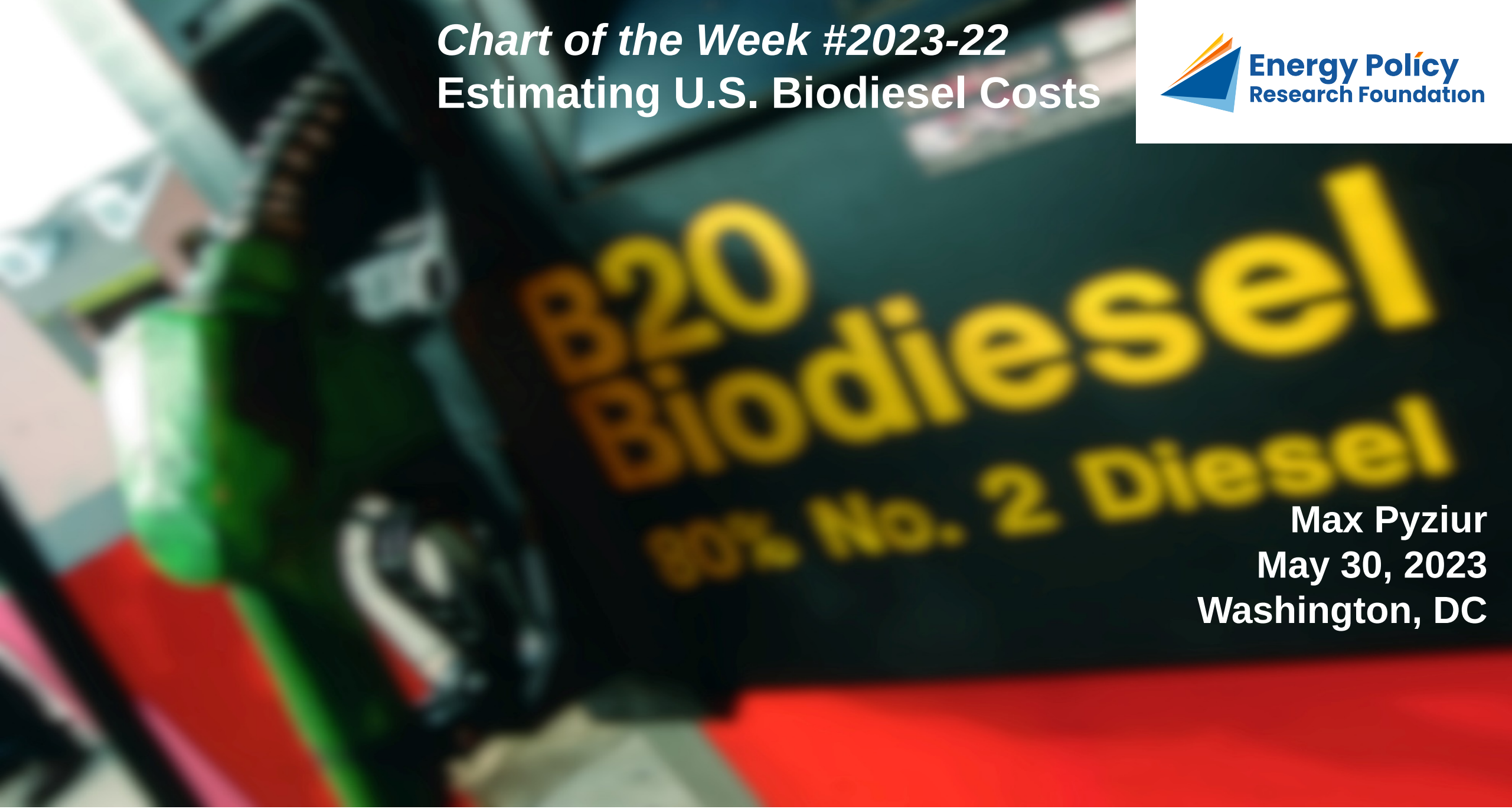
Chart of the Week #2023-22
Estimating U.S. Biodiesel Costs



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Estimating U.S. Biodiesel Costs

Energy Policy Research Foundation

Biodiesel Production, Distribution, and Retailing Costs

	$/gallon
Feedstock Costs	
Soybean Oil ($0.46/lb x 7.7 lbs/gallon)	3.57
Methanol ($6 / gal x 0.12 per gal of biodiesel	0.72
Catalyst (Sodium Methylate Solution)	0.10
Utilities ($2.5 MMBtu NG, 0.15/kwh)	0.03
Labor	0.06
Depreciation & Interest	0.19
Administrative	0.03
Total Production Cost	4.69

	$/gallon
Producer	
Total Production Cost	4.69
Freight	0.15
Delivered Cost	4.84
Terminal / Blender	
Purchase Price	4.84
Blender Tax Credit	-1.00
RFS D4 RIN Credit	-1.55
Freight	0.15
Blender Margin	0.37
Terminal Price	2.81
Retailer	
Purchase Price	2.81
Federal Tax	-0.24
Avg of State Taxes	-0.34
Retailer Margin	0.49
U.S. National Diesel Price	3.88

Analysis based on Latest Available Data, Various Sources

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Estimating U.S. Biodiesel Costs

- Biodiesel is a biofuel produced via a process known as transesterification. While various vegetable oil feedstocks can be used, including waste cooking oil, the dominant biodiesel feedstock is soybean oil.
- Rather than be sold at a 100% (as B100), biodiesel is blended with petroleum diesel in percentages ranging from 5% to 20% (B5 to B20), and are used in the same applications as petroleum diesel: heating and transportation.
- Production, distribution, and retailing cost estimates are subject to wide-ranging factors, including plant size and variability of feedstock cost. However, using the latest available data, a typical biodiesel gallon costs almost $4.70 to produce commercially. The current national average retail diesel pump price is $3.88.
- Critical to biodiesel being viable commercially are two key federal government programs: the Biodiesel Tax Credit (BTC) and the Renewable Fuels Standard (RFS).
- The BTC was enacted in 2004 under the American Jobs Creation Act. Given that the 2004 law had an expiration provision, the BTC has been extended five times since 2011, in some cases retroactively. Because feedstock costs are higher than petroleum ones for biodiesel, the BTC is offered as a Blender Tax Credit. Since enactment, it has been $1.00 per gallon.
- First passed in 2005 and then enhanced in 2007, the RFS mandates increasing percentages of biofuels, including biodiesel; by statute, EPA is required to set these mandates annually. Blending verification is done through the acquisition and submission of D4 RIN (renewable identification number) credits. If D4 acquisition can't be met through direct blending, they can be purchased in RIN markets.
- While highly variable, D4 RIN prices have ranged between $1.30 and $2.00 per gallon since early 2021, providing to blenders a way of improving their margins. By comparison, from 2017 through the end of 2020, D4s were less $1, at times as low as $0.50 per gallon.
- This slide deck is available at: https://eprinc.org/chart-of-the-week/
- For more information on this chart, please contact Max Pyziur (maxp@eprinc.org).