Resources and Diplomacy: Commodity Signposts to a Post-War Economic Order

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Introduction

With the outbreak of major conventional warfare on the European continent for the first time in over 80 years, a new economic and political reality has engulfed Europe, its populations, policy makers and larger economic actors, regionally as well as internationally.

From the first explosions of the Russian invasion of Ukraine in the early morning of February 24th this year, achieving a peaceful resolution to conflict while punishing Russia by all means possible short of direct military involvement emerged as the objectives of Ukraine's western allies. Despite Russia's role as the heavily armed protagonist in the war, and although non-combatants, western countries and the NATO Alliance were however far from passive observers.

The West responded with steadily increasing armament supplies to the defenders combined with an aggressive policy of economic and political sanctions against the invader and its allies. These latter sanctions on Russia, in combination with the collateral destruction in supply of energy and food from Ukraine, caused unprecedented commodity market turbulence and initially led to large upward price movements on major exchanges.

However, while the achievement of a peaceful resolution to the conflict proved as elusive as Russia's attempt to score a rapid "Blitzkrieg" style victory, the medium- and longer-term implications for the European continent's economy and markets, as well as its future political and defense arrangements, will be profound.

The situation required a radical re-ordering of resource allocation, with concomitant shocks to corporate, public and personal finances that this will inevitably entail.

Blindfolded to Risk, Blinkered in Conflict

In the final week of February 2022, suddenly, a European foreign policy approach to Russia based on nuance, mutual economic interest and sometimes covert relations at the highest levels was quickly blown to pieces. Foreign and defense policies, often crafted to appeal to voters with more pacifist leanings, while at the same time tolerating those of nationalist inclinations – *e.g.*, quiet admiration for Vladimir Putin's Kremlin – were swept away in a stroke. The new reality of strategic vulnerability and heightened military threat would suddenly require greater focus on – and heavier allocation of resources to – the defense and security, at acceptable cost, of basic energy supplies.

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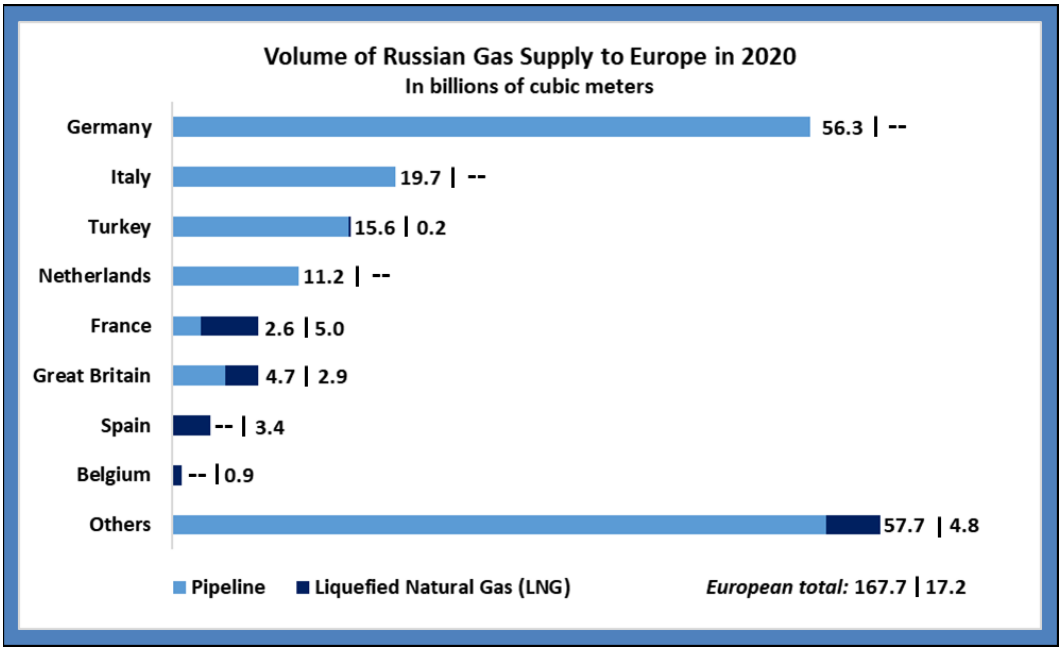
The views expressed in the *GCARD* are those of the individual authors.

In this latter need, the miscalculation of those countries, which prioritized policies including sustainable energy sourcing and the elimination of nuclear power sources in favor of gas, has been laid bare. For Germany as well as others, an energy mix prioritizing cost reduction as well as greener, non-nuclear power at the expense of supply security and diversification represented a vulnerability which was underestimated.

Figure 1
Dependence on Russian Gas by Major European Economies



Sources: Statista and BP.

