BATES WHITE
ECONOMIC CONSULTING

Biodiesel Distribution in the U.S. and Implications for RFS2 Volume Mandates

David W. DeRamus, Ph.D.

Collin Cain, M.Sc.

July 11, 2016

Table of contents

List of Tables

List of Figures

I. Summary

Under section 211 of the Clean Air Act, the EPA is required to set renewable fuel percentage standards applicable for each calendar year. In May 2016, the EPA released its Proposed Rule[1] defining the annual percentage standards for cellulosic biofuel, biomass-based diesel, advanced biofuel, and total renewable fuel that would apply to all motor vehicle gasoline and diesel produced or imported in 2017, as well as the applicable volume of biomass-based diesel (BBD or biodiesel)[2] for 2018. This report addresses the EPA's proposals with respect to the 2018 BBD volume requirements.[3]

EPA proposes to set the 2018 BBD volume at 2.1 billion gallons. This represents an increase of only 100 million gallons relative to the 2017 requirement and is 400 million gallons less than expected 2016 consumption of 2.5 billion gallons.

EPA identifies the following factors as determining the quantity of biodiesel reasonably achievable in 2017 and 2018:

- Local feedstock availability;
- Production and import capacity;
- Distribution capacity;
- Retail infrastructure capacity; and
- Consumption capacity and consumer response.

EPA concludes that feedstock availability and production/import capacity are not likely to limit the supply of biodiesel for transportation use in the near term. However, EPA identifies distribution and retail infrastructure as potential constraints on supplying biodiesel to end customers. The purpose of this whitepaper is to analyze in greater detail the distribution of biodiesel in the U.S., and to assess EPA's concerns regarding the potential for biodiesel supply growth to be limited by current distribution infrastructure.

The EPA posits that there are three potential constraints to increased biodiesel volumes:

- Existing barriers to transporting biodiesel in many petroleum pipelines;
- Limited availability of biodiesel at distribution facilities nationwide; and
- Limits on the ability of retailers to sell higher biodiesel blends.

EPA's conclusions regarding potential distribution constraints are based on limited data and an incomplete picture of how biodiesel is actually distributed in the U.S. We have conducted our own research on these issues, including reviewing a recent survey of U.S. biodiesel producers (conducted by the National Biodiesel Board (NBB)) and conducting interviews with several producers, retailers, distributors, and terminal owners. Based on this research, we conclude that existing distribution infrastructure does not constrain significant further increases in U.S. biodiesel consumption.

---

[1] Environmental Protection Agency, *Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018, Proposed Rule* ("Proposed Rule"), May 18, 2016, 40 CFR Part 80, Table I-1, Proposed Volume Requirements.

[2] The molecules in biodiesel are primarily FAMEs (fatty acid methyl ester), usually obtained by transesterification. Renewable diesel is hydrocracked and refined, and is nearly molecularly indistinguishable from standard diesel that comes out of the pump. The focus of this report is biodiesel.

[3] The 2017 BBD volume requirement of 2.0 billion gallons was established in the 2014-2016 Final Rule (80 FR 77420 December 14, 2015) and is not subject to review or comment in the context of a review of the May 2016 Proposed Rule.

No comprehensive study or data source currently provides a complete view of how biodiesel is distributed from producers through to consumers in the U.S. Drawing on a variety of information sources, our research demonstrates that the distribution of biodiesel differs significantly from the pattern that applies to petroleum products, which flow from refinery to terminal to distributor to retailer, in a relatively linear distribution chain. Biodiesel distribution is more varied and dynamic: while a significant amount of biodiesel is distributed through terminals throughout the U.S., producers often sell directly to distributors, marketers, and large retail customers, including large truck stop chains that are able to blend biodiesel at many retail locations. EPA's assessment, based on incomplete data and incorrect assumptions regarding traditional fuel distribution channels, misses the larger reality of biodiesel distribution as it has evolved in recent years.

Use of biodiesel in U.S. transportation fuel and home heating oil is projected to reach 2.5 billion gallons in 2016 and 2.7 billion gallons in 2017, far in excess of the 2.1 billion gallon biodiesel volume requirement EPA proposes for 2018.[4] These projected U.S. consumption volumes are more than double the level achieved in 2012. Our research shows that local biodiesel supplies have expanded to meet increased demand along almost all the major U.S. transportation corridors, even in regions relatively distant from production and distribution facilities. Many diesel retailers throughout the country routinely offer blends higher than the B5 level that the EPA suggests represents a limit for local market penetration. Although certain remote and thinly-populated regions of the Rocky Mountain states, such as Montana and Wyoming, have relatively limited distribution of biodiesel, biodiesel blends between B5 and B20 are generally available nationwide, particularly in the areas that comprise the vast majority of demand for transportation fuel and heating oil. Further, there is substantial scope for the existing transportation, distribution, and retail network to rapidly accommodate significantly greater volumes of biodiesel at relatively modest cost.

In summary, our research supports the following conclusions:

- Biodiesel is currently widely distributed throughout the U.S., often in blends higher than B5, well beyond the major population centers.
- While the majority of biodiesel is produced in the Midwest, capacity has expanded significantly in many other regions of the country, as producers have located closer to major sources of demand and alternative feedstock supplies.
- While limited pipeline distribution increases biodiesel transportation costs relative to petroleum diesel, biodiesel is nonetheless transported economically by rail, truck, barge, and ship over considerable distances from production locations to customers throughout the country.
- Recent and pending changes in the Aviation Turbine Fuel Standard (ATFS) will permit increased distribution of biodiesel throughout the U.S. petroleum pipeline network in the near future, at a significantly lower cost than current truck, rail, or barge transportation costs.
- Industry participants use a range of different distribution networks for biodiesel throughout the U.S. – much of which makes its way to end customers without passing through terminals, i.e., via distributors and retailers with their own blending operations.
- There are no barriers to distributing significantly greater volumes of biodiesel in the near future: there are many different ways to rapidly and cost effectively expand the distribution infrastructure and retail availability of biodiesel, even in locations far from areas of production.

The remainder of this paper is organized as follows. Section II summarizes the effectiveness of biodiesel as a means of reducing CO2 emissions in the transportation sector, thereby contributing to U.S. climate commitments. Section III analyzes several indicators that there are no significant current constraints on

[4] 2016 AEO see E:\NBB\2016 June\Fuel consumption.xlsx

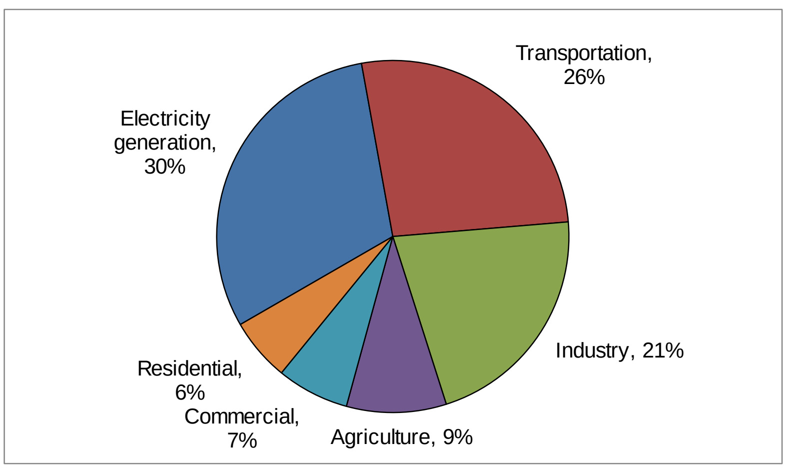
U.S. biodiesel supply and consumption. Section IV presents data on the geographic distribution of biodiesel production, imports, and consumption. Section V examines biodiesel transportation in the U.S. Section VI examines the range of distribution methods by which biodiesel reaches end customers. Section VII provides a summary of our conclusions.

II. Effectiveness of biodiesel in reducing CO2 emissions

Before examining in detail the biodiesel transportation, distribution, and retail network, it is helpful to first review the value of biodiesel in reducing CO2 emissions and its potential role in helping achieve U.S. climate commitments. With biodiesel's increased use of low carbon intensity feedstocks – such as waste greases, animal fats, and distillers corn oil – biodiesel currently reduces CO2 emissions by 81% relative to petroleum diesel. For each 100 gallons of biodiesel that is substituted for an equivalent amount of petroleum diesel, net CO2 emissions are reduced by one metric ton. Biodiesel thus offers a highly effective means to reduce CO2 emissions from diesel-fueled transportation. Based on current projections of biodiesel consumption, biodiesel will reduce U.S. CO2 emissions by 25 million tons in 2016, equivalent to eliminating 5.3 million cars from the nation's roads. [5, 6]

The U.S. has committed, through the United Nations Framework Convention on Climate Change, to reduce CO2 reductions in 2025 to levels that are at least 26% below emissions in 2005. The transportation sector accounts for more than a quarter of U.S. CO2 emissions (Figure 1, below), and it is the sector where it will be hardest to achieve reductions of significant magnitude.

