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Energy Fundamentals Update

RaboResearch

Global Economics & Markets

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Dry Rivers, Saudi-Israeli Peace Talks, and Gas Volatility!

- Brent rallies \$16 in seven weeks, approached 2023 highs as Russian crude oil exports slow and Saudi cuts continue, Chinese economic woes continue to provide a ceiling to prices
- Gasoline, diesel, gasoil crack spreads continue to strengthen
- Henry Hub gas touches key \$3/mmBtu mark and sold off to \$2.6, resistance to higher moves is likely as storage levels are still well above averages
- TTF gas shoots up to €44/MWh on Australian LNG terminal strikes, which may force Asian buyers into competing for EU-bound cargoes

Echoes of Ever Given

Who remembers March 2021?

Gather around and let us reminisce about what a canal disruption can do to the global supply chain! We all recall when the Ever Given container ship became stuck in the Suez Canal for six days, blocking a whopping \$400 million an hour in trade. A pair of news items over the past two weeks have reminded me of that occurrence from two years ago, which has led to a growing unease about the frequency of these kinds of events.

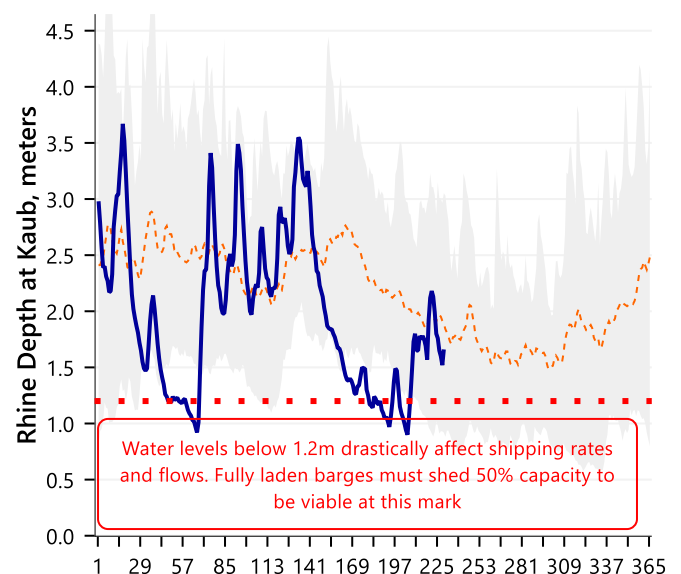
First, the Panama Canal Authority (PCA) has recently informed customers that the number of daily transits in the Panamax locks will be limited to 30 to 32 transits a day, compared to the usual 34 to 36 transits a day. This is a conservation effort to save water in drought, as it takes around 50 million gallons of fresh water to move a vessel through one of the locks. The Panama canal has been battling drought conditions for nearly a decade, but the droughts have deepened in the past two years. If water levels continue to drop, additional steps and surcharges may be considered by the PCA.

The sole bright spot of fewer vessel transits are estimates that the PCA will conserve enough water to suspend implementing the water depth restrictions that had previously been discussed in the spring. Restrictions were expected to force a 40% drop in cargo on some containerships and tankers. This would have had an outsized impact on US imports and exports, as the Panama Canal is the preferred route for US Gulf Coast and East Coast trade. The southern route is so much faster than the

Suez Canal-Atlantic route that more than 40% of all U.S. container traffic travels through the Panama Canal every year.

Nonetheless, there is major concern from shipping companies and their industrial or agricultural clients about additional freshwater surcharges being imposed, as this would throw more chaos into already-fragile global supply chains. In 2020, the Canal imposed a fixed charge of \$10,000 per transit along with a toll on a percentage of the carrying capacity of the vessel.

Figure 1: Low snowfall and hotter weather are drying up the Rhine river for the second year in a row, distorting energy, freight and agricultural markets