The early years of Angela Merkel's 16-year chancellorship, which began in 2005, had been an era of steadily building commercial ties and growing economic collaboration with Russia, culminating in the inauguration of the first of the Nord Stream 1 network of gas pipelines between the two countries in 2011. Even in later years as bilateral relations soured, a consensus at the top in German government and business believed the country could weather the political crises sufficiently to keep bilateral trade on an even keel, despite increasingly belligerent Russian actions towards its former Soviet neighbors.

But with the invasion this winter of another European country only 600 miles from Germany, everything changed. The western alliance strove to coordinate its response with sanctions, which included the elimination as far as possible, of Russian gas supplies from its imports. In Germany's case this would mean finding a replacement source for over half of all gas consumed in the country, presenting an immediate dilemma.

Clash with Climate Emergency Goals

In the previous decade, German energy policy was seemingly hooked on the dream of becoming a huge low-cost gas market at the heart of Europe, providing cheap energy to households and industry while also acting as a trading hub at the crossroads of Europe.

With the war in Ukraine it became clear that hard choices would have to be made and some politically uncomfortable back-pedaling with regard to using fossil and even nuclear fuels seemed inevitable. Although Russian gas has continued to flow westwards in the first weeks of the war and hard currency has been paid to Russia in exchange, in the new reality this can scarcely be expected to continue into the future at the same pace.

Germany may put on hold its decision to start decommissioning its remaining nuclear supply sources later this year as well as the aim of phasing out totally its largest single energy source, coal by 2038; and Norway, a large exporter of gas, is certain to play a much greater role in supplying much of the west European market going forward. The Netherlands, once a huge European gas producer, but now scaling back rapidly in the face of environmental concerns, may need to temporarily reactivate the exploitation of the huge reserve of the controversial offshore Groningen field, a large portion of which is already scheduled to be taken off stream later this year, due to strong evidence of dangerous seismic disturbances caused by sustained drilling activity.

In sum, strategic self-sufficiency, whether at the national, continental or defensive alliance level will of necessity be allocated much higher priority and will inevitably command a much greater call on economic resources than at any time for many decades.

Background to a New Geo-Commodity Order

The decade of the 2020s, still in its infancy, has already been one of major shocks for humanity. The belated realization by governments that there is no alternative to sacrifice in order to stabilize the pace of climate change at tolerable levels for the planet's survival was transformative; and on the public health front, the SARS-CoV-2 ("COVID 19") pandemic drastically changed attitudes to public health emergencies at government, transnational and public levels.

To these two catastrophic phenomena can now be added a third seismic shift requiring equally swift policy action: the imperative of ensuring security of defense and strategic resource availability in the presence of totalitarian, nuclear-armed regimes with neo-imperialist agendas.

The remainder of the article deals with the policy dilemma between controlling the impact of climate volatility while dealing with severe commodity market dislocations – whether war or pandemic related. While war has put an acute additional stress on resources and has led to unparalleled price volatility, the multi-year impacts of accelerating climate change and the market's response to its effects are likely to be of more lasting effect.

Commodity prices were already rising broadly well before the invasion of Ukraine and not only because of the impact of lingering pandemic supply chain issues. In addition to rising energy costs, emergent and then increasingly severe drought conditions in both North and South America stressed markets for several agricultural and soft commodity products, including soybeans, coffee, and canola as well as the staple grain crops, wheat and corn, the most impacted by the war.

Severe weather in Asia and Australia also caused dislocations, while the continuing effects of trade wars, and regional conflicts in Africa impacted markets for iron ore, aluminum, coal and specialist strategic materials. Cobalt, graphite, nickel, palladium and titanium among others have also been in the spotlight in recent months.

The next section reviews major ongoing examples of climate-impacted agricultural markets with its main focus on the Americas and North Africa. Facing multi-year droughts, multiple sources of input cost inflation and surging demand, imbalances building for many months in a range of crops are expected to lead to higher price levels and greater volatility.

The second section below surveys the landscape for strategic non-energy minerals, with a focus on Sub-Saharan Africa and the competition for influence and supply security which has already seen western actors face off against China in its earlier phase. Previously regarded as a region of minor strategic importance, and largely ignored during the Trump Administration, several countries in Africa are now set to become major economic and political battlegrounds as a new era of resource competition gathers pace, with its genesis in Eastern Europe's military conflict.

The final section returns to the issue of the clash between climate and military imperatives and asks the question: if "something has to give," then what is it most likely to be? Will it be energy and food security, price stability, or defense of national borders in a world of aggressive authoritarian superpowers? Or will it be the stabilization of planetary climate trends at humanly acceptable levels?

