

JET FUEL INTELLIGENCE®

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SOUTH AFRICA

Vitol Upgrades Cape Town Terminal Before Airport Debut

Vitol Aviation is working to boost South Africa's jet fuel supply security before it launches its own into-wing fueling service at Cape Town International Airport (CPT) later this year.

Vitol tells Energy Intelligence that it has just finished upgrading its majority owned Vitol Tank Terminal International (VTTI) Burgan Cape Terminal to handle jet fuel imports alongside gasoline and diesel. "The existing tanks have been modified in line with JIG/EI1530 to enable jet fuel imports via sea," says Vitol Aviation General Manager Toby Davies.

"The move is in conjunction with our other Indian Ocean jet flows and also allows for future SAF [sustainable aviation fuel] imports as the world moves forward to cleaner solutions. This sits nicely with our existing supply chain strengths, fuel quality and value chain of Vitol Aviation both now and for the future," Davies adds.

Opened in 2017, VTTI Burgan's jetty can accommodate tankers of up to 50,000 deadweight metric tons while the terminal has total fuel storage capacity of 122,000 cubic meters. Onward jet fuel deliveries to CPT are by truck with the terminal just over 20 kilometers (12.5 miles) by road from the airport.

Jet fuel arbitrage specialist Vitol already provides into-wing fueling services at more than 140 airports worldwide. Cape Town could be added to that last in a matter of weeks, hints Davies. In the meantime, the Swiss trader has been offering fuel for sale from Burgan tanks in a bid to stave off recent CPT fuel shortages.

Low Stock Alert

This week saw US carrier United Airlines cancel at least one flight from Newark to CPT because it couldn't refuel for the return journey. South Africa's third-largest airport was forced to issue a Notice to Airmen late last month after airport fuel tanks fell to just four days' cover. Airlines were asked to reduce their fuel uplift with the CPT's management blaming bad weather for import delays.

Vitol says it has been offering jet from VTTI Burgan Cape Terminal's jet tanks since they were filled and completed soak testing in late September, and insists CPT needn't run out of fuel. So far, only Glencore-backed South African fuels retailer Astron Energy has bought jet from Vitol for CPT. The airport's other existing into-wing suppliers European major BP and Trafigura subsidiary Puma Energy have yet to buy any emergency supplies.

>> *continued on page 2*

Local Refinery Problems

CPT's jet fuel supply security has been undermined by the more than two-year shut down of Astron's 100,000 b/d Cape Town refinery after a deadly fire. Repair and upgrade work is still ongoing with Astron aiming to restart the plant early next year. Vitol's Davies says the Burgan import terminal will provide the market with an alternative to Astron production when the refinery comes back online.

Kerry Preston, London

MARKET FORCES

Leading Traders Warn of Looming Diesel Market Turmoil

Diesel markets will be much harder to "replumb" than crude when European Union sanctions against Russia step up next year, warned Vitol CEO Russell Hardy, with disruptions likely to affect jet fuel supplies.

Hardy was speaking alongside Gunvor CEO and Chairman Torbjorn Tornqvist and Trafigura's Co-Head of Global Energy Ben Luckock at the Energy Intelligence Forum in London this week. The trio of trading executives have a ring-side view of how geopolitics are reshaping the global energy system.

Hardy suggested the crude market "is already solving itself" through trade. And he pointed to the recent rerouting of Russian heavy fuel oil to Asia as a likely blueprint for how the diesel market might handle the EU's looming ban on Russian product imports.

The EU banned Russian fuel oil imports alongside coal on Aug. 10. Since then, virtually all Russian fuel oil has headed to the Middle East and Asia with "qualified" non-Russian fuel oil coming back to Europe in its place. The EU's ban on crude imports takes effect on Dec. 5 with an embargo on clean products following on Feb. 5, 2023.

Hardy said he also expected some ousted Russian diesel to head to Africa and possibly Brazil. That could help free up more US Gulf Coast production to come to Europe, helping the market fill the 700,000 b/d gasoil hole left by Russia. Jet traders fear the focus on replacing Russian diesel will be at the expense of aviation fuel.

