



Positioning for Europe's Power Problem and More Energy Inflation

Why we are actively avoiding companies with significant operations in Europe.

Summary

While much has been discussed about the price of Natural Gas in Europe, we believe the current situation is vastly underappreciated with respect to the impact on electric power prices. Based on our analysis, price increases have yet to have fully worked their way through to production costs and to consumers.

We examine chemicals, as one of the more directly exposed industries, to demonstrate the magnitude of the problem and just how pervasive the increases are likely to be throughout the economy.

Once prices start to work through, resolution will require some combination of 1) the most impacted industries simply scuttling production, 2) increasing prices so much it massively reduces demand, and 3) turning a blind eye to the situation with Ukraine in order to get Russian gas flowing again.

Despite the recent pullback in oil prices, the domestic supply/demand outlook for coal, natural gas and oil indicates further energy price inflation. The current inflation bears some similarity to the energy crisis of the 1970s. Hence, we are overweight in energy.

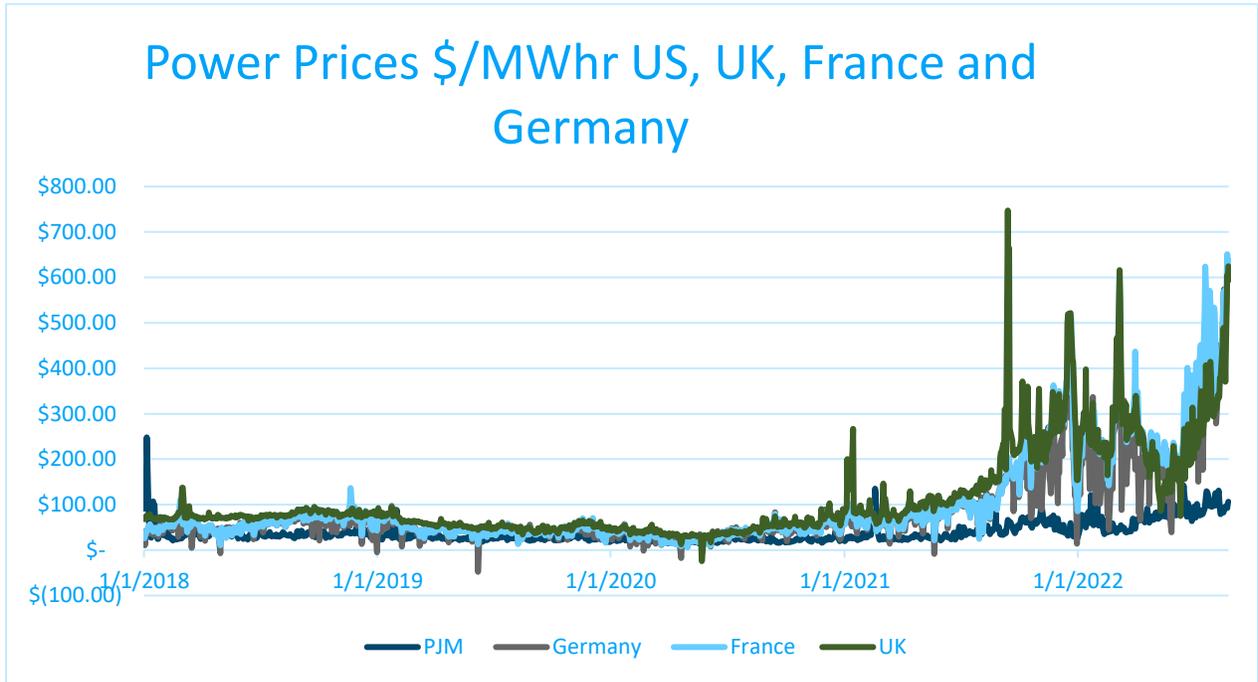
We are underweight in Europe (<10% revenue exposure for Ballast versus ~20% for the S&P 500) because of the potential power problems, which is relatively easy as a small and midcap fund because the universe is mostly domestically oriented.