The debate will evolve according to events, and much will depend not only on which foreign policy choices are made but equally on how successfully governments manage their macroeconomic responses. As Ukraine's daily tragedy is inevitably displaced from the headlines, the world economy will continue to be faced with the new reality of much higher prices for many staples, both food and energy – as well as the shock to demand levels through constrained living. Fighting the threat of stagflation looks increasingly set to be a primary focus of policy.

1. <u>War in Ukraine: The End of the Beginning</u>

Zooming in closer to look at two trouble spots very distant from each other – southern Brazil's agricultural powerhouse running from the Mato Grosso to Rio Grande do Sul states, and the U.S. Plains states together with the Canadian Prairies, the impact of drought conditions is already presenting a multi-year crisis for crops.

In South America, a drought which began in late 2021 in the northern Argentina/Paraguay region has slowly moved northwards, impacting the soybean crop and leading to surging prices as production

estimates continue to be slashed. This year more than ever, exports from the U.S. crop will have to compensate if there is not to be an even greater shortage, and any weather disruptions during planting and harvest seasons will be critical.

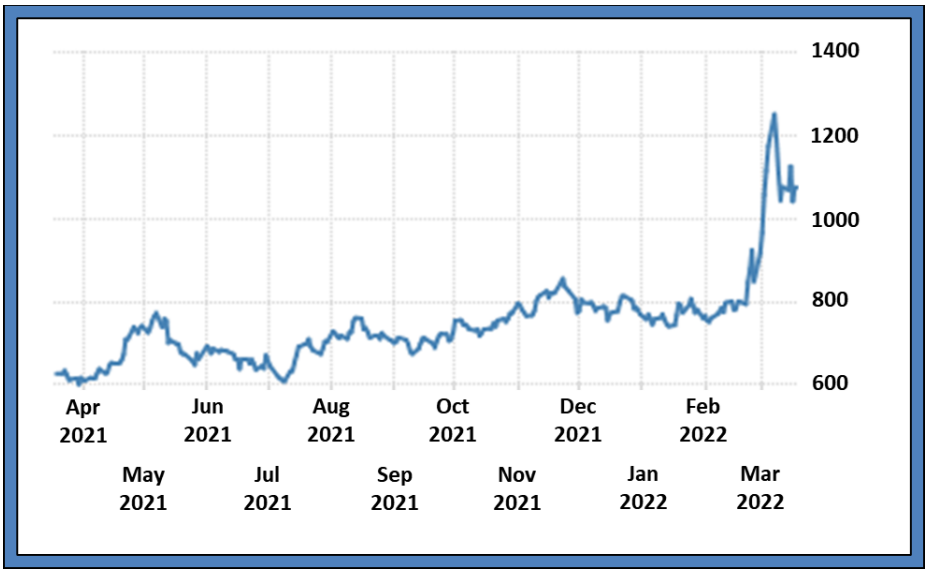
Meteorologically, weather conditions in South America are being attributed to a recurrence of the La Niña weather pattern, bringing unusually sustained heat and drought conditions to the region.

In coffee, Arabica certified stocks have been on the decline since late last year, with drought stressed trees in Brazil and crop size further impacted by the "off year" reduced production in 2021-22 which together brought price levels to over $2.50/lb by February of 2022. Analysts have estimated a multi-year crop impairment with trees unable to recover sufficiently to resume their full potential this year, leaving the consumer at risk of having to bear coffee costs close to double the average level of the previous few years.

Wheat's near-vertical price ascent in the immediate wake of the Ukraine invasion has its most obvious source in the lost production and exports resulting from the conflict, with combined Russian and Ukrainian output typically accounting for over 25% of global exports. However, the price of wheat was already close to 14-year highs at the end of 2021, even before the outbreak of hostilities.

As early as the fall of 2021, drought was emerging in the U.S. Southern Plains, impacting winter wheat crops. (The hard winter wheat variety which those regions mostly produce is the same as those which accounts for the bulk of Ukrainian wheat crops.) Meanwhile, to the north, available Canadian wheat stocks had also been dropping sharply, which together with drought conditions in the Dakotas and Minnesota brought prices towards multi-year highs even before war exploded in Eastern Europe.

Figure 2
Chart of Chicago Wheat Futures Prices
U.S. Cents per Bushel



Source: Trading Economics.

In North America, as elsewhere, the increasing cost of fertilizer has also been a cause of stress, with U.S. farmers facing increased costs of between 200-300% per acre to plant core crops such as corn, soybeans or cotton. Input costs of nitrates, phosphates and potash had already risen ahead of the war in Ukraine due to higher energy costs and interruption of supplies from China, and can only be expected to rise further in a higher energy cost environment.