Figure 1: U.S. Economic Sector Shares of CO2e Emissions, 2014[7]



Historically, electricity generation has been responsible for the largest share of CO2 emission, but emissions from this sector have dropped substantially in recent years, driven by low natural gas prices that have caused in a shift away from coal-fired generation. At the same time, falling prices of crude oil and transportation fuels have stimulated an opposite trend in transportation, which, according to data

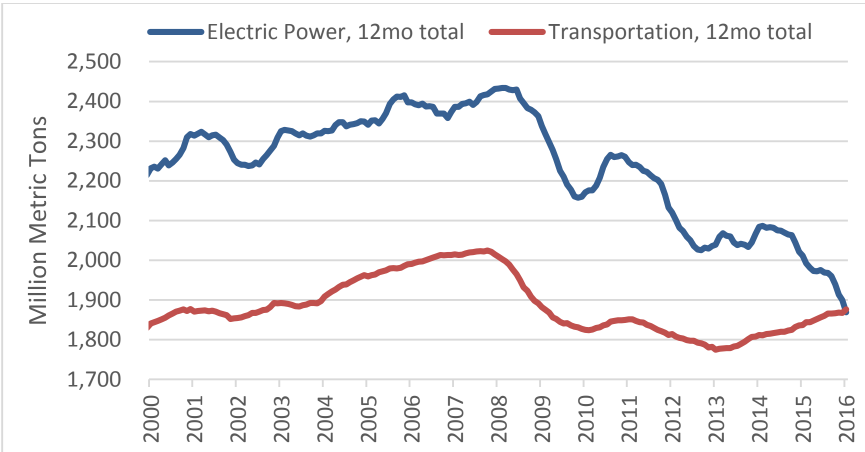
[5] Based on biodiesel industry feedstock share estimates for 2016 and EPA carbon content values by feedstock.

[6] Passenger car equivalent calculated based on EPA Greenhouse Gas Equivalencies Calculator, https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

[7] EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2014 (November 2015).

from the Energy Information Administration (EIA), has recently matched the annual CO2 emissions from electricity generation for the first time.

Figure 2: U.S. CO2 Emissions, Electric Power and Transportation, 12-month total[8]



Low oil prices and an expanding economy have caused U.S. consumption of transportation fuels back near the record levels set in 2007. With highway fuel prices 15% below 2005 prices in real terms, transportation fuel consumption is now higher than in 2005, as the number of miles driven has climbed and demand for higher fuel economy cars has been reduced. While gasoline use is projected to be flat in the next two years and then to decline with the phase-in of ambitious fuel economy standards for passenger vehicles, diesel use is expected to increase by 9% by 2025.[9]

There is considerable scope for biodiesel to contribute much more toward CO2 reduction goals. If U.S. biodiesel use were to grow by 350 million gallons annually, it would still account for less than 9% of U.S. diesel consumption in 2025, and less than 3% of total U.S. transportation fuel consumption. Yet at that level of use, biodiesel would provide substantial CO2 reduction benefits, amounting to 18% of the entire transportation sector's share of the U.S. commitment to reduce CO2 emissions. [10]

US registered biodiesel production capacity is currently 3.4 billion gallons, before considering additional unregistered U.S. capacity or any foreign capacity.[11] The available production capacity thus significantly exceeds expected U.S. biodiesel consumption of 2.5 billion gallons in 2016. Indeed, the biggest danger that the industry faces is the elimination of existing capacity, as idle capacity is moth-balled, shuttered, and/or scrapped. Further, there are no constraints on feedstock availability. On the contrary, in recent years, the industry has increasingly used lower-cost feedstocks with a lower carbon intensity, such that they now comprise approximately half of the feedstocks used by U.S. producers. In

[8] Energy Information Administration, May 2016 Monthly Energy Review.
[9] Energy Information Administration projections, Annual Energy Outlook 2016 Early Release data.
[10] Calculated based on biodiesel CO2 emissions reduction of 56.5 million metric tons in 2025 compared to transportations share of the 26% economy-wide CO2 emissions reductions commitment, which is 313 million metric tons measured from 2013 emission levels (the needed reduction from 2013 to 2025 is 525 million metric tons).
[11] Total capacity of registered domestic D4 facilities, complied data from EPA, Genscape and NBB databases.

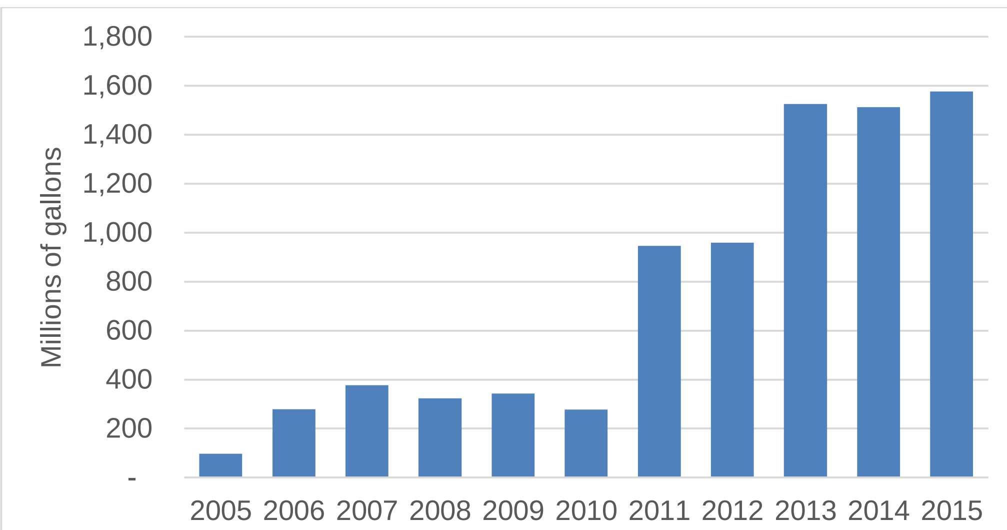
its Proposed Rule, the EPA acknowledges that neither production capacity nor feedstock availability represents a constraint to increased biodiesel production.[12]

III. General indicators of an absence of distribution constraints

Total biodiesel supply in the U.S. has grown from less than one million gallons in 2005 to more than 1.6 billion gallons in each of the years 2013-2015, and a projected total of 2.5 billion gallons in 2016.[13] The large majority of this supply has come from domestic production, which, based on data through the first four months of 2016, is conservatively expected to reach at least 1.6 billion gallons by the end of the year.[14]

Figure 3 charts annual U.S. biodiesel consumption by the transportation sector, the main end-use consumer of biodiesel, from 2005-2015 (EIA provides consumption data only for the transportation sector). In the past 10 years, biodiesel distribution and retail infrastructure has successfully accommodated large increases in domestic biodiesel consumption, with annual increases above 500 million gallons in 2011 and 2013. During this period of rapid growth, there has been no indication that limitations in distribution or retail infrastructure were a constraint on biodiesel consumption.

Figure 3: U.S. Biodiesel Consumption, Transportation Sector (millions of gallons)[15]



As discussed in greater detail below, biodiesel is currently distributed predominantly by truck, although a significant portion – approximately 30% – is moved over longer distances by rail. The reliance on truck distribution reflects the fact that a large proportion of biodiesel production is used to supply nearby markets, typically within 300 miles. Larger producers tend to supply a disproportionate share of demand

---

[12] Proposed Rule, II.C.2.

[13] Proposed Rule, II.C.2.i-ii.

[14] Calculated based on production data through April for 2014, 2015 and 2016 and annual production totals for 2014 and 2015; data from Energy Information Administration, Monthly Biodiesel Production Report (June 2016); industry expectations of increased production through the remainder of 2016 suggest that domestic production totals may exceed 1.6 billion gallons.

[15] Prior to 2006, all biodiesel imports were re-exported. Source: USDOE, Energy Information Administration, Monthly Energy Review Table 10.4, http://www.eia.doe.gov/emeu/mer/pdf/pages/sec10_8.pdf.

in more distant markets. As biodiesel volumes increase, it can be expected that larger shipments over longer distances will allow for increased distribution by rail. This is similar to the pattern that accompanied the expansion of the U.S. ethanol industry, which now relies predominantly on rail transportation.

Indeed, ethanol provides a useful illustration of how the U.S. fuel distribution infrastructure has been able to accommodate large increases in biofuel volumes in the recent past. In terms of volumes produced and consumed, biodiesel is currently where ethanol was in the early 2000s. As with biodiesel, a large proportion of ethanol production occurs in the Midwest, near corn feedstocks, and ethanol is blended into gasoline nationwide. U.S. ethanol consumption has closely matched domestic production since then, without any evident restriction from distribution constraints, even as ethanol production expanded sharply between 2005 and 2010. Both U.S. production and consumption of ethanol were approximately 4 billion gallons in 2005, and 13 billion gallons in 2010, with average annual growth in excess of 1.7 billion gallons. Since 2010, growth has been much more modest, as ethanol consumption has approached blend levels of approximately 10%.

