Bringing speed and clarity to the challenge of measuring U.S. refined fuels

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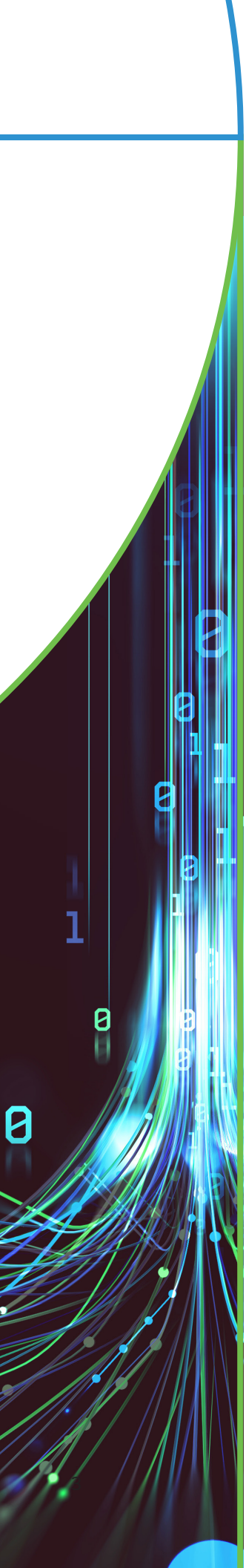


Introduction

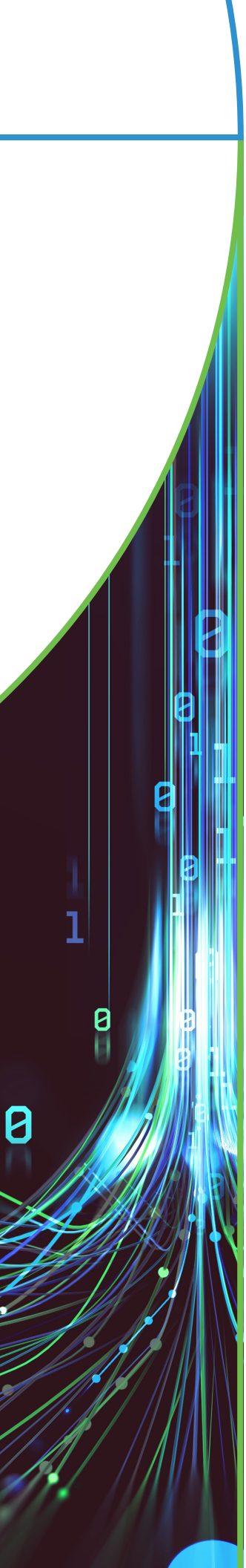
The American economy runs on petroleum. Consumers and businesses use about 20 million barrels a day of gasoline, diesel, and other liquid energy products – **more than 7 billion barrels a year**. As crude oil is refined and marketed, supply and demand become a proxy for U.S. economic activity: Are trucks and trains using more diesel? Are more drivers hitting the road to commute or for summer vacation?

For energy industry professionals, there is tremendous value in monitoring petroleum production at U.S. refineries and, more crucially, gaining insight about demand for the gasoline, diesel, and other products shipped to market. The implications are significant for crude buyers, petroleum product suppliers, retailers, energy traders, risk analysts, economists, regulators, and others. Demand for oil products largely translates to price.

But there's a conundrum at the center of this value proposition. Data about the demand for refined fuels trickles out more than it flows. The key Weekly Petroleum Status report from the U.S. Energy Information Administration (EIA), offers generalized weekly and follow-up monthly reports about products supplied. The lag time and narrow scope represent information vacuums for a $500 billion industry that produces, delivers and sells products around the clock every day.

In this paper, DTN looks at how the refined fuels industry measures the output of petroleum products. It identifies challenges to getting a full picture of demand, then explains how DTN digital data from refineries, wholesalers, and retailers can be tailored to provide unique daily insight on demand and pricing.

The downstream energy business is, to some extent, opaque. But there is valuable insight available from DTN at the intersection of timely and integrated data.



The challenge of obtaining and interpreting refined fuels data

There are approximately 129 refineries producing petroleum products in the United States with a daily production capacity of about 18 million barrels of gasoline, diesel, and other liquid fuels for domestic use and export. Energy products leave the refineries via pipelines and ports and eventually reach U.S. suppliers and users, where fuel powers the transportation and manufacturing needs of America.

Despite energy usage's status as a key, measurable indicator of economic activity, there are significant challenges to tracking and interpreting data about the demand and pricing of refined fuels. There aren't meters for refineries like there are on gas pumps. Energy expenditures aren't tallied the way credit card companies and big-box retailers report sales. The downstream oil and gas business is sprawling, decentralized, and highly competitive.

The most widely watched oil and gas tracking mechanism is the EIA's weekly Petroleum Status Report. This product supply report from the U.S. government surveys refineries, importers, and exporters to estimate industry activity, from the number of barrels of crude oil input to the amount of gasoline and other components produced.