Distillate Shortages

Europe's distillate markets are already extremely tight heading into winter with prices steeply backwardated. Trafigura's Luckock highlighted the clear tension between prompt fuel shortages in Europe and the prospect of economic recession causing demand destruction.

Gunvor's Tornqvist argued Europe will have a tough time without Russian gasoil. Major doubts remain around G7 plans to cap Russian crude and product prices. The scheme is designed to keep Russian fuels in the market, just not Europe. "Will it be effective? I have some serious doubts," he admitted. The EU signed off on its price cap scheme this week.

Luckock suggested the price cap is only adding to current market chaos. Hardy warned it could backfire by shutting in Russian production. Moscow has vowed not to sell its fuels under the price cap system.

The front-month low-sulfur gasoil future on ICE has spiked almost 20% in the last week with French refinery strikes adding to Europe's diesel market woes. As much as 800,000 b/d of French capacity is offline, wiping out at least 200,000 b/d of diesel production.

Oil Price Predictions

Hardy said energy market conditions are unlikely to change much over the next 12 months and predicted oil at \$85 per barrel this time next year and natural gas over €125 per megawatt hour. Prices were almost \$90/bbl and €165/MWh going into the Forum, which was held before Opec-plus agreed on a 2 million b/d output cut.

Chinese oil buying could rebound next year, suggested Hardy, spurring greater confidence across Asia. He reckoned that sky-high gas prices had already wiped 20%-25% from European industrial demand but warned the gas market is still short.

Tornqvist said there is little scope for prices to fall significantly over the next year, despite the risk that demand destruction could spread to Asia. He saw oil at \$100/bbl and gas at €120/MWh in a year's time. Luckock also put crude at \$100/bbl but gas at over €150/MWh. "We might dodge a bullet this winter. Next will be much tougher... We're miles from out of the woods," he told the Forum.

The same three trading firms put oil prices at \$75-\$90/bbl when they were asked the same question at last year's Energy Intelligence Forum. Gas price predictions were €35-€60/MWh or way below current levels.

Kerry Preston, London

SPOT CARGO MARKETS

Diesel Market Panic Overshadows Opec-Plus Cuts

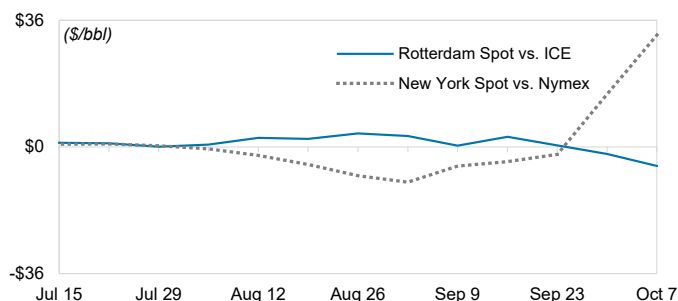
Diesel price gains outpaced crude by almost three-to-one in Europe as French refinery strikes hit local fuel production ahead of a looming ban on imports from Russia. The whole petroleum complex surged higher after Opec-plus slashed its targeted oil production by 2 million barrels per day from November. ICE Brent crude oil futures gained almost 7% to close at a five-week high of \$94.42 per barrel Thursday, while low sulfur gasoil (LSGO) futures on the same exchange surged more than 17% to close at a two-month high of \$1,185.75 per metric ton. Similar moves were seen in the US where Nymex diesel futures surged 15% compared to a 9% uptick in WTI which finished the week at \$88.45/bbl.

Oil prices had already been rising in anticipation of an Opec-plus cut but Thursday's announcement was bigger than expected and came despite intense lobbying from Washington. The White House responded by announcing the release of another 10 million bbl from the US Strategic Petroleum Reserve. Analysts say actual Opec-plus production will probably fall by 1 million b/d or less with Russia and Nigeria already producing well below their quotas. The producer group said it was providing "long-term guidance to the market" during an economic recession expected to trounce oil demand. It suggested uncertainty about the impact of Western sanctions against Opec-plus member Russia was also factor in its decision to cut production. The EU has agreed to adopt the G7's scheme to cap Russian crude and product prices. Full details are still missing, including what price caps will apply.