Approximately 65% of ethanol is transported by rail, with the remainder moved by ship and by truck.[16] The substantial use of rail for shipping ethanol is partly a function of the fact that ethanol, like biodiesel currently, is restricted from being shipped on the existing petroleum pipeline network. Nonetheless, it is still economical to ship ethanol in large volumes to all parts of the US, with consumption reaching approximately 14 billion gallons annually as of 2015. Ethanol is shipped predominantly by rail because the production and consumption levels make rail transportation economic. Larger volumes result in a lower cost of rail transportation, particularly as ethanol is typically transported in "unit trains," in which all railcars in a train carry the same commodity from a single origin to a single destination.

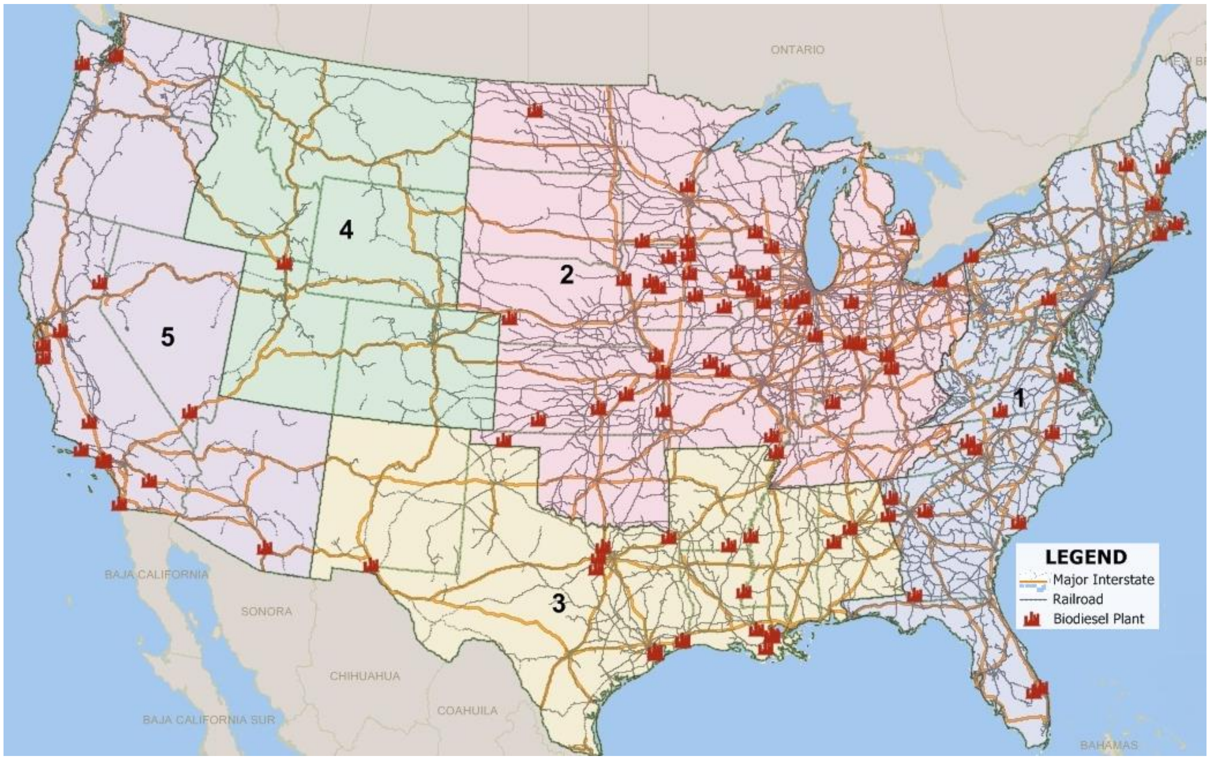
It is important to emphasize, however, that it is not access to rail transportation that allows for larger volumes of production and consumption of ethanol, but the reverse: it is the large volumes of ethanol production and consumption that make rail transportation economical. Similarly, increased demand for biodiesel – stimulated by RFS2 – will increase the amount of biodiesel shipped economically by rail, reducing transportation costs and increasing its availability. Further, recent revisions to the ATFS specifications will allow increased volumes of biodiesel to be shipped by petroleum pipelines in the near future, at substantially lower costs than either rail or truck transport. Pipelines will only offer this service, however, if there is a sufficient volume of demand for shipping biodiesel blends from the pipelines' customers.

IV. Biodiesel production and consumption in the U.S.

Biodiesel is produced, distributed, and sold at retail throughout the U.S. There are biodiesel production facilities in 34 states. While many biodiesel plants are located in the Midwest near agricultural feedstock sources, there is also a significant number in other regions of the U.S. Production activity has diversified over time, as producers have located closer to previously underserved markets, and as they have increasingly used new, lower carbon feedstocks, such as waste greases, animal fats, used cooking oil, and distillers corn oil. Figure 4 shows the locations of biodiesel production facilities, along with the boundaries of the five Petroleum Administration for Defense Districts (PADDs) used to track liquid fuel production and movements.

[16] EIA, Today in Energy, June 3, 2016. http://www.eia.gov/todayinenergy/detail.cfm?id=26512

Figure 4: U.S. biodiesel production facilities



As shown in Figure 4, while most biodiesel production capacity is located in PADD 2, many plants are located in other regions, including in coastal areas near major population centers. Further, as one would expect, almost all of the production facilities are located on or near major truck, rail, and/or water transportation routes. Table 1 lists the number of production facilities by PADD, and shows that, in addition to the facilities located near sources of traditional feedstocks, there is a large number of biodiesel plants along the West Coast, the East Coast, and the Gulf Coast. In fact, these other regions account for more than half of U.S. biodiesel plants and a little over 40% of total production capacity.

Table 1: U.S. Biodiesel Production Facilities by PADD[17]

PADD	No. of Biodiesel Plants
East Coast - PADD 1	19
Midwest - PADD 2	43
Gulf Coast - PADD 3	18
Rocky Mountain - PADD 4	1
West Coast - PADD 5	16
Total	**97**

The substantial presence of biodiesel plants outside the Midwest reflects the diversification of feedstocks used to make biodiesel, the availability of locally grown feedstocks, and the ability to move feedstocks efficiently to facilities throughout the U.S. One of the largest biodiesel plants is located in Erie PA, and

[17] NBB member plants; http://biodiesel.org/production/plants/plants-listing

it is supplied with a diverse range of feedstocks from all over the US, including used cooking oil and waste grease from the major metropolitan areas of the Northeast. Plants located in the Southeast rely on both locally produced feedstocks, including locally-sourced animal fats, and those shipped from other regions. The Gulf Coast also has a number of large biodiesel production facilities adjacent to petroleum refining and existing fuel transportation networks. In particular, several major biodiesel production facilities are located in Texas; not coincidentally, Texas is the state with largest volume of diesel consumption, and in-state demand for biodiesel has increased substantially in recent years due to state incentives.

In addition to the diversified geographic distribution of U.S. biodiesel production, a significant volume of biodiesel is imported into the U.S. through coastal ports. Import volumes by country of origin in 2015 are shown in Table 2. Most imported biodiesel comes from Argentina and is delivered to ports along the Gulf or East Coasts. The next largest import volume is from Indonesia and is delivered to West Coast ports, along with renewable diesel imports from Singapore (which reached 125 – 160 million gallons in 2015,[18] not shown in Table 2). The geographic dispersion of U.S. biodiesel supply – both from U.S. production facilities and at import terminals – facilitates distribution to demand centers and allows for the use of distribution methods beyond those that have traditionally been used to distribute petroleum diesel, as discussed further below.