Stating the Obvious

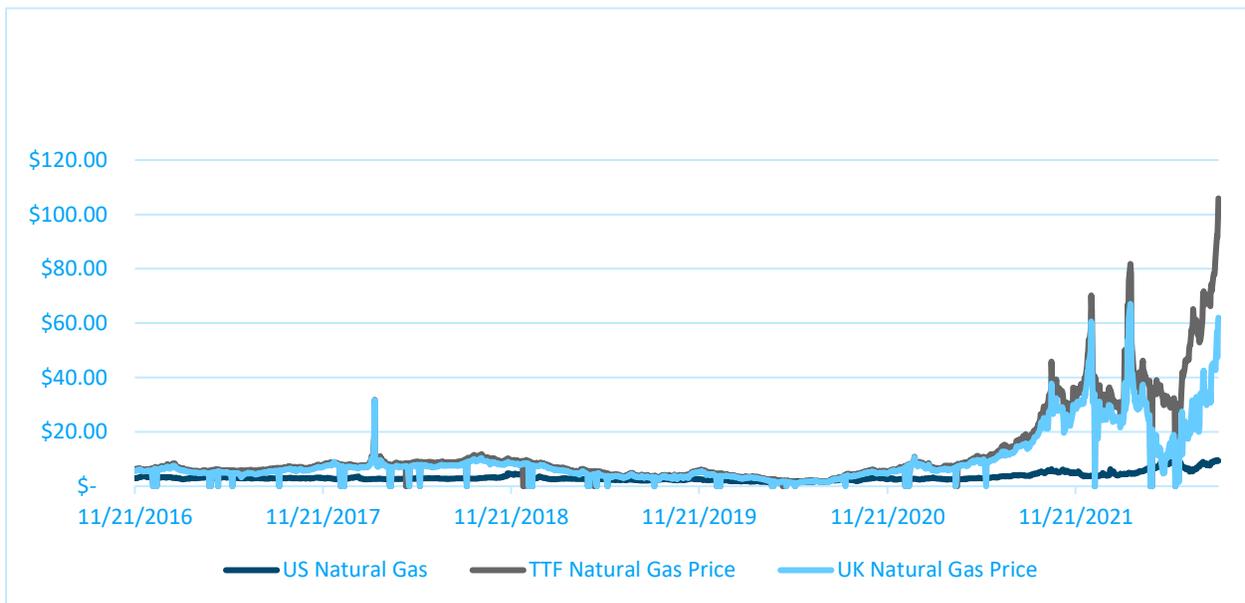
Europe has a shortage of Natural Gas resulting from the Russian/Ukraine conflict leading to dramatic price increases for both Natural Gas and Oil. Notably, this spike in prices occurred just as most countries in Europe were shifting away from traditional forms of power production – Coal, Nuclear, etc. – to more renewable production in Wind and Solar. Perhaps the hardest hit is Germany as they are decommissioning their last nuclear power production facilities at year end. Unfortunately, this is all happening before enough renewable capacity is in place to offset the loss of natural gas-fired power. Natural Gas power production was meant to be the bridge, given it scores relatively favorably from an environmental impact perspective.

Over the last 6 months, ***Natural Gas spot prices in Europe have gone from ~\$6/MMbtu to over \$80/MMbtu.*** What is less appreciated, the day-forward price of electricity has increased about 500%

during that time. Prior to the run-up in Natural Gas prices, **electricity in Germany was in a range of \$20-\$50/MWh. Today it is close to \$600/MWh.** The market is trying to ration power, and more importantly gas, in front of the coming winter. These prices will likely moderate once winter passes, but we do not believe the near-term impact of this move, and these levels, can be understated.



Source: Bloomberg



Source: Bloomberg

Heretofore, governments in Europe have helped cushion the consumer with escalating caps of \$20MMbtu currently. Unfortunately, we believe that is purely delaying the inevitable. On the industrial front, we believe these costs have not fully flowed through to the operating costs and may not for some time as many heavy commercial users likely have intermediate term contracts for power they procure from the grid. Additionally, commercial users that generate their own power may have hedged out fuel sources.

Chemicals: Going Beyond the Obvious

The chemical industry happens to be one of the most energy intensive. To spare each other from going through all the chemistry, and what things like MDI, Ethylene, Ammonia and Chlorine are used for, let's just say pretty much everything. Fertilizer for crops, plastics, seat cushions, building materials, pesticides, rubber, solvents, paper and cloth manufacturing, sealants, adhesives, food packaging, bottles, textiles, PVC, siding, medical devices – we are talking thousands of products.