Source: German Federal Institute of Hydrology, RaboResearch

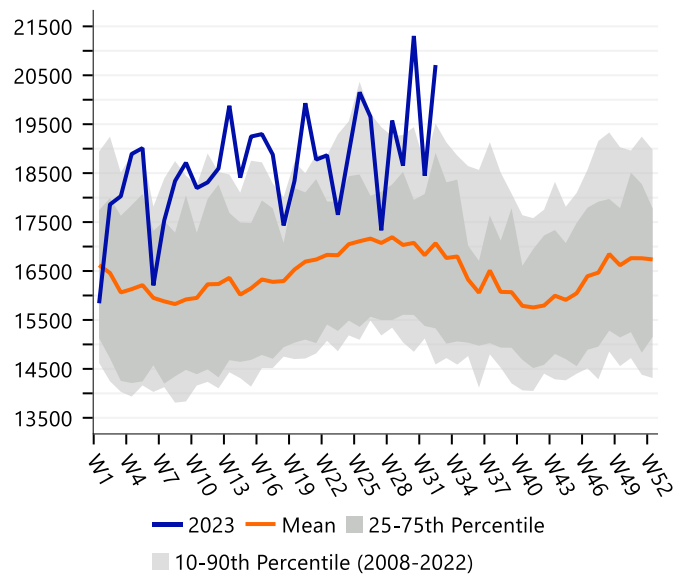
Even though the restrictions have not taken effect, this possibility shows the disruptive effects of a warming planet. Five years ago, I couldn't have placed Kaub, Germany on a map; until the drought that summer forced shipping and industrial trade along the river Rhine down to a fifth of prior levels, helping to pull down German GDP by a whole percentage point. Now the water levels at key bottlenecks along the Rhine, including Kaub, are fixtures on my Bloomberg terminal. Once again in August 2022, the Rhine fell to such shallow levels that vessels carrying oil, chemicals, and grains sailed only a quarter full during the energy crisis prompted by the Russian invasion of Ukraine. This year has seen levels drop below one meter again twice, notably in the spring

About one-third of transits through the Panama Canal involve LNG tankers, LPG carriers, bulk crude, or refined products tankers. More delays, higher costs, and more supply-chain issues are in store for the markets on both sides of the isthmus. Weight limitations or only shallower vessels being allowed to traverse the Canal or embark down the Rhine leads to increased demand for containers and more ships needed to ensure the same rate of flow of products. Vessel wait times usually increase as well, and all of these factors lead to less efficient usage of marine fuels – so more demand.

Switching to other modes of transport is an expensive option. Just-in-time manufacturing discourages inventories or spare capacity as wasteful; this is the case for transportation options as well. As an example, a typical Rhine barge that is 135m long with a draft of 3m can carry 2,700 tons of freight. It would require 110 large diesel trucks to transport the same load or one 90-110 car train, which require their own logistical operations for delivery, loading, and unloading, if you can schedule a spot market pickup for your goods. All of this means more expensive shipping and slower flow rates of key agricultural products along with refinery outputs – with profound effects on the energy markets. Essentially, warmer winters and hotter summers are structurally changing the way energy flows around the world.

On the other hand, there is evidence that heatwaves depress industrial activity as diesel demand declines. The effect even correlates to gasoline as tourism, commuters, and leisure drivers all prefer to stay home out of the heat. Regardless, on balance I believe that the cheap flow of energy across borders and oceans seen in the first two decades of the second millennium is a past paradigm.

Figure 2: US refinery runs are soaring as European refiners are facing strikes and decreased capacity from extreme heat

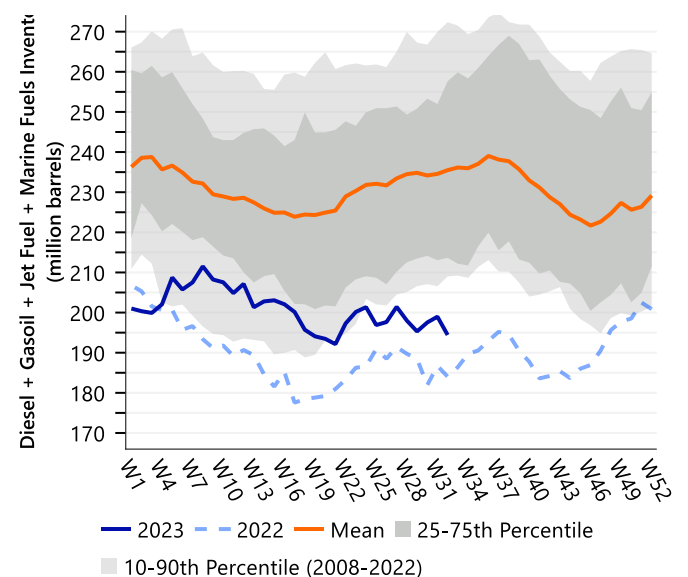


Source: Bloomberg, EIA, RaboResearch

We are now in a world fraught with risks, and higher prices. We are facing a world where the Rhine depth at Kaub, Panama Canal transit numbers, and reservoir stockpiles will be monitored as closely as the EIA petroleum reports every week.