The EIA survey, released Wednesday mornings, is a hotly anticipated document because comparing weekly inventory numbers gives buyers, sellers and economy watchers a sense of where demand, and therefore energy prices, are headed. If stockpiles rise, it suggests a slowdown in demand, and possible energy price declines. If inventories are down, it means refineries will need to make more products, so anticipate higher prices.
The weekly gross production numbers are often estimates, based on calculations of crude run rates and severity to produce refined fuels. About **77% of refinery production** is dedicated to gasoline, diesel and other distillates such as jet fuel and heating oil. The rest becomes asphalt, liquid petroleum gas and other products.

Monthly follow-up reports are more accurate, often with corrections from the weekly estimates after refineries conduct more detailed accounting. But they don't tell every part of the story, starting with the fact that the EIA data is aged by up to 90 days. This means that monthly reports offer little guidance on current market dynamics.

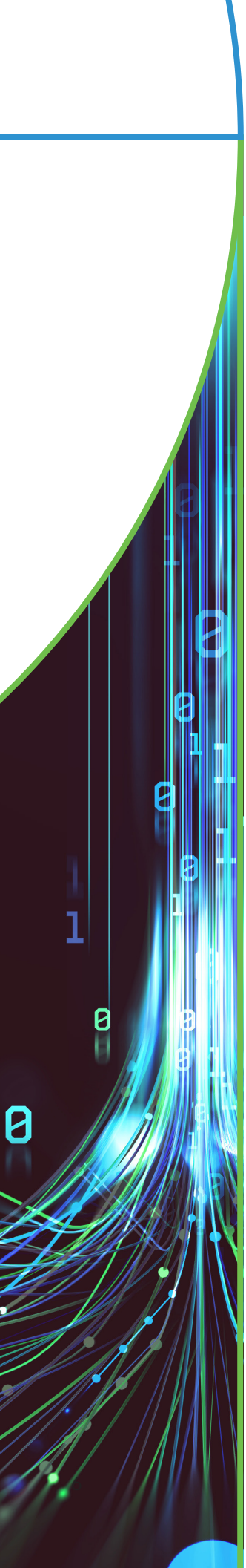
There are other limitations to the EIA reports. They don't account for stockpiling by refineries, which may hold back significant amounts of inventory as a hedge due to expected price fluctuations, or to be sold during periods when equipment is shut down for maintenance. Refineries also may hold back due to not having a specific market or pipeline space,

The resulting EIA data is a snapshot in time of crude deliveries and production rather than a dynamic document capturing the pulse of marketplace activities. As fuel leaves refineries, it remains a somewhat opaque commodity, flowing to many destinations over differing timelines for many uses.

The weekly EIA report doesn't track who buys the fuel. It doesn't account for fuel yet to be exported. It doesn't say anything about what happens after the refinery, including how much is moving at any given time through the vast U.S. pipeline network or destined for storage tanks. Nor does it report how much originated from biofuels. Interested parties sacrifice accuracy for timeliness.

As a result, no one relying on government data has the total picture of daily energy production and usage in the United States. Only those producing fuel know how much they are making, and only those individual entities selling petroleum products know how much they are selling.

However, gaps in real-time knowledge aren't secret. Insights are available from DTN via industry digital data monitoring.



Demand for petroleum products drives industry activity

The price of crude oil, a global commodity, is determined by supply and demand. As world producers announce supply cuts, the price of a barrel of crude likely goes up. If the U.S. economy slows and fuel demand sags, oil prices will drop.

Once crude reaches refineries, supply continues to play a role, such as when refineries schedule maintenance, tightening the market. But primarily it is demand for petroleum products that shapes downstream oil and gas activities. Refiners respond to – and plan around – demand, as do product suppliers, speculators and others.

Here's how some industry players focus on demand for oil and gas products:

Traders and risk analysts – Financial market participants involved in buying, selling, and hedging crude and refined fuel products anticipate demand with every futures, equities or bond trade. They look at market forces, including EIA data, to judge whether demand is shifting. Investors will use that insight to decide whether to bet on rising or falling prices or cover previous bets. Risk analysts working at trading houses or energy companies need to make sure all bets are covered. Speculators may try to out-guess others based on their own scrutiny of demand patterns.

Refiners – Downstream starts with the refiners. They make the product and manage the decision-making about how much crude to purchase, when to refine and what products to produce. The refining system comes with a finite amount of space to store crude and refined fuel, so they cannot afford to miscalculate demand.

Refineries typically can increase or decrease production by about 20% from nameplate operation and they will run full out when market conditions permit or drop back if demand flattens. When demand bottoms out, refineries will shut down temporarily, an extraordinarily expensive and complex task. They must get the timing right.

Product suppliers – Downstream suppliers need to understand the overall market and local demand. They may be making decisions short-term or longer term via futures contracts to anticipate both selling potential and products to be offered. Retail operators also have some storage control, and may order more products or hold off, based on their sense of where prices are going. With 600,000 retailers selling gas in the U.S., their decisions matter.

"...Getting better insights, more quickly and on-demand, is such a valuable commodity in its own right."

The joy of hot markets, and agony of weak demand

Investors can make money in any market. Energy traders don't care whether prices are going up or down. They want indicators that signal any market direction so they can place their bets. They can go long or short on crude, finished fuels, biofuels and ag markets, or energy sector stocks. Speculators have plays to make, whether demand is strong or weak.