In the Q2 earning reports, there were some small snippets of what may be to come and how there is additional “pent-up” inflation in the system. Below are the comments from CEO Peter Huntsman of Huntsman Chemicals:

“And if you look at the industry and you think about the delta, and I’m just talking about really broad numbers here; you’re looking at over \$1,000 per ton manufacturing cost difference between North America, Asia, and Europe, right. North America and Asia right now are competitive. And you look at where Europe is right now, it’s around \$1,000 per ton, and in some cases even higher than that. And if you think that is going to be the case over the course of the next 12 to 18 months, you really have to be arguing somewhere in some conference room right now, do we start rationalizing capacity in Europe and start importing in from North America and Asia.

...we have never seen a delta of a \$1,000 a ton manufacturing difference just in MDI. And I imagine if you get into chlorine production, fertilizers, commodities, ethylene, olefins, whatever, you’re probably looking at pretty similar numbers across the board.”

In the table below, we lay out the Energy used in conversion of a Hydrocarbon Feedstock per ton of Ethylene. We believe the source is reputable but admittedly, in searching for the energy required for crackers, there was a relatively wide range of estimates we have seen. That said, even if the numbers referenced below are 2x reality, if power prices were to reprice just \$100/MWh higher (versus the current \$400+ increase in the spot market) the impact on pricing of the building block chemicals at the bottom of the pyramid is significant. In fairness, chemical costs relative to the total materials used for each end-product vary widely (foam in the seat of a BMW is a fraction of the overall cost of the vehicle). It gets increasingly complicated the further away from the chemical processing we go.

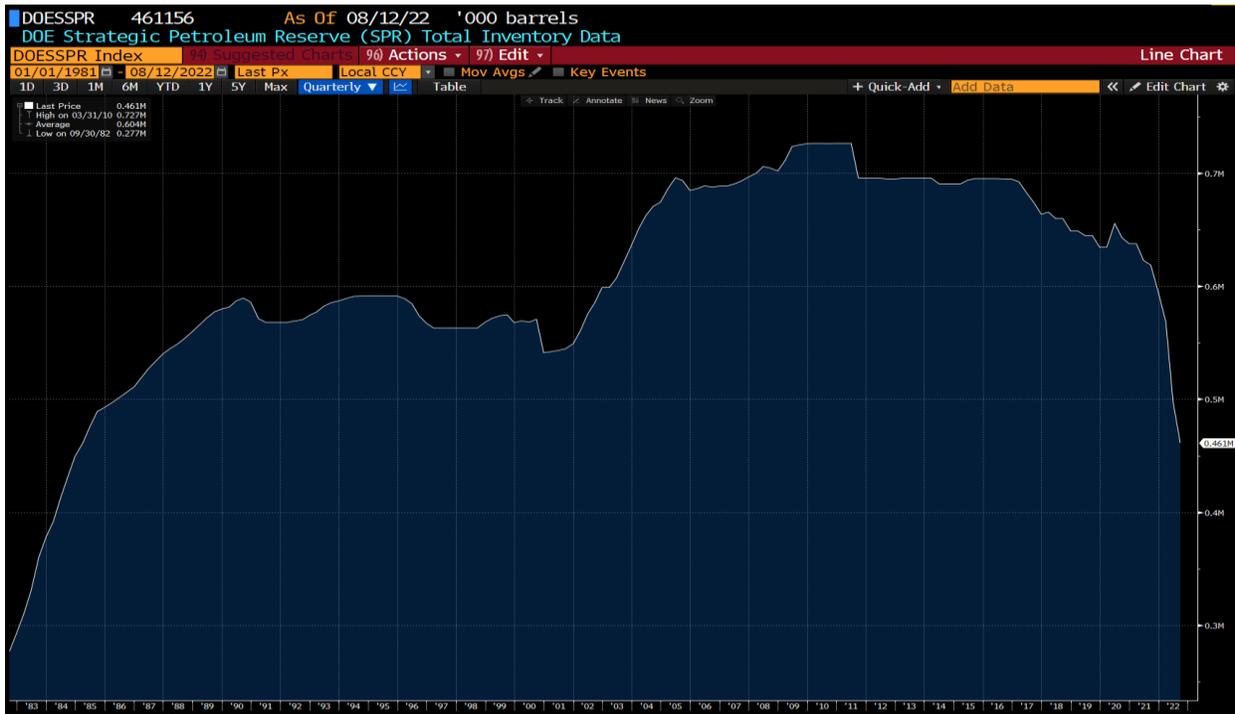
	Ethane	Naptha	Gas Oil
Energy Consumption by Process			
Cracker (GJ/MT)	4.8	6.2	12.4
Compression (GJ/MT)	3.5	3.5	4.1
Heating and Separation Losses (GJ/MT)	14.2	17.7	20.6
Total GJ/MT	22.5	27.4	37.1
MWh/MT	6.25	7.61	10.31
MWh/MT Excluding Heating and Separation Losses	2.31	2.69	4.58
European Energy Costs @\$400 MWh/MT for Process	\$ 2,500.00	\$ 3,044.45	\$ 4,122.23
Energy Costs Ex Heating and Separation Losses	\$ 922.22	\$ 1,077.78	\$ 1,833.33
Ethylene Gulf Coast Price/Ton	\$ 616.00	Price 8/25/2022	
Nexant Western European Ethylene Price/Ton Current	\$ 1,686.22	Last Price 6/3/2022	