We can pretend the real, overarching structural problems are not there. We can try to adapt by building shallower barges, as is the case in Germany right now; but there will be a day when the new 35cm draft tankers face the same problems when the Rhine dries up even further. Maybe then we will bring back the horse cart to ship our diesel and fertilizers to port.

Figure 3: Middle distillate inventories remain low, exacerbating crude strength into refined products



Source: Bloomberg, EIA, PJK International, Enterprise Singapore, Ministry of Economy - Japan

On top of this all comes geopolitics. The latest missile attacks by Ukraine against Russian tankers and ports in the Black Sea, retaliation for Russia's revocation of the Black Sea Grain deal, has led to intense Russian missile strikes against Odesa and other major Ukrainian grain exporting hubs. Unfortunately, more conflict in the Black Sea will lead to higher premiums and more disruptions for oil shipping in the region too.

Russia exports 500,000-550,000 bpd of crude and 450,000 bpd of refined products, mostly fuel and diesel, from Novorossiysk. The port also loads about 250,000 barrels a day of crude from Kazakhstan via a secondary set of pipelines before it is shipped to Romania for refining. The nearby Caspian Pipeline Consortium (CPC) loads tankers with about 1.3m bpd of crude and is the main route for exporting oil from Kazakhstan to European markets. In total, nearly 2.5m bpd of crude and product flows are endangered by fighting, mostly heading to India, China and Türkiye. While Ukraine would not be foolish enough to attack CPC vessels, accidents do happen, and Ukraine certainly has incentive to retaliate on Russian vessels: *why should their own economy be ground to dust while Russia is allowed to finance itself via its energy industry?*

Saudi-Israeli peace talks have also hit the headlines of late. We agree with our brilliant Global Macro Strategist Michael Every that such talk is far from new for those in the region; the deal the Saudis want is not acceptable to the White House or Jerusalem (yet); and it would not mean any Israeli deal with Iran, who is siding with Russia and China. Quite the opposite. If we get this rapprochement then the Iran-Saudi détente collapses in time and sides are taken again. Recent hugs were only there as a bargaining chip! Also note silly headlines about WH asking Riyadh to confirm it won't price oil in CNY: a joke given Rial is pegged to \$, and any CNY they get are immediately sold for \$. Simultaneously, the White House is asking for Saudi Arabia to halt production cuts and keep crude afloat ahead of next years' election. But if true it shows the staggering naïveté of the White House foreign policy team.

Meanwhile, refined products remain the driver of crude prices, and European imports of diesel rebounded last month to the highest level since April amid fuel supply concerns. Refinery outages have led to increased imports from the US especially, now the top supplier of diesel or gasoil to Europe for the first time. Europe currently imports about 25% of their middle distillates (the key industrial fuels such as diesel, jet fuel, and gasoil) from the US, up from only 5% in 2022.

All of the above leads to one logical conclusion: **economic projections based on past low, stable energy prices are a house of cards on a flimsy old folding table.** My old

trading mentor used to say, "*Life is long gamma,*" as the snowball effect exacerbates volatility and price movements. Twelve years later, I find this sentiment still holds its weight: we are always two or three consecutive shocks away from energy prices doubling, or worse.

Crude Oil & Refined Products Outlook

Brent crude held a continuous rally from \$74/bbl to \$85/bbl over the month of July. The rally has marched into August, currently standing at six weeks of constant appreciation. Despite this impressive move driven by reduced Russian crude exports and Saudi production cuts, **we expect that Brent will not break out of the yearly range of \$72 to \$88 just yet.** We witnessed heavy resistance this week at the \$88/bbl mark again, and we see the current macro overhang and worsening Chinese economic data to keep this ceiling intact. However, if we are incorrect, we see that crude will continue to consolidate at a higher range with the next resistance levels at \$93/bbl and \$98/bbl. **We reiterate our call that Brent will trade between \$72/bbl and \$88/bbl until Q4, where prices are likely to rise and average \$90/bbl.**

We have slightly revised upward our future quarterly averages for diesel, gasoil and gasoline by about \$0.15/gal or \$60-80/mt as we expect crack spread strength to continue on top of the current controlled supply environment (*see the following table on page 4*). The long term fundamentals are bullish and inventories of refined products remain low while new refinery supply is going to lag behind products demand growth until the end of the decade.

