



THE INFLUENCE OF ENERGY POLICY ON GLOBALISATION

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INTRODUCTION

Since their discovery, oil and, in more recent times, natural gas have played a critical role in the economic, political and social development of the world. Whilst bringing great wealth, they have also been the cause of huge instability. Those countries or regions which lack these natural resources, including most of Europe, have been consistently disadvantaged, always at the mercy of the markets, the energy exporters, or both. The war in Ukraine has once again demonstrated this uncomfortable state of affairs. However, the present energy shock is just the latest in a long line of similar crises which have occurred since the Second World War.

The localized nature of oil and natural gas deposits has a profound effect on the distribution of supply chains and this effect is only getting more pronounced. Whilst Europe does not have access to cheap energy supplies and must rely on a global market, other regions and countries, such as the Middle East and US, do. China's demand for oil outpaced its own resources in 1993 but it has immense coal deposits which it relies on for electricity generation. It has also benefited from cheap supplies from Russia (as has India) and this will provide a significant advantage as its economy opens back up after Covid.

The importance of oil and gas to the location of manufacturing will lead to a re-balancing of economic and political power, not away from the whole of the West but certainly from Europe. As more carbon taxes are applied to 'dirty' energy sources, this trend will only accelerate.

USA BENEFITS FROM SHALE DEPOSITS

The shale gas boom in the mid-2000s has had a significant impact on the US economy and allowed it to enjoy a level of energy independence not previously experienced since the 1950s. The innovative process of hydraulic fracturing (fracking) enabled it to access huge gas reserves, making it the largest natural gas producer in the world. The glut of cheap gas particularly benefited heavy, energy intensive sectors, such as chemicals, where energy inputs are relatively more important than in other sectors such as consumer goods. Research shows that for each dollar increase in the price gap between the US and Europe markets, output in chemical production increases by 1.6% (Vieira, 2016). Given that at the height of European energy crisis in 2022 US prices were \$8 per BTU compared with \$37 per BTU in Europe (October 2022), the off-shoring decisions being made by European manufacturers (see next section) can be placed in context. The comparable price of natural gas in Asia at the same time was \$23.5 per BTU (Brower, 2022).

Although the energy crisis in Europe is now approaching its end – cheap Russian gas has largely been replaced with alternatives from Norway, Qatar and the USA – the vulnerability of the European market has been completely exposed. It is true that for decades the import of Russian oil, which was comparable to prices in the US, has kept European manufacturing competitive. However, this does not change the fundamental issue that this arrangement placed Europe at a political and ultimately economic

disadvantage. By achieving energy independence, the opposite can be said about the US. As Peter Rosenthal, head of US power at consultancy Energy Aspects says, "For industrial consumers, [the US] is still a better place than the rest of the world."

What does this mean for global supply chains? There is no doubt that cheap energy has been one of the factors behind the re-shoring trend discussed in Chapter 10. It has acted as a 'pulling' force which has combined with multiple 'push' forces relating to economic, environmental, ethical and political risk. As we see below, the opposite is the case for Europe and to a lesser extent Asia.

EUROPEAN ENERGY COSTS PROMPT OFF-SHORING

The European energy crisis has added an extra layer of complexity to the decisions which manufacturers have to make about their sourcing, production and supply chain management strategies. Whilst the cost of labour has hitherto been a significant – if not the significant factor in deciding whether or not to off-shore manufacturing, the present high cost of gas and electricity has caused what might be referred to as a 'second wave' of production relocation from Europe.

German manufacturer, BASF, has been one of the most high profile companies to announce major changes to its European business. In October 2022, it announced that it would be permanently downsizing its operations in Europe – and specifically in Germany – due in part to a €2.2bn increase in the amount it had to pay in power prices in the first 9 months of its financial year. This has impacted heavily on its plant at Ludwigshafen which, according to reports, uses the same volume of natural gas as the whole of Switzerland. According to Berenberg's energy analyst, Stephen Bray, quoted in ChemistryWorld magazine, 'My view is that BASF is considering importing gas-intensive basic chemicals from outside Europe to use for processing in its European sites. Ammonia is a very gas-intensive operation so switching to imports rather than making it itself could produce costs savings.' (Burke, 2022) He believes that it will take between 2-5 years before gas prices return to a level where European manufacturers become competitive.