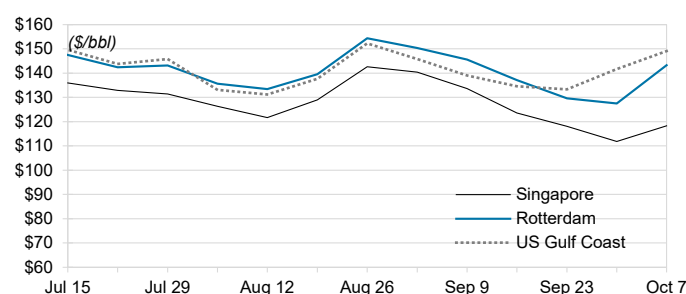
Latest data from the International Air Transport Association (IATA) show the peak northern hemisphere travel season ending on a high note in August when global air traffic hit three-quarters of pre-pandemic levels. "Considering the prevailing economic uncertainties, travel demand is progressing well," said IATA director general Willie Walsh. "The removal or easing of travel restrictions at some key Asian destinations, including Japan, will certainly accelerate the recovery in Asia. The mainland of China is the last major market retaining severe COVID-19 entry restrictions," he added. Saudi Aramco warned this week that a full recovery in global jet fuel demand could plunge the oil market into crisis, suggesting some 1.7 million b/d of global jet demand is still missing. IATA reports a less than 15% deficit in domestic air travel but almost a 33% deficit on international routes.

European jet cargo premiums continued their free fall with traders battling diesel market chaos and surplus jet fuel imports at the end of the summer season. Jet cargoes were pegged at a steep \$72.25 per ton discount to October ICE LSGO futures by Thursday's close, down sharply from an \$8/ton discount last week. Flat jet fuel prices were still up 11% on the back of surging LSGO futures. The week saw just one jet cargo deal: Swiss trader Glencore selling 30,000 tons to TotalEnergies into Le Havre Oct. 15-19 in Monday's

JET-GASOIL SPREADS



SPOT JET FUEL PRICES



EUROPEAN QUARTERLY JET FUEL SWAPS QUOTES

(Bid/Offer Range in \$/ton, c.i.f. NWE)

Q	Chg.	Oct 7	Sep 30
Q4'22	201.25	1,142.00 - 1,143.00	940.75 - 941.75
Q1'23	155.75	1,061.00 - 1,062.00	905.25 - 906.25
Q2'23	117.25	991.75 - 992.75	874.50 - 875.50
Q3'23	93.25	952.50 - 953.50	859.25 - 860.25

Prices are live for midday. Source: FCSOne

window at a \$19/ton premium to the plummeting Platts c.i.f cargo mean assessments pricing over Oct. 12-31. European major BP has switched from the bid to the sell-side of the window adding to the pressure on premiums. Steep gasoil market backwardation means there is no commercial incentive to store. Working jet inventories in Amsterdam-Rotterdam-Antwerp rose slightly to 821,000 tons on Oct. 6, according to Insights Global, after tankers arrived from South Korea, the United Arab Emirates and the US. ARA jet tanks have been stuck around 800,000 tons since May.

Panic is mounting in Europe's ultra-low sulfur diesel market where cargoes are now pegged at a steamy \$18.50/ton premium to ICE LSGO futures in northwest Europe at Thursday's close, up from \$16.25/ton a week ago. French strikes have wiped out around 800,000 b/d of desperately needed European refinery capacity, shutting in at least 200,000 b/d of diesel production. Russian diesel is going to be very hard for Europe to replace, especially through the winter when tougher cold weather fuel specifications are expected to flummox some East of Suez producers. Beijing has approved huge export quotas for the remainder of the year but European buyers doubt Chinese refiners can make enough winter grade diesel.

Refinery maintenance and outages are roiling products markets in the United States, and jet fuel is no exception. Supply concerns are particularly pronounced on the US West Coast and in the midcontinent, and the latter means ripple effects for the East Coast markets as well. In Padd 5 or the West Coast, maintenance and a series of downstream hiccups could impact over 600,000 b/d of refining capacity. In Padd 2 or the midcontinent, the 160,000 b/d Toledo, Ohio refinery is down completely and for the moment indefinitely following a fire that killed two employees. US West Coast jet stocks are at just under 8.5 million bbl and their lowest since late April. Padd 2 jet inventories are holding up a bit better, staying just above 7 million bbl.