With Russia's invasion of Ukraine, upward price movement switched into a higher gear. Globally, Russia is the third largest producer of wheat after China and India with an output of 75.5 million metric tons and some $7.7bn worth exported in the 2021-22 crop year.

For the current season, Russia and Ukraine combined produced 108.5 million metric tons of wheat, and exports which account for 29% of the global market. Their corn production is 57 million metric tons combined with exports accounting for 19% of the global market.

Although less often in the spotlight, proportionately the most impacted is the sunflower oil market, where together Ukraine and Russia produce over 12 million metric tons of sunflower oil accounting for 78% of the global export market. The knock-on effect on the vegetable oil markets, *e.g.*, soybean oil, could be powerful, although end-user reconfiguration blunts the immediate effect of demand switching.

Figure 3
Major Crop Production & Exports 2021/22 Marketing Year

	Wheat		Corn		Sunflower Oil	
Production	**TMT**	**% World Total**	**TMT**	**% World**	**TMT**	**% World**
World	776,420	-	1,205,350	-	22,066	-
Russia	**75,500**	**10%**	**15,225**	**1%**	**5,844**	**26%**
Ukraine	**33,000**	**4%**	**41,900**	**3%**	**7,289**	**33%**
Exports						
World	206,690		203,670		13,350	
Russia + Ukraine	59,000	29%	38,000	19%	10,450	78%

Abbreviation: TMT stands for a Thousand Metric Tons.

Source: U.S. Department of Agriculture (USDA).

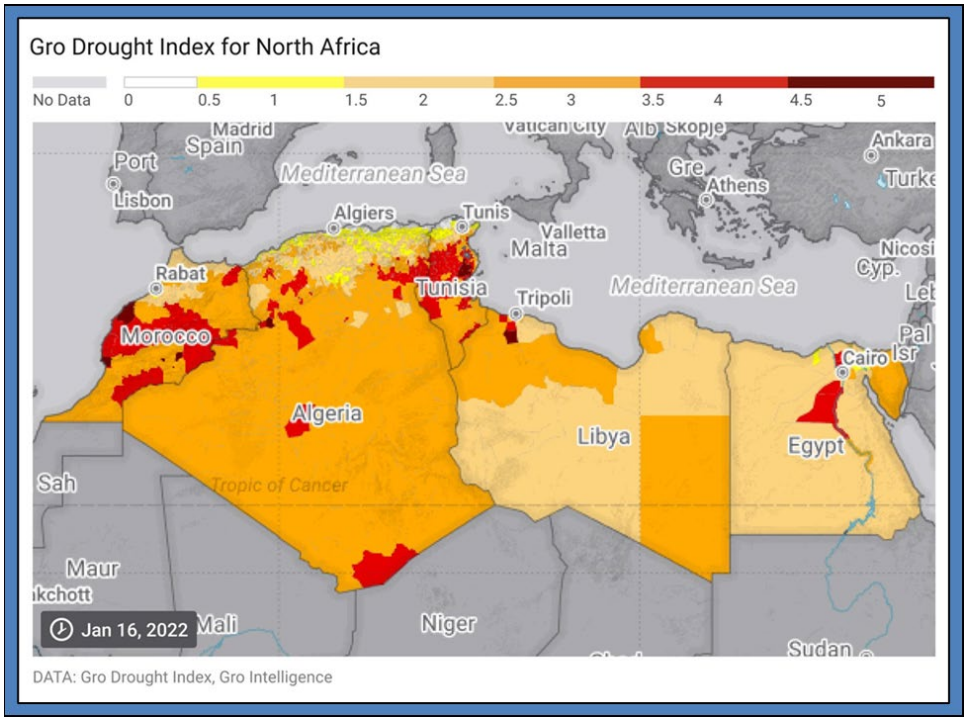
An important aspect to the situation beyond security of physical supply is the price level which the world's developing nations can afford to pay. The world's largest wheat importers include Egypt, the largest, and Algeria, as well as Turkey, normally among Ukraine's biggest customers and typically dependent on smooth flowing shipping lanes through the Black Sea. Far from participating in anti-Russian embargos,

these relatively poorer importers may struggle to pay wartime prices close to double last year's and so may be forced to seek subsidies or emergency supply from multinational organizations.

Algeria, traditionally tied to exporters from France, the European Union's (EU's) largest wheat producer, switched several years ago from the former colonial power and turned to Russia for supplies. With adequate stock for most of this year's needs, French domestic wheat producers are well positioned to supply Europe for now, while Algeria is in a far less comfortable position, also seeking supplies on the open market at a time of rising prices.

North Africa's most populous countries also face devastating drought conditions of their own, compounding the crisis. The map below illustrates the affected regions with orange representing regions with "severe" drought and red indicating "extreme" conditions.