In fact, according to the German Chemical Industry Association (VCI) 13% of chemical manufacturers have already off-shored production, whilst over a third have cut production and 56% have reduced planned investments.

The energy crisis is by no means global – and this is having even more of impact on European companies. Natural gas is plentiful and still cheap in the US (5-7 times lower on the spot market than in Europe) and in Asia, where weak demand from China is depressing prices. Those chemical companies with a global footprint (such as BASF) are, as a result, re-balancing their production requirements to locations outside of Europe.

These cost disparities have resulted, for the first time ever, in Europe importing more chemicals than it exports, according to the European Chemical Industry Council (Cefic). Those companies which are not able to switch production overseas find themselves in an existential crisis. As Marco Mensink, Cefic Director General, commented, "We are approaching the point of no-return: if no emergency solution to the energy prices is provided to our sector, we are not far off the breaking point. Hundreds of businesses in the chemical sector are already in survival mode and we have started seeing the first closures. We need action now." (CEFIC, 2022)

As mentioned, this new wave of off-shoring is being driven not by labour costs but by the search for lower cost energy supplies. This provides an interesting dynamic in the process and introduces markets such as the USA and Saudi Arabia into the mix, as well, of course, as China.

To illustrate this, at the same time that BASF was informing investors that it would be making major structural changes to its European business, it was heralding a new €10 billion chemical plant in Zhanjiang, China. Given the deteriorating relations between the West and China, this is highly significant: it seems that the company prefers to risk the fall out from an evolving political conflict rather than face the consequences of the present economic crisis. Quoted by Reuters, CEO Martin Brudermueller said, "We have a very, very profitable China business. Half of the world market is there. What kind of a risk does a company run into if it renounces half of the market?" (Burger, 2022)

It has been said over the past few months that Germany (and Europe as a whole) 'sleepwalked' into the present energy crisis by allowing itself to become dependent on supplies of Russian gas. The same observation has been made about the West's dependency on China for manufactured goods. Whilst the European Commission talks about the necessity to create 'strategic autonomy' in Europe, this vision is being compromised by high energy costs which are making multiple sectors – and especially chemicals – uncompetitive. Whatever the aspirations to create regional rather than global supply chains, the reality is being driven by economic rather than political imperatives.

CHINA'S SELF-SUFFICIENCY POLICY

China is the world's second largest user of oil behind the USA and the world's largest importer. Since 2000, China's demand for oil has risen about tenfold. As mentioned, the country became a net importer of oil in the early 1990s: in 2019 only about 3.8 million barrels of crude oil per day were extracted domestically out of a total market of just over 15 million barrels per day. Even before the invasion of Ukraine, Russia was the largest exporter of oil to China through the Eastern Siberian-Pacific Oil (ESPO) pipeline. However, government policy has always been to diversify supply and Saudi Arabia has consistently played a major role in the market. It has also been government policy to boost domestic supply which has remained almost static for the last twenty years. Companies such as state-owned CNOOC are targeting growth in output of 6-8% a year by exploiting new finds, for instance in the South China Sea.

The importance which China's government is giving to increasing energy self-sufficiency is being driven partly by the need to stay competitive in the world's markets. This push is part of a Seven Year Plan, first introduced by China's president Xi Jinping in 2019 as a response to the deepening trade crisis with the USA. If energy prices rise on a global basis, of course, the impact on competitiveness is muted as all countries are affected. However, where markets are more localized, as in the case of natural gas, Chinese manufacturers which use this type of energy have lost competitiveness against companies in the USA and (in sectors such as chemicals) in the Middle East. The impacts on consumer goods sectors will be more marginal but will still add to the pressures changing the supply chain landscape, especially as regards to re-shoring to the USA.