But refiners elsewhere in the US see massive incentive to produce more jet fuel. Energy Intelligence's downstream modeling shows jet cracks at a complex Gulf Coast facility processing medium, sour crude outperforming all other products to make a whopping \$63.37/bbl. Unfortunately for US airlines, jet from that region is more likely to be exported than sold into the domestic market — one such cargo arrived in Rotterdam just this week. The Colonial Pipeline system running up the East Coast is routinely at capacity while domestic marine shipping economics face headwinds from Jones Act requirements. Product markets are tight and the downstream in the world's largest economy is under serious strain.

Jet fuel cargo premiums are also falling in Asia where Covid-19 lockdowns have cancelled almost a fifth of Chinese flights in the last week. Benchmark Singapore spot price differentials dropped from a \$2.04 per barrel premium to the mean of Platts Singapore quotes a week ago to just \$1.48/bbl at Thursday's close. Scheduled airline capacity tumbled in both Northeast Asia and the Middle East, offsetting modest gains elsewhere. Capacity fell 14.4% week-on-week in the giant Northeast Asian market, according to aviation data analysis firm OAG, driven by a startling 19.6% collapse in airline capacity in China. Mideast capacity also fell 1.6% with tiny gains of 1.8% in Southeast Asia and 0.4% in South Asia failing to make much difference. The Northeast Asian market is more than twice the size of Southeast Asia, notes OAG, with China making up the bulk of capacity.

Kerry Preston, London, Frans Koster, New York, Freddie Yap, Singapore

IN BRIEF

Indian Jet Fuel Demand Edges Higher

Indian domestic jet fuel sales rose 3.5% on the month and 41.3% on the year to 147,000 b/d in September, according to preliminary sales data from the state-owned firms that make up 90% of the market. Domestic buying is still 16.5% below pre-pandemic levels, according to Energy Intelligence records, but has been revived by the recent removal of price caps on air fares.

September sales hit 176,000 b/d in 2019 before falling to just 85,000 b/d in the same month the following year. Domestic passenger traffic is now at 96.6% of pre-Covid-19 levels with 10.3 million passengers flying internal routes in September. October is expected to be another busy month as Hindus travel to spend the Diwali festival of lights with their families. The festival will take place on Oct. 24 but the whole month is considered auspicious.

Asian Carriers Sign SAF Supply Deals

Asian carriers are firming up future sustainable aviation fuel (SAF) supplies with Philippines budget airline Cebu Pacific and South Korean flag carrier Korean Air both signing memorandums of understanding (MOUs) with oil major Shell in recent days. Cebu has signed up for 25,000 metric tons/yr of blended SAF over a five-year period starting in 2026. The signing took place ahead of Cebu's first SAF powered flight from Singapore to Manila on Sep. 28. That SAF was supplied by Shell but made by Neste at its Porvoo plant in Finland. Cebu has said it ultimately wants to use SAF made in the Philippines for outgoing flights.

Korean Air has signed up for an as yet undisclosed volume of SAF delivered at major airports in Asia-Pacific and the Middle East over the same time frame. In a Sep. 30 statement, the airline said it would carry on working with Shell and others to secure SAF supply in other regions including Europe and the US. "SAF has surfaced as an important carbon reduction tool ... however, a shortage of production facilities and high costs [means] supply falls short of expected demand," the airline said. Korean signed future SAF supply contracts with South Korean refiners Hyundai Oilbank and SK Energy last year as it works to cut carbon emissions. The airline is already using SAF on in-bound flights from Chicago and Paris.