Source: **Energy Use and Energy Intensity of the US Chemical Industry**, Worrell, Phylipsen, April 2000 and Bloomberg

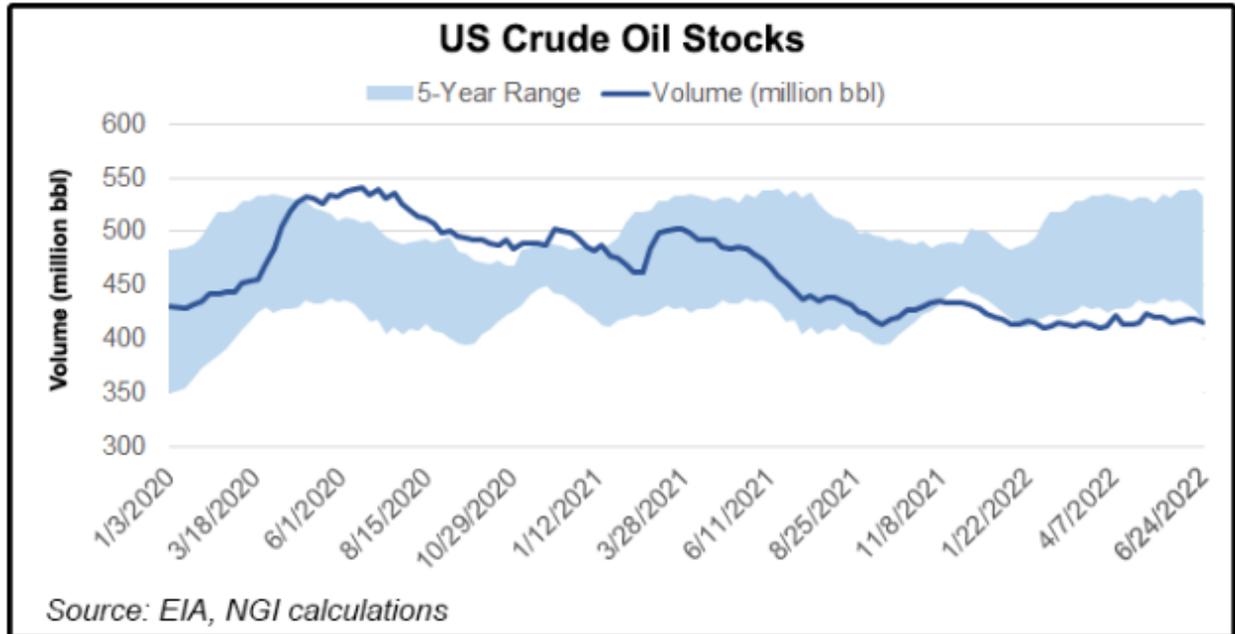
Chemical companies in Europe will either need to massively increase prices or scuttle production and import. Because the chemical supply chain is so intertwined and complicated, we believe the answer is that they will be forced to do both. Each step in changing (cracking) the original feedstock (Crude Oil, NGLs, and Natural Gas) into the specific pieces you want (ethylene, propylene, etc.) is connected. If you shut one thing down, it can have significant implications to those upstream and downstream – the proverbial domino effect. Furthermore, some things just are not well suited to shipping long distances, either because they are too bulky or the physical state of the product (liquid to solid) necessitates one chemical process be close to the next.