It is important to note that China's energy mix is still dominated by coal powered electricity generation which accounts for 56% of the country's energy consumption. Whilst this proportion has fallen from more than 70% in the mid-2000s, in absolute terms coal use continues to rise. Coal is critical to

the government's policy of energy self-sufficiency - whilst the US has fracking, China has coal. Both energy resources provide these two Superpowers with the ability to (largely) determine domestic and international policy without recourse to global markets or the prospect of becoming an economic hostage to fortune. As Xi himself has said, China must, "...hold the energy food bowl in its own hands (You, 2022)." Whilst there will be a pivot towards more renewables in the future, the principle of energy security will remain. There is no political appetite to risk self-sufficiency for quicker de-carbonization as Xi has made clear. "Energy security is an overall and strategic issue related to the country's economic and social development and is crucial to the prosperity and development of the country, the improvement of people's lives, and the long-term stability of society (Xi, 2022)."

RISING TRANSPORT COSTS

Whilst input energy costs have an influence on the location of production and consequently the characteristics of the derived upstream and downstream transport demand, the reverse is also true. The cost of transport can also affect where production is located. The price of oil is a major component of shipping costs, although as we have seen during the West Coast ports congestion in 2022, not necessarily the most important. In that instance, soaring sea freight rates were driven by high demand and capacity constraints – both in terms of shipping and other transport asset availability and port throughput. However, there have been times in the past twenty years when an oil price shock has prompted major global manufacturers to reconsider their supply chain structures as a result of its impact on the cost of transport.

An example of this was the oil price 'bubble' of 2008 when prices rose from \$90 a barrel in January to just under \$150 a barrel in July. It is conjectured that this may have been caused by under-production of oil in the previous years as a result of an effort by Saudi Arabia to manipulate the global oil price (Hamilton, 2009). Supply constraints were exacerbated by soaring demand from an over-heating global economy with growth in the Chinese manufacturing sector a particular factor.

Whatever the reasons for the shock, the price caused manufacturers to re-assess the viability of their global supply chain structures. As one senior Unilever executive said in May 2008, "Oil prices are now \$127-130 a barrel. At \$150 a barrel, we start thinking about our supply chain network; at \$200 a barrel, we really start thinking about our network." He went on to add, "Right now, I don't know what the answers are but what I am saying is that we have to start thinking about the sort of things which when oil was \$20 a barrel, no one really did. However, at \$150 a barrel, these factors start to become important (Cullen, 2008)."

As it turned out, the shock was short lived and followed by a deep recession. In subsequent years the oil price returned to elevated levels (between \$120-140 a barrel between 2010 and 2014) followed by a period in a range roughly between \$60-80 a barrel right up to the volatility caused by the impact of the Covid crisis.

The capricious nature of the price of oil must be a serious factor in the development of resilient supply chains, at least until the de-carbonization of transport which will, in reality, be many years off. Supply chains have developed on the basis of cheap shipping costs which have enabled the consolidation of production and inventory on a regional or global basis. Expensive transport, partly driven by the

underlying oil price as well as additional carbon duties and taxes, negate this logic. Even if oil prices fall back to historically lower levels, the fact that such a large proportion of the world's supply of oil rests in the hands of a relatively few, and not necessarily stable, countries means that the risk of disruption will be ever-present.

SAUDI ARABIA'S BIG AMBITIONS

Saudi Arabia is in the process of a transformation. Using the wealth it has amassed from oil extraction, it is pivoting towards a lower carbon, higher value adding economy, leveraging its geographical location as a regional and global logistics hub.

To achieve its ambition of economic diversification, in 2016 the country adopted what it called the 'Saudi Vision 2030' programme. As part of that effort, Saudi Arabia has spent more than \$100 billion on infrastructure and related projects intended to position it as a global logistics hub at the crossroads of Asia, Europe and emerging Africa. Its targets include:

- developing 60 logistics zones to support exports, e-commerce and re-exports, in addition to encouraging trade through land ports
- the growth of re-export revenues from 42 billion riyals to 520 billion riyals
- export growth from 185 billion riyals to 507 billion riyals and
- the expansion of the e-commerce sector from 6% to 23% of retail sales (SPA, 2021).