US Firms Promise Low-Carbon Jet Fuel

Gas-to-liquids (GTL) technology is making a comeback in the US where some GTL developers are eyeing a slice of the booming domestic low-carbon fuels market. Cerilon GTL is spending an estimated \$2.8 billion on its first 24,000 b/d Fischer-Tropsch plant in Trenton, North Dakota. The facility will convert shale gas from Bakken into lower-carbon versions of regular jet fuel, diesel, naphtha and other oils with more already planned across North America. Rival GTL producer Nacero will use a different technology to make mainly low-carbon gasoline at its 90,000 b/d Penwell facility near Odessa, Texas following an estimated \$8 billion investment. Both plants are due on line by 2027.

Current UN Corsia [carbon offsetting and reduction scheme for international aviation] legislation allows for low-carbon jet fuel made from fossil sources that wouldn't otherwise qualify as sustainable aviation fuel. Cerilon says it will use carbon capture and storage technology to further drive down the carbon content of the fuels produced. Nacero says its Penwell plant will be fully powered by solar energy.

NORTH AMERICAN SNAPSHOT

Jet Demand Nears 2 Million b/d

North American jet fuel demand reached a post-pandemic high of almost 2 million b/d in June. So-called “revenge demand” for leisure travel packed airplanes and exposed airport and airline staff shortages. US jet demand rose 26% year on year to 1.7 million b/d with large gains on the East Coast to fuel additional long-haul flights across the Atlantic. Canada trebled its consumption from year-earlier to 160,000 b/d. Mexican usage hovered near 90,000 b/d.

US refiners ran at full pelt to service booming demand for all transport fuels. Jet fuel exports ticked only marginally higher as more supplies were diverted to the domestic market. Canada’s imports surged and exports slumped as traders scrambled to fuel its post-Covid-19 recovery.

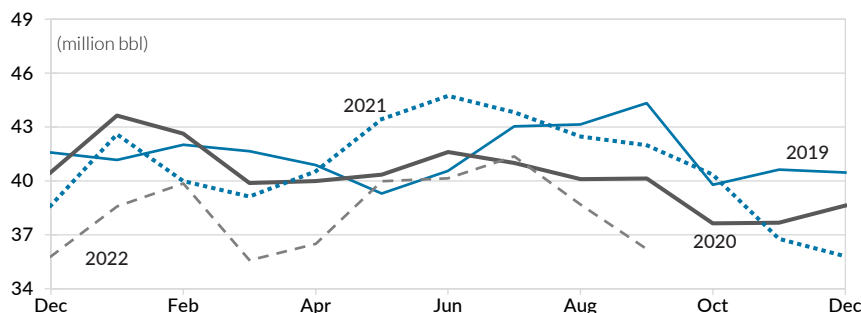
NORTH AMERICAN JET FUEL DEMAND ('000 b/d)

US Jet Kerosene	Jun ^p	May ^r	Apr ^r	Mar ^r	Feb ^r	Jun '22 vs.		Q2'22 vs. Q2'21
						Jun '21	May '22	
East Coast (Padd 1)	617	595	523	587	528	+31.5%	+3.7%	+30.2%
Midwest (Padd 2)	310	293	296	279	270	+6.2	+5.7	+11.3
Gulf Coast (Padd 3)	214	154	217	139	103	+21.3	+39.2	+16.6
Rockies (Padd 4)	59	55	54	57	57	+10.0	+8.1	+7.8
West Coast (Padd 5)	508	478	446	461	444	+16.6	+6.3	+18.1
Total US Jet-Kero	1,707	1,574	1,537	1,523	1,402	+19.7	+8.5	+20.2
Major US Carriers	1,145	1,086	1,068	1,057	973	+17.3	+5.4	+23.3
Canada Jet Fuel	160	115	120	114	107	+146.8	+38.6	+127.8
Mexico Jet Fuel	88	87	92	86	81	+44.2	+1.5	+52.5
Total N. America	1,955	1,776	1,749	1,722	1,590	+26.0%	+10.1%	+25.8%
Jet Kerosene Import								
US	127	124	123	124	109	-29.0%	+2.4%	-26.5%
Canada	43	14	17	37	43	+362.9	+210.0	+169.2
Jet Kerosene Exports								
US	176	163	216	176	166	+89.2%	+8.3%	+105.8%
Canada	5	14	12	16	7	-64.2	-63.6	+32.6
Mexico	0	0	0	0	0	0.0	0.0	0.0