Table 2: 2015 Biodiesel Imports by Country of Origin (thousand gallons)[19]

Country	Amount	% Total
Indonesia	73,332	22%
Argentina	183,834	55%
Canada	61,194	18%
Germany	3,192	1%
South Korea	12,642	4%
Total	**334,194**	

Essentially all biodiesel in the U.S. is consumed in blends with petroleum diesel (as transportation fuel, heating oil, and for other uses), at biodiesel percentages between 2% and 20% by volume, i.e., as B2 to B20 blends. Diesel fuel, including biodiesel blends, is consumed primarily by the transportation sector for on-highway applications, and predominantly in long-distance trucking. Figure 5 maps U.S. transportation freight flows, and Figure 6 maps U.S. retail fueling locations where biodiesel blends are available. (It is important to note that Figure 6 vastly understates the number of locations selling blends of B5 or below, given the lack of reporting requirements for blends below B5, and given the limited sources of available information.[20]) These maps show that a very large volume of highway freight transportation occurs in the Midwest – precisely where biodiesel supply is greatest. In addition, biodiesel is available along all of the major long-distance truck transportation routes in the country, even in locations far from any biodiesel production facility. Thus, the current biodiesel transportation,

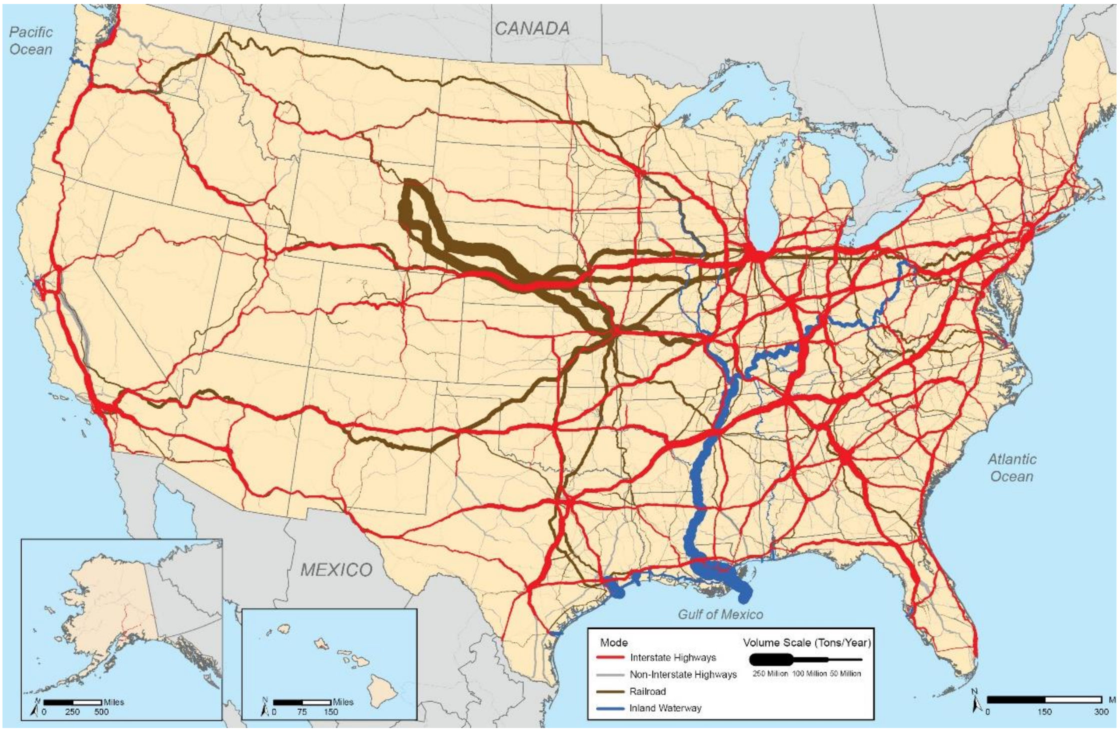
[18] http://www.biodieselmagazine.com/articles/924511/importing-to-meet-california-demand

[19] http://www.eia.gov/dnav/pet/pet_move_impcus_a2_nus_EPOORDB_im0_mbbl_a.htm

[20] The retail locations were derived from a list provided on the NBB website, supplemented with data from the websites of the three large truck stop/travel center chains, discussed further below. The listing on the NBB website is entirely voluntary, and many retailers who report selling biodiesel in significant volumes are not included on this list.

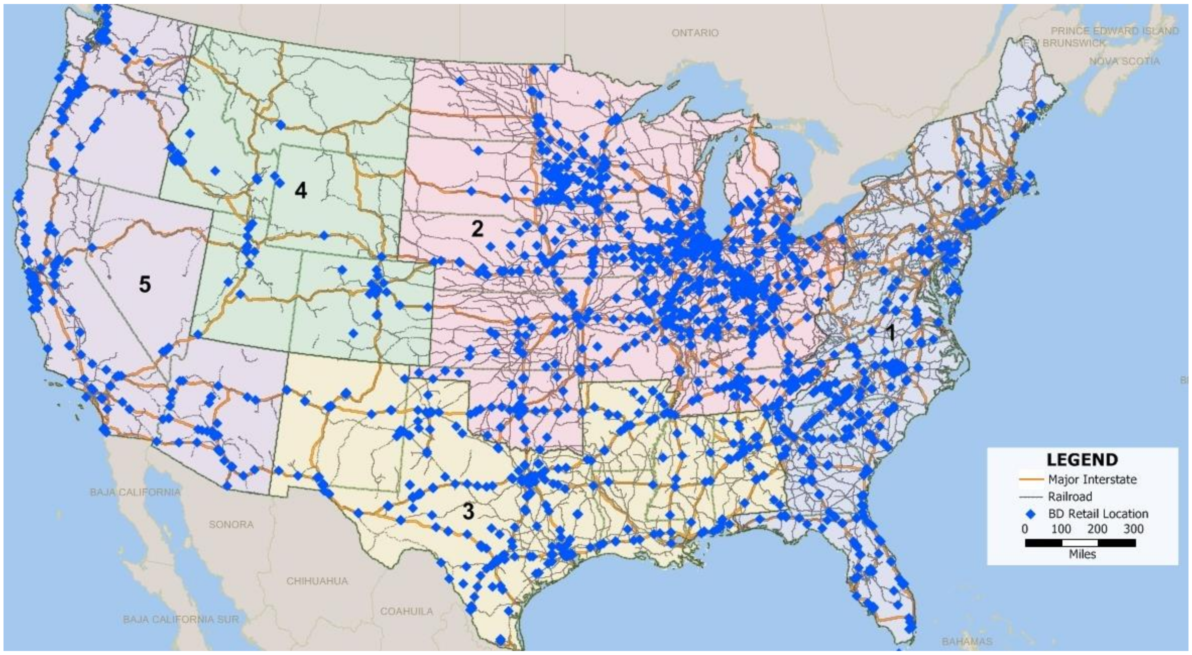
distribution, and retail infrastructure already serves to effectively distribute biodiesel to all of the major centers of demand in the U.S.

Figure 5: Freight Flows by Highway, Railroad and Waterway (2010)[21]



[21] U.S. Department of Transportation, Federal Highway Administration, http://ops.fhwa.dot.gov/Freight/freight_analysis/nat_freight_stats/docs/13factsfigures/figure3_01.htm

Figure 6: U.S. Biodiesel Retailers [22]



V. Transportation of biodiesel

Biodiesel is transported throughout the U.S. by truck, rail, barge, and ocean vessel. It is important to note, however, that there is not a biodiesel-specific distribution infrastructure: biodiesel is transported over the same truck, rail, and water distribution network that is used by petroleum products and ethanol. As noted above, unlike gasoline and petroleum diesel, biodiesel is not currently transported by pipeline in large volumes (which may change in the near future), but neither is ethanol, and this has not prevented ethanol from being widely distributed throughout the U.S. in far larger volumes.

The assessment of biodiesel transportation and distribution that follows is based in part on information regarding current industry production, sales and distribution activity from a July 2016 NBB survey of U.S. biodiesel producers. Survey respondents represent domestic biodiesel production capacity in excess of 1.2 billion gallons annually across the U.S.

Approximately 60% of biodiesel is distributed by truck from production locations to customers who are located within approximately 300 miles.[23] The cost of transporting biodiesel by trucks is in the range of approximately \$0.10 to \$0.20/gallon, depending on the distance, although customers that are closest to production locations can be served for significantly less than this (i.e., in the range of \$0.03 to \$0.06/gallon). Trucks generally transport approximately 7,000 gallons of biodiesel. With the

---

[22] Retailer data from voluntary submissions reported by NBB; http://biodiesel.org/using-biodiesel/finding-biodiesel/retail-locations/biodiesel-retailer-listings, supplemented with data from major truckstop chains: Love's, https://www.loves.com/en/location-and-fuel-price-search; Pilot Flying J, https://www.pilotflyingj.com/fuel-prices#next; TA, http://www.ta-petro.com/location/. As noted above, this substantially understates the extent of retail distribution of biodiesel, particularly B5.

[23] NBB survey, July 2016. Ultimately, almost all biodiesel – like almost all petroleum diesel, gasoline, and ethanol – is transported by truck when distributed to retail customers.

availability of biodiesel supply not only at production locations but also at almost every major U.S. port, truck transportation allows biodiesel to be shipped by truck to almost all of the major population centers.

Producers – particularly the larger plants – are typically located on rail lines. This facilitates not only the out-bound transportation of biodiesel, but also the in-bound transportation of feedstocks (and the out-bound transportation of co-products, such as soybean meal and glycerin). Rail transportation accounts for approximately 33% of biodiesel transportation[24] and is generally used to ship biodiesel for distances greater than 300 miles. Rail transportation is used to ship biodiesel throughout the U.S. Most biodiesel rail shipments originate in either the Midwest (PADD 2) or the Gulf Coast (PADD 3). Rail shipments originating in the Midwest make up more than 80% of biodiesel shipped by rail in the US, which totaled approximately 300 million gallons in 2015. Rail shipments of biodiesel in 2015 originating from PADD 2 and PADD 3 are summarized in Table 3, below. Producers, brokers, and customers also report using rail to transport biodiesel within regions and across other regions (i.e., from the Northeast to the Southeast, or from the Gulf Coast to the Southwest, for example).