Crude Oil Fundamentals

While the price of oil has pulled back from recent highs, there are two things to consider that likely keep prices higher for longer. First, the Biden administration continues to release about 1mm barrels/day out of the Strategic Petroleum Reserve (SPR). This program was announced in March and was initially planned to be a 6-month program. Notably, this would take us right up until the November elections. While it is technically possible for the program to continue after that, we are now at storage levels in the SPR not seen since 1985. If after that we started to slow/stop releases, it would likely be supportive of oil prices. In addition, European countries plan to stop importing oil from Russia by December 5th, and while US oil production has bounced back from the 2020 lows, we are still 1mm barrels/day below pre-pandemic highs of 13mm barrels/day. The cherry on top is that US crude stocks are well below normal.



Source: Bloomberg



Coal and Natural Gas Fundamentals

Thermal coal and natural gas are substitutes for one another in power production, so the prices from an energy perspective (BTU equivalent) are fairly well connected. While it is difficult to tell which is the tail and which is the dog here, the outcome is the same. Europe is extremely dependent on Russian Natural

Gas (and coal), and Russia continues to squeeze off supply. Liquefied Natural Gas is *an* answer, but import facilities are not in place to fully offset the Russian supply, and the biggest exporter of LNG (the US) does not have enough export facilities built either. To top things off, ~30% of US LNG export capacity (Freeport) is offline till November because of a fire this past summer.

Winter is coming in Europe, and the energy situation appears more ominous by the day. In the near term, we have seen a resurgence in coal-fired power production to help offset the decline from nuclear and natural gas. Outside of a complete and immediate reversal of sanctions against Russia, we do not see an immediate solution to the problem. We believe Europe will be forced to continue importing LNG and coal to offset power shortages. While they are frantically building out renewable sources of energy, we measure that solution in years, not months. The net takeaway is, the United States remains an important part of the energy solution for Europe (both through LNG and thermal coal) for several years.

Positioning

From a portfolio perspective, we think about this situation in two ways. First, avoidance of risk. Second, identifying sources of solution with a competitive advantage. In order to reduce risk, we have significant underweight exposure to Europe in our holdings – both operations and revenue stemming from Europe. Notably, that is an advantage to investing in small caps, as most large caps are multinationals with few choices in the near term.

The industries and companies we are invested in that offer solutions include domestic energy and chemical producers. Specifically, we have a significant overweight exposure to Energy. Importantly, our Energy exposure stems from long-duration investments, which reduces our risk in case peace breaks out in Ukraine or demand destruction leads to a collapse of the commodity prices:

- 1) Royalty base companies like Texas Pacific Land Trust (Oil) and Natural Resource Partners (Thermal and Metallurgical Coal)
- 2) E&Ps with either significant hedging programs (CNX Resources – natural gas) or low production declining assets (Evolution Petroleum – Oil, Natural Gas, NGLs)
- 3) Services companies with pristine balance sheets and operating leverage (Solaris Oilfield Services)
- 4) Reasonably priced renewables with significant upside (Green Plains)

On the Chemicals front, we own Huntsman and Northern Technologies. In fairness, neither is completely free of exposure to Europe, as both have operations there. However, we do believe these businesses have levers they can pull (operating or technological) to overcome these headwinds. For example, Huntsman could potentially shut down the front end of its chemical processing in Rotterdam, The Netherlands, shipping those materials from the US, and feed that into the back end (MDI splitting) of the facility. None of this is easy, but at least there are options. Additionally, Europe's pain will likely drive more profits from North America and Asia.

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