Natural Resources PC

Energy highlights 2022 and beyond

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Impetus from 2021

2022 **started off** with already inflated energy prices, following an EU gas peak toward the end of 2021, with European gas prices being well above Asian spot LNG and orders of magnitudes higher than the Henry Hub US gas price. Reasons included low natural gas stockpiles, an unusually cold winter, maintenance work at Norwegian facilities, speculation, but also policies limiting supply by discouraging investment in conventional sources.

As well, the EU electricity market design proved problematic, directly passing on the cost of gas, and the overall energy transition proved expensive as stated by the EC, Societe Generale and others, while EUAs were also at high levels, eg at €88.88/mtCO_2eq on December 8 2021 and 96.93/mtCO_2eq on February 8 2022 ie still before the War.

The War in Ukraine – and its repercussions

The War that broke up on February 24, 2022, the ensuing Western sanctions **and particularly the Russian countermeasures aggravated** the energy [availability and] pricing situation, especially for natural gas that reached historic levels of €300/MWh for a brief period.

In response, the EU has this year gone back to 'tolerate' coal [Vice-President Timmermans March 3, 2022: 'Coal is not taboo', many countries prolonging the use of coal and lignite in electricity generation] and to officially recognize natural gas and nuclear as 'climate-friendly technologies' in the EU Taxonomy. Interestingly, uranium imported from Russia for use in civil nuclear power production is exempted from Western sanctions, as nuclear power plants in France, Hungary, Slovakia, Finland depend on Russian civilian uranium imports. Also, Nord Stream may have died but EU liquefied natural gas imports from Russia have increased by 46 pct this year.

As for renewables, they indeed have the lowest marginal production costs even after the recent Chinese supply-chain cost increases, but in order to really serve base loads they need large amounts of fresh capital in a period of rising interest rates, including for electricity storage and new, reliable transmission and distribution networks. Emissions trading costs, currently back at the levels of €90/mt CO_2eq are yet another factor contributing to the high cost of electricity.

Against the backdrop of German central bank chief Joachim Nagel's warning on August 20 that inflation could hit a 70-year record, high energy prices take a toll on EU consumers – be they families or companies. Energy consuming sectors -- eg steel, metallurgy, chemicals and fertilizers which utilize gas both as a power source and a

raw material, cement, glass, lime, magnesia etc – are suffering the most via production cost increases, as the great majority of the European producers is running on gas, the price of which has increased almost tenfold.

It is unfortunate that this is happening at the time when lower emissions require more metals investment! The dilemma for investors is that metals are essential inputs for the hardware of decarbonisation, and there will be no energy transition without a significant increase in the production of critical minerals, but the production of minerals can itself be a GHG emission-intensive process…the energy transition will require a vast capital reallocation and will generate material risks and opportunities, placing investors and global capital markets at the very centre of the challenge.

Geopolitics

Businesses are facing an era of geopolitical instability. The US, EU, China and Russia are growing further apart and the consequent fault lines are giving rise to more frequent geopolitical events. Diverging Covid-19 mitigation policies, increasing economic protectionism between superpowers, and the rise of authoritarianism are disrupting operations, complicating international trade and undermining business confidence, respectively. A 51-year-old era of global economics may be dying a slow death. We are in a crisis, in "slow motion" thanks to food, energy, and supply-chain shocks.

Regarding energy, it should be emphasized that moving away from Russian sources -- and with Opec+ acting against the US in October -- implies increased Western gas purchases from the Qatari regime, more oil procurements from Saudi Arabia and Venezuela and an even heavier reliance on Chinese and African critical minerals. China owns the energy transition supply chain, being No1 producer of rare earths, owning half of the largest cobalt mines in the Democratic Republic of Congo, possessing 90% of global capacity to process raw lithium, 70% of cobalt and 40% of nickel and having almost all the manganese- and graphite-refining capacity. Of note: China's emissions prices are one twentieth of the equivalent EUA figures. *[1]*

Policies

This year has seen EU policymakers deal with the unprecedented challenge of net zero and energy security-cum-affordability following Russia's invasion of Ukraine – the so-called Energy Trilemma. Emergency measures – the REPower EU package – have been unveiled in quick succession, against the backdrop of an existing 'Fit for 55' package that was designed to put the EU on track to greenhouse gas emissions reductions of 55% by 2030 and net zero by 2050. Many key political agreements have fallen in the last few weeks of the year, including on a reform of the EU's Emissions Trading System (EU ETS) and the introduction of an EU carbon border adjustment mechanism (CBAM).