Table 3: U.S. Domestic Rail Shipments of Biodiesel by Origin and Destination, 2015 (thousand gallons)[25]

	Origin	
Destination	**Midwest PADD 2**	**Gulf Coast PADD 3**
East Coast - PADD 1	65,268	-
Midwest - PADD 2	48,678	2,856
Gulf Coast - PADD 3	64,512	18,354
Rocky Mountain - PADD 4	15,918	-
West Coast - PADD 5	46,242	15,960
Totals	**240,618**	**37,170**

Most railcars carry approximately 25,000 – 29,000 gallons of biodiesel. The cost to transport biodiesel by rail depends not only on distance but also on whether a shipment remains on a single railroad from origin to destination (with significantly increased costs in the event of carrier switching). On average, rail transportation costs are in the range of $0.15 - $0.25/gallon, for transportation across distances from approximately 300 miles to more than 1,000 miles. Rail transportation costs are somewhat lower for ethanol due to the scale economies associated with transportation in "unit trans" (trains with all railcars carrying the same product from a single origin to a single destination), but these cost differences are not so great as to limit the distribution of biodiesel by rail. Biodiesel should be able to benefit from similar scale economies as demand increases – to the extent increased demand is not met by additional production closer to demand centers, or by increased use of pipelines. The fact that rail is used to transport a significantly smaller fraction of biodiesel (33%) as compared to ethanol (65%) suggests that a greater fraction of biodiesel production is being used to serve local customers (i.e., those within a 300-mile radius of production or import locations); and that as biodiesel demand increases in the future, an increasing volume of biodiesel will be transported by rail. From the perspective of distribution

[24] NBB survey, July 2016. These figures are consistent with figures from EIA, Today in Energy, June 3, 2016, http://www.eia.gov/todayinenergy/detail.cfm?id=26512.

[25] EIA database: Movements of Crude Oil and Selected Products by Rail between PAD Districts, http://www.eia.gov/dnav/pet/pet_move_rail_a_EPOORDB_RAIL_mbbl_m.htm.

infrastructure, one important advantage of rail transportation (discussed further below) is that it enables producers and customers to use rail cars as distribution points at railroad "transloading" locations.

Barge and ocean transportation is also used by biodiesel producers located near major waterways or U.S. ports, as well as by importers. Approximately 7% of biodiesel is transported by barge. Barges typically hold 400,000 gallons of biodiesel. The cost of barge transportation is approximately $0.05 – $0.10/gallon to ship across several hundred miles, while the cost of ocean shipping from the Gulf Coast to the East Coast is approximately $0.12/gallon. Producers and consumers can also save on long-distance shipping costs by engaging in transportation "swap" transactions (for example, a producer makes a local delivery to a counterparty's customer in exchange for the delivery of a similar volume to the producer's more distant customer by the counterparty).

The constraints limiting the distribution of biodiesel by pipeline relate primarily to concerns associated with the impact on jet fuel transported by pipelines. However, pipeline transportation specifications are changing. In 2015, the allowable concentration of trace FAME in the ASTM jet fuel specification increased from 5 ppm to 50 ppm,[26] and a further increase to 100 ppm is expected by 2017. This will allow a significant increase in the amount of B5 transported by pipeline. Certain pipelines already allow for transportation of B5, including Kinder Morgan's Plantation pipeline in the Southeast, the Colonial pipeline, several local "feeder" pipelines in the Southeast, and Kinder Morgan's Oregon Pipeline.[27] The extent to which other major pipelines begin transporting biodiesel depends on the volume of demand by the pipelines' shipping customers. The Explorer pipeline (from Houston to Chicago) has tested B5 shipments.[28] If demand for biodiesel pipeline transportation increases, this will dramatically reduce biodiesel transportation costs and increase biodiesel (or blended diesel) availability in all of the terminals served by these pipelines. While the cost to transport fuels varies by pipeline and distance, it costs approximately $0.025 - $0.045/gallon to ship fuel by pipeline over distances comparable to those currently served by rail for biodiesel.[29]

It should also be noted that the costs of transporting and distributing biodiesel have declined as companies have implemented more sophisticated logistics management systems. For example, after a tanker truck from a distributor delivers fuel to a retail location, it returns empty to the distributor's break-bulk location ("deadheading"). If the tanker truck can pick up a load of biodiesel on the way back to the terminal, the marginal cost of doing so is minimal. Furthermore, the cost of distributing biodiesel also depends on the price of petroleum. With lower recent petroleum prices, trucking costs have declined. Rail transportation costs have also significantly declined recently, due in part to lower rail fuel charges, and in part to lower demand for rail transportation for petroleum products.[30]

---

[26] http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgSAIB.nsf/dc7bd4f27e5f107486257221005f069d/43a9b70c967a3d8f86257fb8006d951b/$FILE/NE-09-25R2.pdf

[27] http://www.platts.com/latest-news/oil/sanantonio/colonial-pipeline-to-ship-biodiesel-on-georgia-6267714; http://www.biodieselmagazine.com/articles/3797/kinder-morgan-moves-biodiesel-on-oregon-pipeline/; http://www.pipeline-news.com/feature/plantation-pipe-line-transports-biodiesel-commercial-purposes.

[28] http://www.biodieselmagazine.com/articles/290143/moving-biodiesel-in-the-pipeline-sequencing-matters.

[29] See e.g.: http://www.colpipe.com/home/news-media/in-the-news/details/1999/03/08/colonial-freezing-ferc-index-rates-at-2011-levels.

[30] http://www.genscape.com/blog/tank-car-lease-rates-plummet-weak-crude-rail-demand-low-crude-prices.

VI. Distribution of biodiesel

Biodiesel is distributed from producers to consumers through a range of distribution channels throughout the U.S. fuels supply chain: by major petroleum terminals; by wholesale distributors or "jobbers;" and increasingly by many large retailers directly to their retail locations. Biodiesel producers sell only 15% of their output directly to terminals; 41% is sold to downstream blenders (distributors); and fully 30% is sold directly to retailers. The remaining 14% is sold to brokers, marketers, and other types of resellers.[31]

Terminals

As with other major petroleum products and ethanol, biodiesel is distributed at many major petroleum terminals, which are typically located on pipelines or at refineries. Biodiesel is transported to terminals from producers by rail, truck, barge, or deep water vessel. The biodiesel is held in large storage tanks, blended with petroleum diesel, and distributed by tanker truck to the next level of the distribution chain.

At the terminals, biodiesel may be blended either through "splash" blending, "rack" blending, or "manifold" blending. Splash blending consists of loading biodiesel onto a tanker truck, on top of a partial load of diesel (in a ratio that depends on the target blend, i.e., B5 to B20). The blending then occurs during transport through the natural mixing of the fuels that occurs as a result of the movement during on-loading, driving, and off-loading. With splash blending, the blended fuel is loaded in a two-step process (i.e., with fuel loaded first from a diesel tank and then from a separate biodiesel tank).

Rack blending consists of an in-line fuel blending system, typically with rack operators (or truck drivers) able to select the specific desired blend at the fuel loading rack. Rack blending is thus a one-step process. Rack blending is increasingly common at large terminals supplying larger volumes of diesel and biodiesel.

With manifold blending, the terminal creates a single blend of fuel at the in-take manifold, i.e., mixing biodiesel with petroleum diesel as it comes into the terminal, producing a uniform blend (e.g., B5), which is then stored in tanks and distributed into trucks as a single blend. Manifold blending has the advantage of being a one-step process, with lower capital requirements than rack blending, but it requires all buyers to accept a single blend.