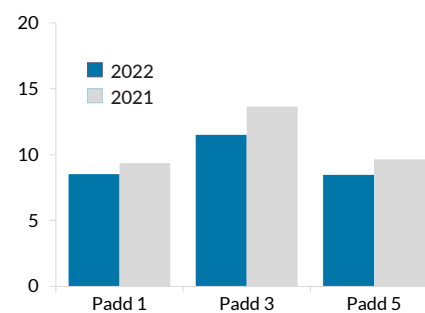
p=Preliminary, r=Revised. Source: Department of Energy, Department of Transportation, International Energy Agency, and Jodi.

US SUPPLY, DEMAND AND STOCK TRENDS AT A GLANCE

US JET KEROSENE STOCKS



REGIONAL STOCK LEVELS, SEP 30



JET KEROSENE STOCKS

(million bbl)	2022					2021		Latest Levels vs.	
	Sep 30	Sep 23	Sep 16	Sep ^p	Jul ^p	Oct 1	Sep	Sep 23 '22	Oct 1 '21
East Coast (Padd 1)	8.5	8.7	9.5	8.4	12.8	9.4	9.6	-2.5%	-8.9%
West Coast (Padd 5)	8.5	9.1	8.9	10.8	11.2	9.6	10.0	-7.3	-12.2
Central (Padd 2-4)	19.2	18.9	20.8	21.4	22.0	22.3	22.4	+1.9	-13.8
Total Stocks	36.2	36.8	39.2	40.6	46.0	41.3	42.0	-1.5%	-12.3%

('000 b/d)	2022				2021		Latest Wkly. Change	Aug '22 vs. Aug '21	Jul '22 vs. Jul '21
	Sep 30	4 Wk. Avg.	Aug ^p	Jul ^p	Aug	Jul			
Jet Refinery Output	1,521	1,563	1,674	1,689	1,435	1,423	-0.1%	+16.6%	+18.6%
% Jet Yield	9.3	9.5	10.0	10.1	7.7	7.6	-0.9	+29.7	+33.8
% Utilization	91.3	91.8	93.1	93.1	90.4	90.9	+0.8	+3.0	+2.4
Imports	6	78	84	110	224	139	-95.7	-62.7	-20.8
Sales	1,473	1,526	1,654	1,577	1,563	1,501	-22.6%	+5.8%	+5.1%

p=Preliminary. Source: US Department of Energy. Data has not been updated due to delays at the Dept. of Energy.

JET FUEL INTELLIGENCE DATA

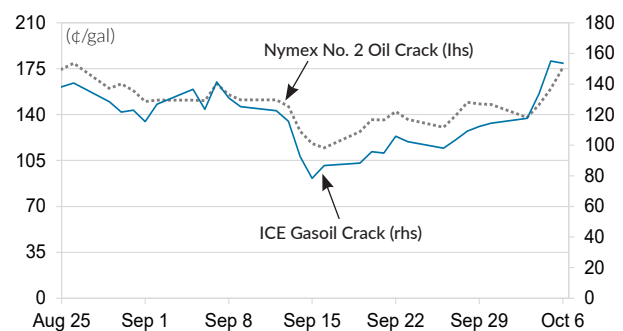
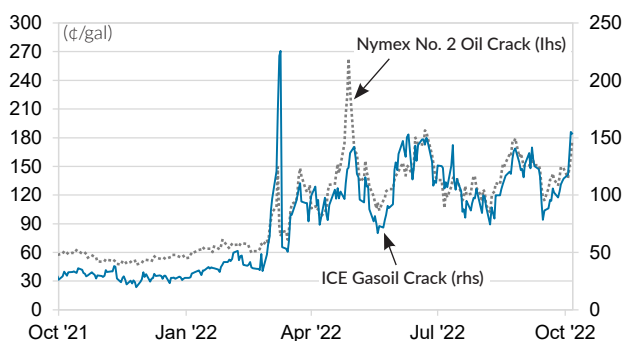
PRICES IN SPOT CARGO AND FUTURES MARKETS