Figure 4
Northern African Drought Conditions, January 2022



Source: Gro Intelligence.

A further aspect which could have major influence on the outcome of the current conflict and its supply-demand consequences is the role of China. Indeed, while not a party to the conflict in Ukraine, for China the evolving situation may present opportunity as well as risk. Relatively self-sufficient in a normal year, last year Russia's wheat exports to China were a tiny 12,300 tons, out of a global Russian total of 26m. This year however, imports displaced from Russian exporters subject to sanctions could become a significant source of supply.

China's total domestic wheat production rose in the 2021-22 crop year, according to the USDA, to a record 137 million tons, despite a catastrophic flood-impacted winter wheat crop. This weather shock was the mirror image of the similar stress to North American winter wheat crops, for whom the impact of droughts has been discussed above.

Shortly after the outbreak of the Ukraine war, Beijing struck a deal with Russia, committing to buy all its wheat exports and granting access to its deep-sea ports, even in preference to traditional suppliers. The additional supplies will also help to fill any gaps from last year, when China was forced to mix wheat with relatively pricey corn to meet animal feedstock needs, depleting stocks.

2. Axis of Angst: Strategic Mineral Resource Vulnerabilities

Beyond the energy markets, dominant in world headlines, non-energy mineral markets have also seen surging demand in recent years related not only to their strategic and military uses but also their carbon control properties. In many of the strategic minerals which have risen in price, either Russia or China is the dominant Eurasian producer/supplier, with Southern and Central Africa in several cases featuring prominently in reserves, and frequently in output too.

For example, Russia is near the top of the global league in production of both titanium and cobalt, key inputs in aircraft manufacture, although cobalt, along with graphite are also used in lithium-ion batteries for electric cars. The world's largest cobalt producer is the Democratic Republic of Congo (DRC). Meanwhile, platinum and palladium, where Russia is in the top two worldwide producers, are vital in automobile emission control systems. South Africa dominates in world platinum production and competes for first place with Russia in palladium.

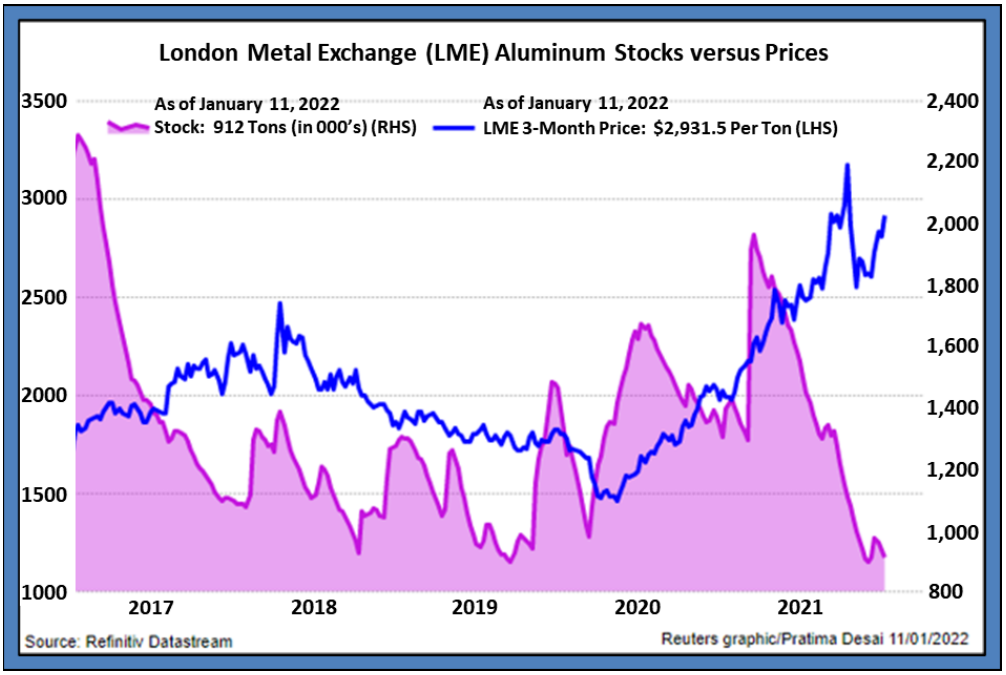
Taking a step back to the 1980s, with the Cold War into its final decade and Ronald Reagan in the White House, the U.S. and many of its allies embarked on programs of strategic minerals stockpiling, at a time when China's role was negligible and the primary threat was, as it is today, from Russia. At that time, Russia and the West courted African states seen as strategically important in mineral production.