For much of the rest of the energy business, life is easier when demand is strong because it supports higher prices and increases profitability. Refineries will jump into action when rising fuel demand impacts the so-called crack spread, the price difference between crude and petroleum products. When the gap widens, refineries will run and ship fuel until the entire supply chain fills up. They'll continue to consume crude and run production, even storing it in railcars or shipping product overseas when they can get a great price.

When the crack spread is poor, refiners have a problem. They may choose to do maintenance, or they can reconfigure or even close. This can have significant market implications, given that some of the largest U.S. refineries produce as much as 500,000 barrels of petroleum products a day. That puts pressure on crude demand, because companies and speculators suddenly must manage supplies of oil that have no market. Other players may step in to buy that crude, maybe at an advantageous price, but then they won't need to buy as much later.

The energy market is built on a supply-and-demand equilibrium that rarely holds steady for long. Every jolt creates risk and opportunity. This is why market participants watch the EIA report so closely, and why getting even better insight more quickly on demand is such a valuable commodity in its own right.

Only DTN has a great view of demand

After being refined, petroleum products go underground and undercover. They travel via pipelines to storage terminals, where inventory is blended with biofuels and additives then loaded and delivered by truck to retail and wholesale customers.

How much is sold each day throughout the country and by region? At what prices? These are questions every participant in the energy market wants answered – from crude traders and speculators to refineries, wholesalers and retailers – because demand drives the business.

But information on fuel demand isn't in public view. Individual sellers may know their own businesses and the EIA report provides weekly national snapshots of the pace of drawdown, which represents a proxy for demand. But the weekly EIA report is up to seven days behind the market and doesn't break down the action in individual markets.

Only DTN captures the totality of marketplace action through its daily Refined Fuels Demand data report. This data is unique to DTN, which tracks sales for up to 85% of refined fuels transactions at the nation's more than 1,200 storage depots, also known as racks. DTN delivers a detailed report in the pre-dawn hours showing demand activity for a variety of petroleum products. This gives DTN clients much closer to real-time demand information on a national, PADD, and rack/city level.

"DTN is integrated very deeply into the terminal and truck-loading systems, and it's the power of that integration that allows us to have the most timely and accurate demand numbers," said DTN Product Manager Aaron Lingnau.

Data dominance by DTN is traced back decades to the creation of an industry standard tool designed by a consortium of manufacturers and developed by General Electric to allow buyers and sellers of liquid fuel to exchange information as product was delivered.

That tool is now part of DTN TABS®, the company's terminal automation system, which manages product allocation and credit for clients. Integral to that system, DTN monitors all buying and selling of fuel from the nation's many storage depots.

The Refined Fuels Demand (RFD) report summarizes what happens during every DTN TABS transaction, which is essentially the movement of every truckload of fuel as it goes to market. And that's what Demand is: A report of the summaries of each day's transactions.

Demand data makes the difference

The Refined Fuels Demand data report by DTN is based on actual transactions, not speculation. DTN gets reports from more than 85% of the country's 1,200 terminals, delivering a daily report on demand for the nation and broken down by PADD, and fuel market. This gives subscribers the ability to see market shifts in real time and anticipate pricing changes for both crude and finished fuels.

This data delivers the insight needed to forecast the weekly EIA report, crude price trajectories and renewables demand. It can be an early warning signal for surprise changes both nationally and within regions, allowing participants to track fluctuations and tightening anywhere in the supply chain. Added to a pricing tool such as DTN FastRacks®, subscribers get a total picture of the energy market activities, allowing wholesalers and retailers to see market share breakdowns, letting them make their own pricing decisions with greater confidence and stronger insight.

Here's how some specific industry players can benefit from DTN Refined Fuels Demand report:

Traders and risk analysts – Ahead of the EIA report (and competitors), traders and analysts can anticipate price shifts for crude and finished fuels and make trades and hedges. Within markets, they can see shortages or gluts develop, and take action.

Refiners – Refineries can forecast crude prices and fuel sales, allowing them to ratchet up to maximize profitability or throttle back.

Suppliers and retailers – Suppliers and retailers can manage inventory and pricing, either speeding deliveries or holding back.

Renewables producers – Because ethanol is injected into fuel at terminals, gasoline demand is, in effect, demand for ethanol, so the ethanol market can match supply to demand. Beyond ethanol, Biodiesel, and Renewable Diesel sales data helps them evaluate RINS and make informed decisions about where to supply and how much.

Importers and exporters – Knowing the patterns of demand in the U.S. allows importers and exporters to make the right decisions about how much product to move and where.

Conclusion

For an edge in the fuels market, the key is having reliable access to accurate data and insights about every aspect of downstream oil and gas distribution and sales – ideally before anyone else. With daily digital tracking from Refined Fuels Demand, industry participants can have that edge.

Discover your advantage in the refined fuels market with **demand data** from DTN, the leader in data, analytics, and Operational Intelligence for the industries that feed, fuel, and protect our world.

Learn how Refined Fuels Demand Data from DTN delivers market demand – before EIA's weekly reports.

Book demo now

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