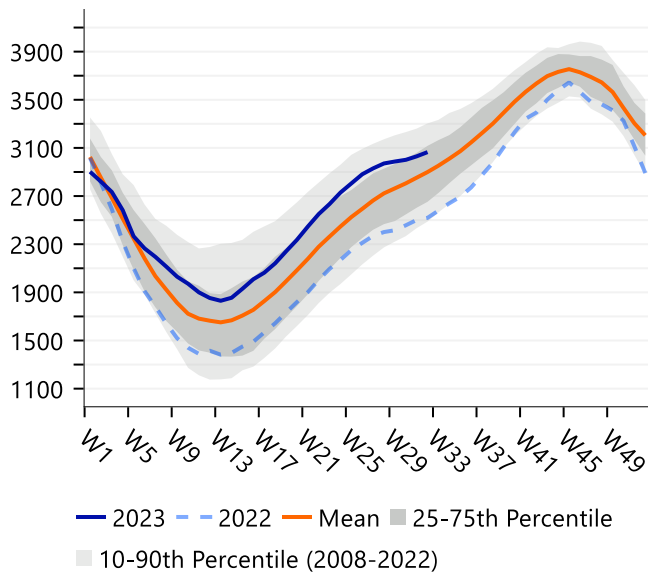
Lastly, forecasts for Brent crude to reach or average \$100/bbl are starting to make a comeback as we have witnessed other banks raising their forecasts for 2024 and beyond. We welcome our competitors into the lines of logic that we have been touting for the last year.

Natural Gas & Power Outlook

The major event of the past few weeks has been the threat of large-scale strikes at three Australian LNG sites: Gorgon, North West Shelf, and Wheatstone. The combined capacity of these three liquefaction plants is about 11% of the global LNG supply, and the LNG market rallied accordingly. TTF prices moved 30% in a single day up to €40/MWh and prices have hovered in the high €30s to low €40s since the news broke.

Europe imports a negligible portion of its natural gas from Australia as the costs of logistics are too enormous, so the strikes are unlikely to directly affect the flow of gas to

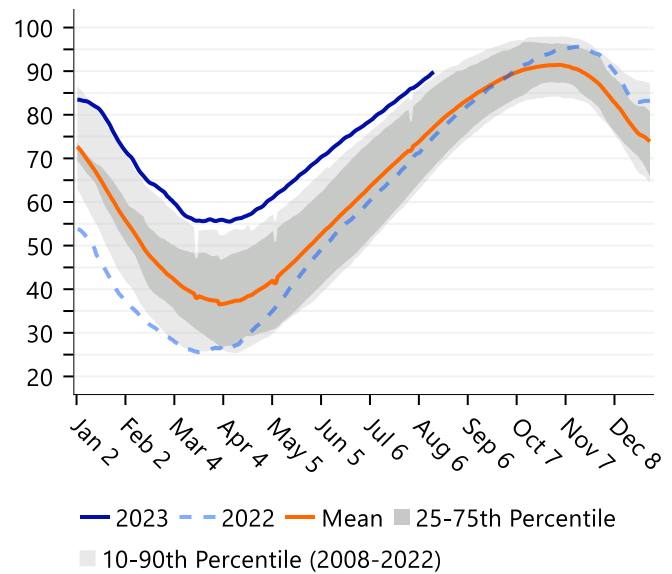
Figure 4: US natural gas inventories remain well-supplied, which has kept the \$3/mmBtu ceiling intact while renewables help minimize power price spikes



Source: Bloomberg, EIA, RaboResearch

Europe. However, Asian consumers will have to bid for the same American and Qatari cargoes to secure their own supply. This is the scramble that could be the spark for a bidding war if demand from a cold winter hits. We have also seen some uptick in demand for LNG cargoes out of China as the country imported nearly 0.6 million tons of gas in July, reaching a new 2023 peak and topping the imports from January. As a cautionary note, there is additional risk of possible delays in the summer maintenance schedule of several major producers, most notably the key European supplier, Norway. Rising August summer temperatures throughout Southern and Western Europe will further drive up domestic demand for cooling.

Figure 5: EU natural gas inventories are well above seasonal averages, keeping the effects of price spikes dampened until winter draw season begins



Source: Bloomberg, GIE Europe, RaboResearch

Fortunately for both American and EU consumers of natural gas, storage levels remain well above seasonal averages. There is a solid cushion for the fall and early winter that will prevent too much price appreciation even if we see late-summer heat or an early cold snap; correspondingly **our Q4 TTF forecasts are currently below the forward futures curve (€42 vs €52). We are still more bullish on 2024, 2025, 2026 (and beyond) Henry Hub prices versus the forward curve as US exports and power demand are growing faster than supply.** Higher interest rates will continue to dampen upstream exploration and production for years to come.