Forty years on, Russia is once again the principal adversary, China now represents a major force and African sources for several critical minerals are more crucial than ever in ensuring the superpowers' strategic security of supply. In the past two decades, China has raced on to the scene, often with state-backed investments in mineral producing nations, including Guinea, the DRC and Mozambique as well as cultivating close economic relations with South Africa.

Today's situation is complicated by a China whose role in enforcement of the West's sanctions is uncertain while African nations today are in position to play the role of supporter or spoiler depending on their loyalties. Unlike the grains markets, where production is concentrated in the Northern Hemisphere plus South America and Australia, for mineral commodities, Africa is the serious swing supplier. It forms the third vertex in a new strategic triangle of production, trade and consumption with Russia/China facing the West at its other two points.

Turning first to the base and industrial metals, in common with their agricultural counterparts, several were already in full-blown bull markets prior to the Ukraine invasion. In aluminum, produced from bauxite/alumina, Russia is the world's third largest producer after China and India. Bauxite itself comes from an array of different countries, with Guinea, Australia and Brazil the top three in terms of reserves globally.

Figure 5
Aluminum Prices and Stocks, 2017-2021



Source: Refinitiv Datastream.

World number one Guinea has already been subject to instability in September 2021, with a *coup d'état* against an incumbent president Conde who was accused of corruption related to billion dollar deals with China in exploiting the country's bauxite mining reserves. Presciently, an aggravating factor in that coup was a spate of bread price riots linked to souring grain import costs from both Russian and North American suppliers.

In iron ore, Russia and Ukraine are the world's third and fifth largest producers respectively, with Brazil and Australia in the lead, while for nickel, which is largely used in stainless steel, Russia holds the number three place. However, the largest refined nickel producer in the world, Norilsk, is domiciled in Russia. More importantly, Norilsk controls Siberian mines supplying about 17% high-purity nickel used in New Electric Vehicle (NEV) batteries, which can only be sourced in commercially viable quantities from a few other locations globally.

On March 8 this year, with prices of most metals moving up, nickel traded on the London Metal Exchange suddenly exploded fivefold in price in one session, touching $100,000/ton. While the initial rally was war

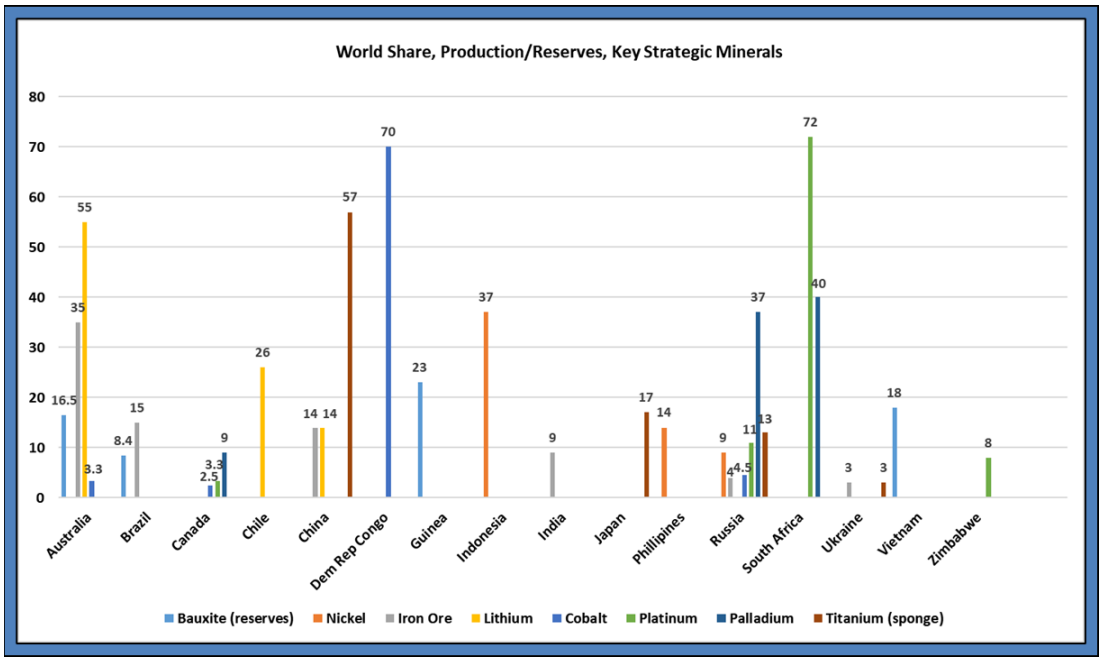
related, a massive short position held by a fabled Chinese trader being forcibly unwound, caused total chaos and forced the exchange into an unprecedented cancellation of deals and a halt to trading.