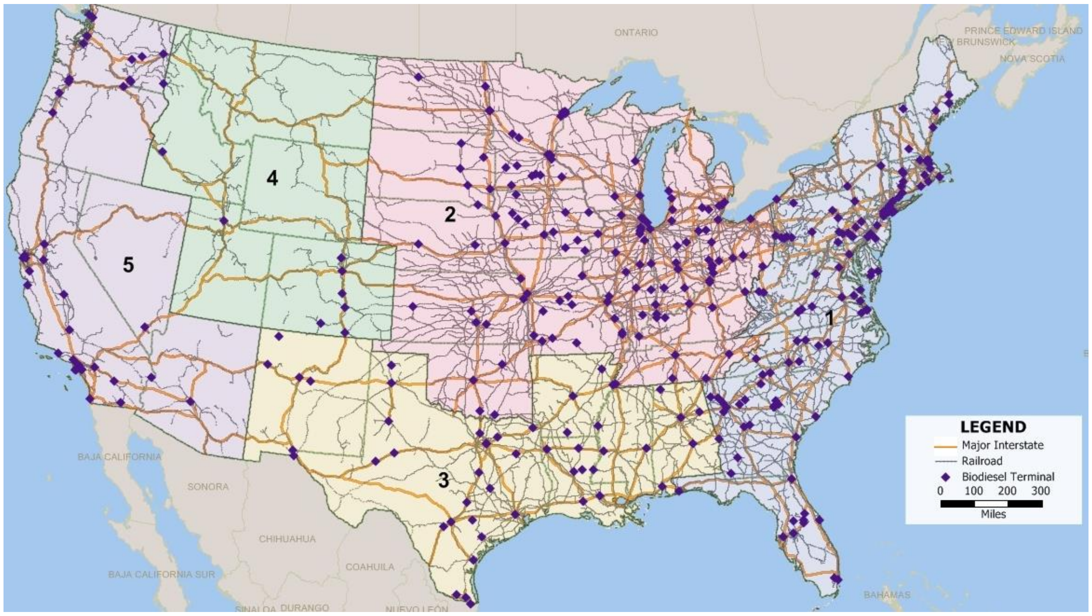
According to data from OPIS,[32] there are 453 cities in the continental U.S. that have fuel terminals providing petroleum gasoline and diesel, and there are 369 cities with fuel terminals providing biodiesel or biodiesel blends. Across these locations, 259 offer both petroleum diesel and biodiesel. The 369 cities with biodiesel terminals are distributed widely throughout the US, as shown in Figure 7, below. Biodiesel terminals are located in every state except Wyoming and Montana, with 62% located outside PADD 2. As is evident from Figure 7, biodiesel terminals are located not only in all of the major U.S. population centers, but in many smaller cities and towns as well.

---

[31] NBB survey, July 2016.

[32] "Oil Price Information Service (OPIS), an IHS company, is one of the world's most comprehensive sources for petroleum pricing and news information." http://www.opisnet.com/about/opis.aspx.

Figure 7: U.S. Cities with Fuel Terminals Providing Biodiesel[33]



In the Proposed Rule, EPA refers to a total count of 1,400 terminals for all petroleum products and other liquid fuels. Many cities have multiple terminals – i.e., the 1,400 terminals referenced by the EPA are spread across the 453 cities cited above. It is the number and dispersion of the geographic areas served by biodiesel terminals, rather than the total number of terminals *per se*, that is most relevant to evaluating the extent to which the current distribution infrastructure for biodiesel is capable of meeting increased demand. While some parts of the country do not have biodiesel terminals in close proximity (e.g., Wyoming and Montana), biodiesel terminals are much more widespread throughout the U.S. than the EPA suggests.

Distributors

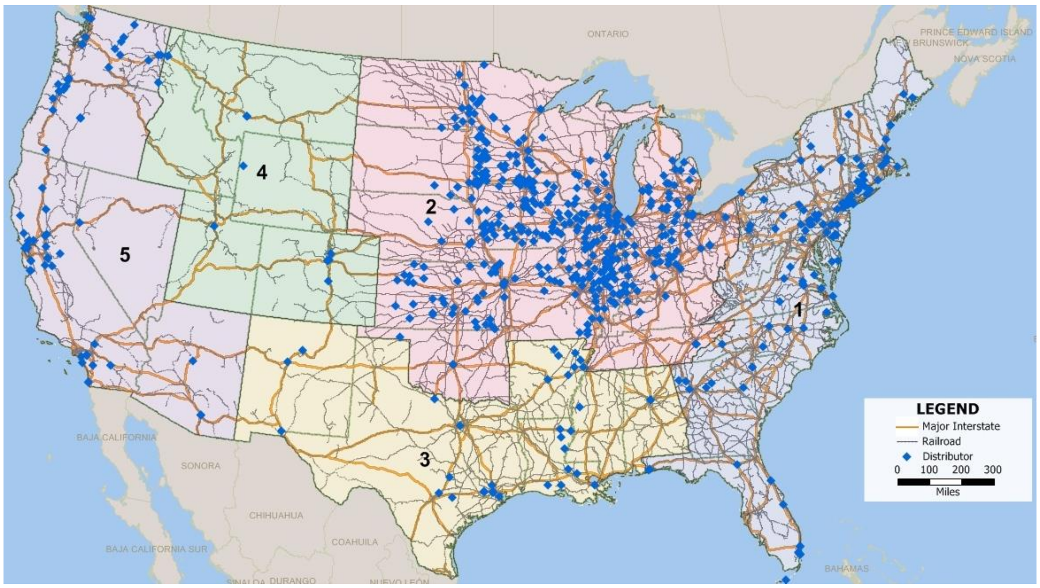
There are a wide variety of distributors below the terminal level. These include wholesale "jobbers," who use own their own central storage tanks, "break bulk" facilities, and tanker trucks to distribute fuel to retail locations; as well as more specialized distributors, such as heating oil distributors. Distributors may sell biodiesel via splash blending, or they may have more sophisticated in-line blending systems (as used in rack blending). While the largest retail fuel chains will often operate their own fuel distribution network, smaller retailers, medium-sized retail chains, and even many branded stations rely on jobbers.

While almost all petroleum gasoline and diesel first passes through a terminal before it reaches a distributor (due to its distribution via pipelines), that is not the case with biodiesel. Biodiesel producers often sell directly to distributors, who may either blend the biodiesel with the petroleum diesel they sell, or provide splash blending on top of diesel purchased from a terminal. Thus, even though there is a relatively large number of terminals distributing biodiesel, this vastly underestimates the extent to which biodiesel is made available directly through this second level of the distribution network, which greatly extends the geographic scope of biodiesel distribution locations.

[33] OPIS

Based on information compiled by the NBB, there are approximately 629 biodiesel distributors in the U.S.[34] It is important to note, however, that this figure is based on a voluntary registration by the distributors with NBB, and thus likely underestimates the total number of biodiesel distributors. As shown in Figure 8, most of the listed biodiesel distributors (84%) are located in the Midwest - PADD 2, but they are also reasonably prevalent among the major population centers of the East Coast, the West Coast, and the Southeast, and Gulf Coast. These distributors also serve to extend the biodiesel distribution network in the Rocky Mountains states (including Montana and Wyoming).

Figure 8: U.S. Biodiesel Distributors[35]



Not shown in Figure 8 are the myriad storage locations leased or owned by biodiesel producers themselves, often located near areas of demand or major transportation hubs, which serve to further extend the geographic distribution and availability of biodiesel. Fully 68% of U.S. biodiesel producers (weighted by volume) have offsite storage, located at an average distance of 285 miles from their production locations, through which most of their biodiesel is distributed.[36] The larger producers have a geographically diversified offsite storage network. Renewable Energy Group (REG), for example, leases biodiesel storage tanks in 39 terminals; this extensive storage network enables REG to sell biodiesel either to distributors or directly to end customers in 47 states (and 5 Canadian provinces).[37]

Retailers

At the third level of the fuel distribution chain are retailers. While many retailers purchase fuel from distributors, some of the largest retail fuel chains operate their own substantial distribution networks, often with their own blending operations. Love's, for example, one of the country's largest chains of retail truck stops, has its own fuel distribution network, consisting of approximately 500 tanker trucks,

[34] Distributor data from voluntary submissions compiled by NBB; http://biodiesel.org/using-biodiesel/finding-biodiesel/locate-distributors-in-the-us/biodiesel-distributor-listings.

[35] *Id.*

[36] NBB member survey, July 2016.

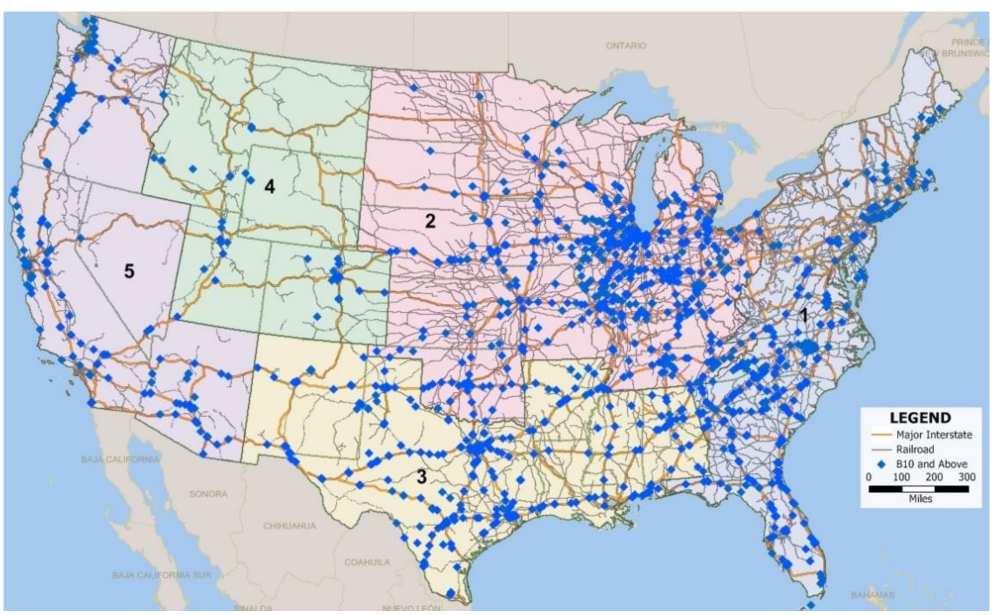
[37] Source: REG 2015 10-K.

storage capacity at 7 import terminals, 25 rail terminals, and 300 railcars (through its affiliate, Musket Corp.).