Table: Rabobank Energy Forecasts – Quarterly Averages

		2023	2023	2024	2024	2024	2024	2025	2025	2025	2025	2026
Crude Oil		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Brent	Forecast	\$86.5	\$90.0	\$92.0	\$94.5	\$95.0	\$99.0	\$101.0	\$103.0	\$104.0	\$105.0	\$106.0
\$/BBL	Forward	\$84.0	\$82.2	\$81.2	\$80.2	\$79.2	\$78.3	\$78.2	\$77.4	\$76.5	\$75.8	\$75.0
WTI	Forecast	\$80.8	\$85.9	\$88.1	\$90.4	\$90.9	\$94.7	\$96.5	\$98.4	\$99.2	\$100.1	\$100.9
\$/BBL	Forward	\$78.2	\$78.1	\$77.3	\$76.1	\$75.1	\$74.0	\$73.7	\$72.7	\$71.8	\$70.9	\$70.0
NY ULSD	Forecast	\$3.10	\$3.14	\$3.17	\$3.20	\$3.19	\$3.21	\$3.25	\$3.27	\$3.31	\$3.34	\$3.37
\$/GAL	Forward	\$3.00	\$2.87	\$2.74	\$2.64	\$2.62	\$2.58	\$2.55	\$2.50	\$2.49	\$2.48	\$2.47
Gulf Coast												
Diesel	Forecast	\$3.11	\$3.11	\$3.12	\$3.17	\$3.16	\$3.15	\$3.18	\$3.22	\$3.25	\$3.26	\$3.29
\$/GAL	Forward	\$3.01	\$2.84	\$2.69	\$2.61	\$2.59	\$2.53	\$2.47	\$2.44	\$2.44	\$2.40	\$2.39
DOE On-												
Highway Diesel	Forecast	\$4.74	\$4.83	\$4.84	\$4.89	\$4.88	\$4.87	\$4.90	\$4.94	\$4.97	\$4.98	\$5.01
\$/GAL	Forward	\$4.63	\$4.56	\$4.41	\$4.33	\$4.31	\$4.25	\$4.19	\$4.16	\$4.16	\$4.12	\$4.11
ICE Gasoil	Forecast	\$942	\$969	\$983	\$972	\$976	\$983	\$998	\$1,013	\$1,021	\$1,028	\$1,036
\$/MT	Forward	\$887	\$840	\$804	\$783	\$771	\$760	\$748	\$738	\$730	\$724	\$719
RBOB	Forecast	\$2.90	\$2.68	\$2.82	\$3.04	\$2.91	\$2.80	\$2.94	\$3.12	\$3.04	\$2.90	\$2.99
\$/GAL	Forward	\$2.80	\$2.41	\$2.39	\$2.48	\$2.35	\$2.18	\$2.24	\$2.35	\$2.22	\$2.04	\$2.09
Natural Gas												
Henry Hub	Forecast	\$2.85	\$4.09	\$4.17	\$3.57	\$3.74	\$4.70	\$4.72	\$3.98	\$4.15	\$5.12	\$4.77
\$/MMBTU	Forward	\$2.63	\$3.66	\$3.53	\$3.29	\$3.45	\$4.26	\$4.37	\$3.62	\$3.81	\$4.24	\$4.56
TTF	Forecast	€ 25	€ 42	€ 56	€ 36	€ 42	€ 55	€ 54	€ 41	€ 44	€ 53	€ 52
€/MWH	Forward	€ 36	€ 54	€ 55	€ 54	€ 54	€ 58	€ 64	€ 51	€ 49	€ 52	€ 51
NBP	Forecast	73.23	118.10	155.40	99.60	117.05	153.59	139.77	102.18	109.53	136.77	135.13
GBp/Therm	Forward	89.77	138.74	142.88	133.52	138.42	152.42	152.46	113.92	112.67	124.44	124.97
JKM	Forecast	\$13.68	\$20.56	\$19.81	\$19.51	\$20.34	\$21.40	\$19.26	\$14.79	\$14.68	\$15.74	\$15.04
\$/MMBTU	Forward	\$13.27	\$18.52	\$17.85	\$17.58	\$18.32	\$19.28	\$17.35	\$13.33	\$13.23	\$14.18	\$13.55

Source: Bloomberg, RaboResearch

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