While Europe and North America generally have secure alternatives, if not domestic sources of supply in these industrial metals, for the specialist strategic metals, the picture is quite different. In platinum and palladium, both of critical importance in automobile emissions control catalyst manufacture, South Africa is the dominant world producer with Russia in second position. For palladium, however, the roles are reversed with Russia historically the world's number one producer and South Africa historically in second position. According to estimated 2021 data, though, South Africa overtook Russia as the number one palladium producer, as shown in the figure on the next page. Palladium is broadly accepted as the preferred element for catalytic converters in gasoline vehicles, while platinum is more widely used in diesel engines.

In other strategic minerals, when it comes to titanium, where its high-performance alloys are a critical component in aircraft manufacture, we find Russia and Ukraine in third and fifth positions worldwide, with China the leading producer and no major source of western production. Similarly, in cobalt, the Democratic Republic of Congo is by far the world's largest source of reserves and production, with Russia in number two position and western production not in the same league. Cobalt is a key ingredient in Lithium-ion batteries and other energy storage systems and is becoming prized in recent decades for use in mobile phones as well as a range of nonstrategic uses, *e.g.*, ceramics manufacture.

Lithium production itself is dominated by China, although the biggest world reserves are found in South America and Australia. Again, important for batteries, lithium's use in NEV production has surged, and today the largest lithium trading market in the world is in Shanghai, where prices have soared in recent years. In terms of strategic as well as climate mitigation policy, the West has been overtaken, if not outflanked by China in its sourcing of lithium in recent years, to the extent that industry is now ringing the alarm bells. ''China owns basically 70-80% of the supply chain for new electric vehicles, lithium-ion batteries and therefore energy storage,'' said Stuart Crow, chair of Lake Resources, a major Australian-listed lithium producer. "There simply isn't going to be enough lithium on the face of the planet,'' he concluded.

Figure 6
Top Global Producers of Selected Industrial and Strategic Metals



Source: U.S. Geological Survey.

Fast Forward on Climate Action or Backpedaling to the Future?

On March 8, 2021, after relatively brief debate, the U.S. and the U.K. announced the suspension of all oil imports from Russia, marking beyond doubt a clear departure from the scale of many of the previously enacted sanctions – some of which had appeared more symbolic than serious in their likely impact on Russia's access to vital foreign exchange flows. While the U.S. has relatively low levels of foreign energy dependence - some 7% of oil imports are currently from Russia - and in European terms, the U.K. still has access to its offshore resources, the decision by core EU leaders to support the energy import ban was a much greater step.

In the case of the U.K., and the Netherlands – environmental risks notwithstanding – reactivation of offshore resources which until recently were uneconomic (at pre-2022 prices) and in the process of being decommissioned, the option to reactivate or re-phase closure schedules exists. Furthermore, the French economy, as we have seen, has significantly less dependence on Russian oil and gas than its EU neighbors to the east and the government has announced further nuclear capacity construction.

Nevertheless, the French stance towards Russia (demonstrated by majority state-owned TotalEnergies, a major player in Russian oil and gas) on boycotting oil business and disinvesting from Russian partnerships in the early weeks of the conflict was far less resolute and more nuanced than that of counterparts Shell and *bp*. Total only announced a freeze rather than a disinvestment, which gave the appearance of holding back on more drastic action.

However, it was the reversal of course by Germany in joining in the sanctions, as was its decision to rapidly enact legislation allowing foreign weapons sales, which would set the direction for Europe on energy imports going forward.

Clearly there were let-outs and loopholes for sanctioner and sanctioned alike. The U.K. for example said that their import control measures would come into force "by the end of the year" – compared with the Biden Administration's aim of ending all Russian oil purchases within 45 days. Others pointed out that oil sales could be rerouted to China, and Europe could buy from those displaced former Chinese suppliers, effectively just bumping Russian oil down the chain of transactions, in a kind of back-door "laundering" of sanctioned Russian exports with very little net effect.

Nevertheless, in combination with crippling financial sanctions on the use of foreign exchange reserves and the SWIFT overseas interbank payment protocol, the measures taken were in a totally different league from anything taken before.

Towards a Green Cold War

However, policymakers now face the challenge of how two very different policy imperatives can be reconciled – radically overhauling the energy economy to urgently combat climate change while at the same time sharply increasing defense spending and ensuring strategic self-sufficiency in power – in what seems increasingly likely to become a lengthy new Cold War environment. In a world of limited resources, with western economies already debt-laden and reeling financially from two long years of pandemic, hard choices will need to be made.