In the past several years, several of the largest retail chains – particularly those selling diesel fuel to long-haul trucking companies – have developed an extensive blending infrastructure to enable them to sell B10 to B20 blends around the country (in addition to B5). This has resulted in fully 30% of biodiesel being sold directly to retailers, without passing through terminals or other distributors. The three largest retail truck stop/travel center chains are Love's, Pilot/Flying J, and TA (TravelCenters of America/Petro Stopping Centers). These three companies account for 1,309 retail sites in total, located on the primary truck transportation corridors throughout the U.S. Of these, 754 stations – or 58% – sell biodiesel blends of B10 to B20.[38] The retailers selling higher blends are located on almost all the major long-haul truck transportation routes throughout the US, as shown in Figure 9, below.

It should be noted that Figure 9 significantly underreports the number of retailers selling blends above B5, since many large regional fuel retailers report extensive sales of higher biodiesel blends, but their data is not included below. Retailers selling higher blends are not limited to the large truck stops. Casey's General Stores, for example, is a large Midwest convenience store retailer, with 1,931 retail locations, 82% of which are in communities with fewer than 20,000 people; nevertheless, Casey's does its own splash blending in significant quantities.[39] Kum & Go is another Midwest retail chain, with 430 convenience stores; Kum & Go purchases biodiesel directly from producers and sells most of it in the form of B5 to B20 blends, depending on the state. Further, Minnesota currently requires all diesel to be sold as B10 or higher blends for 6 months out of the year, and as B5 in the winter months; in 2017, the summer biodiesel requirement will increase to B20.

Figure 9: U.S. Retailers Selling Biodiesel Blends of B10 to B20[40]



[38] These figures likely understate the extent to which B10 – B20 blends are sold by these companies. From interviews, it is our understanding that the number of locations selling B10 and higher blends is increasing, and the information posted on company websites may not be updated regularly.

[39] Casey's General Store 2015 10-K.

[40] *Supra*, footnote 22.

Much of the biodiesel sold by these large retailers is distributed at retail without having passed through either a terminal or a distributor. Love's for example, purchases biodiesel from producers or importers and arranges for transportation by truck, rail, or barge all the way to their retail locations. Retailers may do their own splash blending (e.g., Casey's General Stores), or they may blend fuels at the retail store level. Love's, for examples, has blending facilities at many of its stores, which can set the amount of biodiesel blends available at their stores in ways that are similar to rack blending at the terminal level. Further, some biodiesel producers are diversified companies with their own retail network. Delek US Holdings, for example, produces biodiesel at two plants (in Texas and Tennessee, through its Delek Renewables subsidiary); performs its own blending (with petroleum diesel produced by its Lion Oil/Delek Refining subsidiaries); and sells B5 – B20 to retail customers through a chain of 370 retail stores in the Southeast (through its MAPCO Express subsidiary).[41]

Given the lack of reporting requirements for B5 blends and below, it is difficult to determine the number of additional stations selling B2 – B5 with any degree of precision. Since most stations selling B2 – B5 are likely obtaining blended fuel from local distributors or terminals, or they may be doing their own splash blending from these local sources of biodiesel supply, retail stations selling B2 – B5 are likely more prevalent in areas with biodiesel distributors and terminals in reasonably close proximity. In any event, adding in all stations that currently sell B2 – B5 to Figure 9, above, would show an even broader and considerably more dense geographic retail availability of biodiesel.

Distribution of biodiesel to other customers

Much of the above discussion addresses how biodiesel is distributed and blended to serve long-haul trucking operators, who account for the majority of retail diesel use. Since every long-distance trucking company is dependent on retail fuel chains to service their fleet, it is reasonable to conclude that all of the large fleets are currently using a significant amount of B10 – B20 in their regular course of operations.

Other diesel transportation fuel customers include central fleets (e.g., federal, state, and municipal truck fleets, school buses, snow plows, etc.) and owners (or operators) of "performance" heavy-duty trucks (e.g., dump trucks, construction trucks, etc. used in off-highway applications). Most of the biodiesel blends purchased by central fleet customers are likely blended at terminals or by distributors, although some of these customers – particularly federal, state, and local governments – are increasingly requiring their distributors to provide higher biodiesel blends for their fleets. For example, the city of Moline, Illinois has operated its entire fleet of diesel vehicles on B20 since 2006.[42] As another example, the Kinder Morgan terminal in Las Vegas has installed rack blending systems to accommodate the demand by local municipalities for higher biodiesel blends.[43] Biodiesel use by fleet customers appears to be growing rapidly: as of 2016, biodiesel is used by 18% of fleet customers, increasing from 15% in 2015.[44]

Biodiesel is also used by certain industrial customers, who may purchase blended fuel from distributors or terminals, or directly from producers. Mine operators in Montana, for example, have purchased significant quantities of biodiesel from producers in Minnesota, located several hundred miles away. These direct purchases of biodiesel by industrial customers also occur outside the terminal or "jobber" distribution network typically used for petroleum fuels.

---

[41] http://www.etcleanfuels.org/presentations/Delek-Renewables_Biofuels-at-Cstores_Chad-Carmichael_11-20-14.pdf
[42] http://biodiesel.org/news/news-display/2016/03/23/biodiesel-ranks-first-among-fleets-for-alt-fuel-us
[43] http://biodieselmagazine.com/articles/9214/blend-baby-blend
[44] http://biodiesel.org/news/news-display/2016/03/23/biodiesel-ranks-first-among-fleets-for-alt-fuel-us

Biodiesel is gaining increasing acceptance among consumers of residential heating oil, either in the form of B5 or in significantly higher blends (B20 and above). Biodiesel sold to this market segment can be distributed through the existing home heating oil distribution network, i.e., blended at terminals or distributors' storage facilities. The Northeast accounts for fully 88% of residential home heating oil consumption in the U.S. This considerably facilitates the distribution of biodiesel into this market segment, given the relatively large number of terminals and distributors selling biodiesel in that region, and the ability to supply that market either with biodiesel produced locally or from import terminals along the coast.

VII. Costs and speed of increasing biodiesel distribution infrastructure

As analyzed above, most of the major areas of diesel consumption in the U.S. already have a well-established biodiesel distribution infrastructure today that has accommodated rapid increases in biodiesel supply in recent years and can accommodate significant further increases in biodiesel supply and demand. Furthermore, none of the evidence we have reviewed suggests that there are significant costs or logistical impediments to rapidly expanding this biodiesel distribution infrastructure, if such an expansion were required. The breadth of the existing U.S. biodiesel distribution infrastructure is particularly notable given the very rapid pace of growth in U.S. biodiesel consumption in the past six years.

The cheapest and quickest way to expand the existing biodiesel distribution infrastructure is through splash blending at the distributor level. If a distributor has existing storage infrastructure that can be converted to biodiesel storage, the cost of doing so is minimal, particularly where there is no need to heat the facility in the winter. Distributors can acquire incremental biodiesel storage very rapidly by using portable distribution tanks, such as those used in oil field operations; these can be either leased at a relatively low monthly cost, or they can be purchased for less than $100,000. If a distributor needs to install new permanent storage tanks for biodiesel, with heating for winter distribution, the cost of doing so is generally in the range of $500,000 to $750,000, and they can be constructed in approximately 6 – 9 months. Producers can also rapidly increase the biodiesel distribution network by simply leasing existing storage space at terminals or other locations, which would allow for increased splash blending.

The cost of implementing a full rack blending infrastructure at a terminal is more expensive, but the terminal also blends greater volumes. Rack blending systems can be installed at terminals for approximately $1.2 – $1.5 million (including cold weather handling equipment), although some terminals cite rack blending system costs in the range of $2 – $3 million (some of this range in costs may be due to differences in the size of storage facilities). Manifold blending at the terminal is cheaper than rack blending systems, although cost comparisons are difficult, given the different sizes of existing systems, and given the fact that some systems include the cost of building additional storage tanks. For example, several Kinder Morgan terminals in CA have manifold blending systems (and in Las Vegas, the Kinder Morgan terminal has rack blending); although Kinder Morgan has reported the cost of these investments at approximately $5 million per terminal, it is unclear how much of this investment was to expand their total storage capacity of blended diesel vs. the incremental cost of the biodiesel blending infrastructure.[45] As biodiesel volumes increase, there is no reason to expect any significant constraints to such terminal blending infrastructure, consistent with the past growth in terminal blending infrastructure

[45] Kinder Morgan also notes that its manifold blending systems are considerably cheaper than its rack blending systems. http://www.biodieselmagazine.com/articles/9214/blend-baby-blend.

for ethanol. Ultimately, the economics of the industry will determine where such blending will occur, which in turn depends almost entirely on the amount of biodiesel demand.