	ICE Prompt Futures (\$/ton)	European Spot Jet Fuel (\$/ton)*		Asian Spot Jet Fuel Markets (\$/bbl)†		
	Gasoil 0.1% Sulfur	NW Europe	Mediterranean	Mideast	Singapore	Japan c.i.f.
Weekly Trend	+142.58	+126.89	+50.50	+4.15	+6.22	+4.34
This Week	1125.63	1,132.19	1,009.72	117.14	118.33	123.41
Previous Week †	983.05	1,005.30	959.22	112.99	112.10	119.08
Sep 19-Sep 23	975.15	1,020.50	1,071.77	118.89	117.21	126.19
Sep 12-Sep 16	1002.05	1,065.15	1,059.17	121.04	120.93	130.50

	Nymex Prompt Futures (\$/gal)	US Spot Jet Fuel Markets (\$/gal)			
	NY Harbor ULSD	New York†	US Gulf†	Chicago*	Los Angeles†
Weekly Trend	+0.29	+61.02	+14.95	+31.94	+41.06
This Week	3.61	437.26	354.94	373.57	392.19
Previous Week †	3.32	376.24	339.99	341.63	351.13
Sep 19-Sep 23	3.33	329.34	315.69	323.02	318.84
Sep 12-Sep 16	3.38	327.66	315.01	336.14	329.96

r=Revised. Source: *OPIS Worldwide Jet Fuel Report, †Refinitiv.

DISTILLATE CRACK SPREADS - ICE vs Nymex



KEY BIOFUEL PRICES

US (\$/gallon)	Sep 30	Sep 23	Chg.
Futures			
CBOT Ethanol	2.44	2.45	-0.01
RBOB Gasoline	2.47	2.46	+0.01
Spot market			
Ethanol Midcont.	2.44	2.28	+0.16
Ethanol NY Harbor	2.47	2.33	+0.14
Ethanol US Gulf	2.51	2.35	+0.16

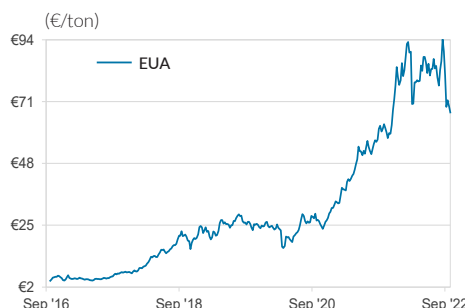
Europe (\$/ton)	Sep 30	Sep 23	Chg.
Futures			
ICE Gasoil	983.05	975.15	+7.90
Spot market			
Gasoline	857.75	832.50	+25.25
Diesel	997.56	993.30	+4.26

Source: Refinitiv, Exchanges

GLOBAL CARBON PRICES

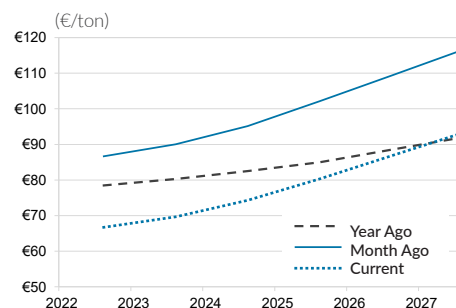
(€/ton)	Oct 4	Sep 27	Chg.
EUA Dec '22	66.92	67.96	-1.04
US (\$/ton)			
CCA (Calif.) Dec '22	27.57	26.05	+1.52
RGGI (NE) Dec '22*	13.30	12.94	+0.36
New Zealand (NZ\$/ton)			
NZU (spot)	78.20	80.00	-1.80
Asia (\$/ton)			
China (National)	8.08	8.07	+0.02
South Korea	19.10	15.65	+3.44

EU CARBON FUTURES PRICES



ECX front-month futures. Source: ICE

EU CARBON FORWARD CURVE



ECX EUA forward curve. Source: ICE

Benchmark months. *Short tons; all others metric tons. Based on given week's exchange rates. Source: ICE, OMF

DATA: JFI's biofuel and carbon data are sourced from EI New Energy, Energy Intelligence's publication on renewables, carbon and transportation. For more data and information, see www.energyintel.com/newenergy.