In October 2022, a further initiative, 'Global Supply Chain Resilience', was launched which included the promise of a SAR 10 billion package of inducements to attract foreign investment of up to SAR 40 billion to the market. According to a statement by the Saudi government, 'The [Covid 19] pandemic, trade disputes and the geopolitical landscape have broken or weakened global supply chains, driving up commodity prices and disrupting production and distribution. This initiative aims to strengthen the position of the Kingdom of Saudi Arabia in the global economy, and to mitigate the impact of global disruptions. The Global Supply Chain Resilience Initiative will leverage the Kingdom's resources, infrastructure and location to bring greater resilience to economies and companies across Europe, the Americas and Asia (SPA, 2022).'

Whilst logistics and transport infrastructure underpins its strategic vision, Saudi's main aim with this latest initiative is to attract five key sectors to the market. These include:

- Healthcare and Life Sciences
- Mining and Metals
- Real Estate
- Financial Services
- Agriculture and Food Processing

In effect, Saudi is positioning itself as a low risk, low cost and low carbon economy which would enable investors to access a large domestic market as well as reaching regional and global customers through its transport and logistics infrastructure links. Oil will obviously be a major factor in the economy's development for many years to come. But the government wants to increase its level of value add (in a similar way, perhaps, to China) by using this resource to supply indigenous processing industries such as chemicals, pharmaceuticals, plastics and rubber.

As well as encouraging FDI, Saudi has also been an active investor in other emerging countries creating and developing strategic 'trade corridors'. For instance, trade with India is expected to grow threefold by 2030. Whilst exports of crude petroleum will be an important element of this growth (Saudi is looking to invest \$100 billion in India's refining, energy and petrochemical industry) it will also target infrastructure and agriculture sectors, supporting its 'Make in India' initiative.

Likewise, the government also intends to develop its relationship with China with trade expected to double by 2030. Its national oil company, Saudi Aramco, already has long term agreements to supply China's refineries and chemical plants. However, it intends to align its own 2030 Vision with the aims of China's Belt and Road Initiative and has signed deals in a range of sectors including logistics and transport, energy, manufacturing, e-commerce and petrochemicals, mining and housing (StanChart, 2022).

There is no doubt that Western markets will continue to be critical to the success of Saudi Arabia's strategic vision. It is still heavily reliant on the price of oil for economic growth and a recession in Europe and the USA will inevitably depress oil revenues. However, in the medium term, emerging economies in Latin America, Africa and of course Asia will become increasingly important for Saudi's economy as their consumption of oil grows. The decarbonizing West will still require an array of petrochemical products, including plastics, chemicals and pharmaceuticals which Saudi will also be able to supply.

In summary, Saudi Arabia has the resources and ambition to become a major regional and global hub over the next decade, becoming a conduit for trade between some of the fastest growing markets in Asia and Africa, as well as serving the rest of the Middle East and parts of Europe. Its large domestic and export market will give it an advantage over other hub ports in the region which focus largely of transshipments. Its manufacturers will benefit from access to low cost oil and energy although investors should be cognizant of security risks, especially if relations with Iran deteriorate further.

CONCLUSION

It is important to understand the local and regional characteristics of energy markets in order to gain an insight into the landscape and prospects of the associated supply chain industries. The availability and cost of energy is fundamental to the distribution of production locations in many sectors, especially those which are more energy intensive such as chemical manufacturing. For decades energy volatility has been an underlying cause of economic and fiscal instability especially in Europe which is so reliant on oil and gas imports. The recent energy crisis has prompted many manufacturers, especially in Germany, to reassess their production strategies: exporters will also be hard hit, unable to compete effectively with US, Middle Eastern and Chinese competitors.

The rest of the world is in a different situation. Relatively cheap fracking energy input costs in the US will provide a tailwind to re-shoring whilst China's manufacturers have a back stop of cheap coal. Middle Eastern economies, too, have the advantage of access to cheap energy with Saudi Arabia being by far the biggest beneficiary. The country's hydrocarbons as well as investment in renewables is allowing it to position itself as an ideal location for global manufacturing and logistics services, especially in chemicals and other energy intensive sectors.

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