The cost of increased blending at the retail level is driven entirely by the economics and retail marketing strategy of the specific retail chain. Several relatively large retailers distribute blends of B5 to B20 by using splash blending via their existing distribution network. Since biodiesel is a drop-in fuel for the retailers, retailers do not have to install new pumps to sell B5 to B20 blends. Many of the largest retail chains sell a single blend at all of the pumps at their stations; others choose to sell higher blends (B10 – B20) through dedicated pumps alongside other pumps with B5 or less. The cost of installing a dedicated new pump is in the range of \$4,000 – \$26,000.[46] It is significantly more expensive for a retail store to install its own store-specific blending infrastructure, in the range of approximately \$75,000 – \$250,000 per store (installed within 3 – 9 months), but many large volume retailers have concluded that they will be able to recoup this investment relatively quickly, given the current relative prices of biodiesel and petroleum diesel, the value of RINs, the value of the tax credit, and the value of various state incentives.

Biodiesel distribution can be expanded relatively quickly and cheaply even in comparatively remote locations by taking advantage of railroad "transload" facilities, which allow biodiesel (and other fuels) to be off-loaded from railcars directly onto trucks, after passing through a metering system. The U.S. railroad network is extensive, and the railroads (and other parties) have established a network of transload facilities distributed fairly broadly throughout the U.S. There are at least 198 transload facilities in the U.S. that handle petroleum products.[47] Biodiesel can be shipped by rail to these transload locations and then loaded from the railcars directly into tankers for local distribution either directly to retailers or to distributors; railcars can also be used to temporarily store the biodiesel at the transload locations. Even in areas with a minimal existing transload facilities, new facilities can be established within a matter of months, if there is sufficient local demand to warrant them.

Finally, as noted above, one significant difference between biodiesel and ethanol is that it is easier to transport biodiesel by pipeline. The changing pipeline specifications for biodiesel will enable shippers to further reduce the transportation cost of biodiesel, as well as to rapidly extend the distribution of biodiesel into many other areas of the country.

While some very remote markets may never have sufficient volumes of diesel (or biodiesel) demand to support biodiesel blending or distribution facilities, these are relatively few and account for a very small fraction of demand. As demonstrated above, even at current modest levels of market penetration, there are many terminals, distributors, and retailers located in relatively remote locations that already sell biodiesel. Given the extensive distribution of B10 to B20 blends in many areas of the country, there is nothing to suggest that there are any significant U.S. distribution constraints that would prevent average biodiesel blend levels far above 5% of total U.S. distillate consumption, i.e., far above 3 billion gallons per year

[46] Based on data for E15 – E85 ethanol dispensers provided in: http://www.metroenergy.org/wp-content/uploads/2015/01/Kristi-Moriarty-Biodiesel-and-Ethanol-Infrastructure-Developments.pdf, p. 10.

[47] Source: http://bulktransporter.com/transload-directory. Of the transload facilities that handle petroleum products, approximately 81 are located in PADD 1; 57 in PADD 2; 20 in PADD 3; 9 in PADD 4; and 31 in PADD 5.

VIII. Summary of Conclusions

Biodiesel is an exceptionally effective means of reducing CO2 emissions, with 81% lower net CO2 emissions than petroleum diesel, based on current feedstocks. While U.S. biodiesel consumption has increased dramatically since 2010, the current market penetration of biodiesel still remains relatively modest at approximately 4% of U.S. distillate consumption. Substantial increases in the biodiesel volume requirements under RFS2 is one of the few ways of reducing CO2 emissions from the U.S. transportation sector, and it is particularly important in addressing increased diesel consumption. The EPA's proposed 2018 biodiesel volumes, and its proposed advanced biofuels volumes for 2017, represent a timid increase relative to current RFS volume requirements that is far below what the U.S. has already demonstrated it can absorb, far below what producers can supply, and far below what is necessary in order for the U.S. to meet its commitments to reduce CO2 emissions.

The EPA attempts to justify its relatively low proposed biodiesel volumes based on asserted constraints in the biodiesel distribution infrastructure and asserted limits on consumer acceptance of blends higher than B5. Based on our research, we have identified no significant constraints to substantially expanding the biodiesel volume requirements under RFS2, well above EPA's proposal. The dramatic recent year-on-year expansions in U.S. biodiesel consumption have not been met by any significant distribution or marketing constraints. On the contrary, in the past several years, U.S. consumption has consistently exceeded the RFS2 volume requirements, with increasing availability of B10 to B20 blends, demonstrating broad market acceptance of biodiesel, and the relative ease with which it can be incorporated into the U.S. fuels supply. While it is difficult to specify an exact volume level at which constraints on biodiesel distribution or marketing could theoretically emerge in the future, the recent growth in U.S. ethanol consumption to volumes in excess of 14 billion gallons – available in virtually every corner of the country – demonstrates the extent to which the U.S. fuels distribution and marketing infrastructure can rapidly accommodate biofuels in volumes several times greater than current biodiesel consumption.

As the EPA appears to recognize, biodiesel production capacity does not pose a constraint to substantially expanding the RFS2 biodiesel volume requirements. There is a large amount of currently unutilized U.S. biodiesel production capacity. There are ample feedstocks to support increased production. U.S. production costs have declined dramatically in recent years. And as a result of investments made in large part based on expectations of continued expansions to the RFS2 volumes, U.S. producers increasingly use a range of low carbon feedstocks, such as waste greases, animal fats, used cooking oil, and distillers corn oil, which now account for approximately 50% of U.S. biodiesel production.

While much of U.S. biodiesel production capacity is located in the Midwest, there is a substantial – and increasing – amount of capacity located in other areas of the country, including Texas, the Northeast, the Southeast, and the West Coast. Much of this geographic diversification of U.S. production capacity has been driven by increased biodiesel demand in those areas, along with the increased availability of alternative feedstocks. U.S. biodiesel imports provide additional biodiesel volumes in close proximity to the large number of U.S. consumers who live along the coasts, with relatively easy access to the bulk fuels transportation network to reach consumers located farther inland.

While the costs of transporting biodiesel to U.S. consumers are higher than for petroleum diesel because of limitations on transportation of biodiesel in multi-product pipelines, biodiesel takes advantage of the same national truck, rail, barge, and ocean vessel transportation network used for ethanol and many other petroleum products. The costs of using this extensive network to transport biodiesel are not so high as to prevent biodiesel from already being available in substantial volumes throughout the U.S. There is no evidence to suggest that biodiesel transportation costs would increase significantly with further increases in demand. On the contrary, lower oil prices have reduced biodiesel transportation costs; substantial additional volumes would likely stimulate a greater share of rail transport for biodiesel (as occurred with ethanol in response to increased demand); and recent changes in pipeline fuel specifications will allow increased volumes of biodiesel to be transported at substantially lower cost (in the form of B5 blends). Ethanol, which has also been restricted from using multi-product pipelines, has successfully relied on other modes of transportation to deliver much greater volumes of fuel than are currently at issue for biodiesel.

With regard to the availability of biodiesel in the U.S. distribution infrastructure, EPA's analysis fundamentally misunderstands how biodiesel is currently distributed, and the full extent of that distribution network. Bulk fuel terminals with biodiesel are located in 369 cities around the U.S. Biodiesel is also sold directly to, and distributed by, a large network of smaller wholesale distributors, many of whom have their own blending capabilities. Perhaps most importantly, a substantial amount of biodiesel used for long-distance trucking is sold by large retail truck stop/travel center chains who blend biodiesel directly, either at their own distribution centers or at many retail locations. With "splash" blending, "rack" blending, "manifold" blending, and retail-level blending, a wide range of channels have emerged to allow biodiesel to reach end customers quickly and cost effectively. The success of this distribution is evident in the breadth of retail locations selling not only B5 blends, but also blends of B10 – B20, even in remote locations.

None of the evidence suggests that further substantial increases in U.S. biodiesel consumption will be constrained by the distribution infrastructure or transportation costs. The existing distribution infrastructure is densest in those areas of the country with the greatest current demand for biodiesel – and which account for the greatest share of total demand for diesel. Further increases in consumption in these areas are not expected to present any significant challenges for the existing distribution or marketing infrastructure. Even where the existing biodiesel distribution is thinner, expanding that infrastructure does not appear to be cost-prohibitive, but is simply a function of the strength of local demand. Splash blending either at the terminal, by blenders, or by retailers is the cheapest and quickest way for biodiesel to be introduced into new areas. Rack blending or manifold blending systems are more capital intensive, but the extensive investments in these systems by many industry participants has shown that these systems are cost-effective as demand increases. The rapid growth of retail blending systems also demonstrates the extent to which retailers – i.e., non-obligated parties – are finding that it is cost-effective for them to proactively incorporate higher biodiesel blends into their fuel offerings. Further, existing or new railroad transload facilities provide a further opportunity for market participants to quickly and cheaply expand biodiesel distribution, even in relatively remote areas.