rid of some of the annual drama around RINs and the ethanol blend wall.

[i] *Annual compliance costs are a measure of the full range of renewable identification numbers (RINs), and the average cost of those RINs, that must be submitted to EPA by refiners and importers (of gasoline and diesel) to satisfy the law in a given year. RINs are credits equivalent to specific volumes of RFS-eligible biofuels, where 1 gallon of corn ethanol is equal to 1 RIN and 1 gallon of renewable diesel is equal to 1.7 RINs. The number of RINs required is derived from a percentage of the total volume of gasoline and petroleum diesel that is produced or imported into the United States in a year. EPA determines the annual percentage, which is referred to as the renewable volume obligation (RVO). Different combinations of RINs and RIN vintages can be used to satisfy the annual RFS obligation.*

[ii] *In 2019, 14.6 billion gallons of conventional ethanol were blended into gasoline, representing a blend rate of 10.2 percent.*

[iii] *IMPLAN data on refining sector direct employment and employee compensation, 2019.*

[iv] ***Note on methodology:*** *The high and low estimates of total 2021 RFS compliance costs are derived from annual transportation fuels consumption (actual and projected data from the U.S. Energy Information Administration) and average RFS compliance costs published by Argus Media. Total transportation fuel consumption (including gasoline, petroleum diesel, biodiesel, and ethanol) was adjusted to remove Alaska and marine vessel consumption (both exempt from RFS) and was further adjusted down using EPA data to reflect volumes exempted from compliance through the issuance of small refinery waivers (SREs) and renewable diesel (which does not incur an RFS obligation). The estimates reflect some key assumptions, including (1) that obligated parties will satisfy their RIN obligations in the same year fuel was produced/consumed, purchasing current year RINs in real-time with their petroleum gasoline and diesel production; and (2) that obligated parties will use a certain mix of RINs for compliance. In both cases, actual obligated party behaviors may differ from these assumptions.*

[v] *Per official data from the U.S. Energy Information Administration and Argus.*

[vi] *Per ClearView Energy, "RVO—Awaiting the RVO Rule," May 13, 2021.*

[vii] *Jarrett Renshaw, "*Exclusive Delta Air makes $350 million gamble as it lobbies Biden on fuel credits*," May 26, 2021.*

[viii]*United States Energy Information Administration, This Week in Petroleum, "*Ethanol and biomass-based diesel RIN prices approaching all-time highs*," February 18, 2021.*

[ix] *Individual refineries are the "obligated parties" under RFS, but ethanol blending almost never happens at refineries, so RINs are often accrued by companies that don't need them.*

[x] *The blend wall represents the capacity for ethanol in the U.S. gasoline supply as a function of fuel, retail, and vehicle infrastructure compatibility. Because ethanol has different chemical properties than petroleum, much of the infrastructure in the liquid fuel supply chain, most vehicles on the road today, and all small engines can't handle gasoline with more than 10% ethanol.*

[xi] *Changing RIN prices do not drive more or less ethanol blending. Ethanol blend rates and actual blended volumes reached their highest recorded levels in 2019 when RIN prices and total RFS compliance costs were at 5-year lows.*

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