Lastly, on December 19 the EU energy ministers capped the price of gas. The cap will kick in if prices on the main European gas exchange [TTF], exceed €180/MWh for three consecutive working days, far lower than the EC's original proposal of €275/MWh.

However, in a concession to countries that feared energy suppliers would send their gas supplies to China or elsewhere when faced with a European price cap, a €180 cap will [only] be triggered when the TTF price is €35 higher than a global reference price for LNG for the same three successive working days.

Not all EU industries agreed. For example, the reaction of the EU chemicals industry on price caps on Dec 20 was as follows: Despite prices subsiding from the August peak, the European chemicals sector has been devastated by prevailing costs compared to pre-war conditions. "Well meant is not well done. We are very sceptical about how a gas price cap is supposed to work without gas becoming scarce. If Europe ends up no longer being supplied with gas, we will have turned off the tap ourselves with the price cap".

On the other side of the Atlantic, the $430 billion U.S. Inflation Reduction Act [IRA] gives tax credits to consumers buying electric vehicles and other green products if they are made or processed in the United States or in countries with which it has free trade agreements. As a result, European businesses which are already impacted by high energy prices would be incentivized to relocate to the United States.

New technologies

Hydrogen is among the technologies that could make a massive impact in the energy domain in the near future. A shift is happening in Spain and across Europe: from small-scale subsidized hydrogen to mass-scale competitive hydrogen and the task is now to accelerate. For example co-location of solar and electrolyzers is cutting the cost of power by two thirds and gas pipelines are being converted to carry green hydrogen.

Other technologies bound to make an impact are energy storage, off shore wind and improvements in photovoltaics. Nonetheless, many turbine and component suppliers are currently facing negative profits in the face of serious supply chain challenges.

Forecast

Whether or not the War ends in 2023, the decision analysis scenaria of our company **Natural Resources PC** indicate that it is most likely for Western sanctions and Russian countermeasures – hence high energy prices -- to remain in place for years. *[1]*

An energy crunch will trigger eurozone contraction in 2023, economists warn. Barring an outright depression that would annihilate energy demand, the world economy would do well to prepare for a long period of high energy costs. *[1]*

The IEA predicts that the current increase in fossil fuel usage is likely to be temporary and that emissions will peak by mid-decade. Russia's invasion of Ukraine is likely to speed up the energy transition. However, green investments must rise to $4tn annually by 2030 if Governments want to meet their own net zero targets.

Note: Ukraine's reconstruction, including the country's energy infrastructure, would be a project of major proportions by itself. This will imply the use of steel and other metals, cement etc. If the West wins the War, it seems more likely that a WWII model

will be chosen, ie an undertaking by the winners, rather than a WWI variety whereby the losing parties were forced to pay. [1]

Suggestions

Policy makers need to re-focus on facilitating long-term investment — alongside a revival of the "real economy," with tangible assets like infrastructure regaining popularity after 15 years of financial asset-price inflation.

Energy: Our own view is that in the short-run Europe must have a rich and diversified network of energy sources as well as suppliers to cope while current phenomena last. Longer-term, for tackling Climate Change, the emphasis should be on electrification via a combination of renewables and storage, with a gradual phasing out of coal and oil. Natural gas and nuclear will continue to play a role, serving base load for many years to come – eventually being complemented with hydrogen. In particular, we agree with IEA forecasts on renewables that they have the potential to plug the gap created by the shift in the geopolitical landscape since the Ukraine War.

[1] Natural Resources PC Study, Sept '22, Private, Unpublished

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