Furthermore, throughout 2020-21, as supply chains became severely impacted, freight prices soared and costs of a wide range of imported commodities began to rise sharply. Despite the optimistic pronouncements of lawmakers and central bankers that the impact of dislocations on essential commodity supplies would subside in a matter of months as pandemic-related bottlenecks cleared, instead, with the outbreak of war in Europe in early 2022, prices of key food and energy items accelerated rapidly.

Yet, only a few short months before the outbreak of war in Ukraine, and despite a world still in mid-struggle against yet another lethal wave of the COVID-19 pandemic, at the COP26 climate summit in Glasgow, in November 2021, an unprecedented consensus of governments had given their backing to an urgent and accelerated policy of carbon-reduction measures entailing rapid reconfiguration of their energy supplies and major investments in alternative sources of fuel. At the same time, they issued a raft of pledges to combat the effects of climate change in the developing world and compensate the victims of drought, storms and floods in those regions most impacted.

What then, are the options now for western governments, given a resettling of priorities back towards the domestic from the geopolitical?

There is a risk that quick fix solutions are more readily adopted in times of pain than in times of peace. While some have contended that the solution lies in revitalized offshore exploration, more pipelines (such

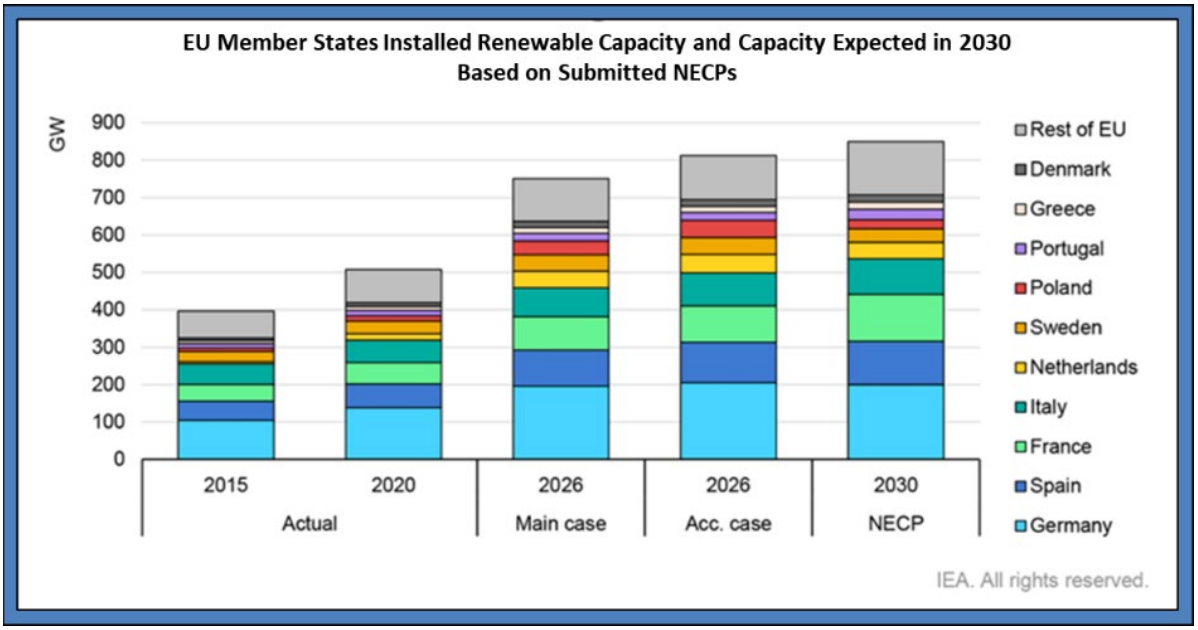
as North America's controversial Keystone Pipeline) and wider use of fracking are the best approach to securing future supplies: at the other end of the spectrum, the solution is seen as an acceleration of the pace of development of renewables: wind, solar, and wave, as well as hydrogen and nuclear sources of generation.

All this comes against a backdrop of pressures on household and industry budgets, which governments have tried to plug with *ad hoc* measures initially. The U.K. introduced an energy price cap, France gave a one-time cash subsidy to users, while Italian Prime Minister and former European Central Bank Chief Mario Draghi urged a joint EU approach. Following an EU summit at Versailles in early March, Draghi stressed the amounts already spent by national treasuries on energy cost relief – in the Italian case €16bn and counting – and pronounced: "A convincing fiscal response will be needed, fiscal policies … which cannot come from national budgets … it must be a European response."

In the longer term, it has been suggested that a radical upward repricing of carbon emissions credits is the solution to achieving climate goals in times of rising prices, by reducing their supply and driving up price, forcing industry into an accelerated pace of change. Few would believe that would be a sensible or even practical policy to implement in the spring of 2022 when cost control and supply security are paramount, but over the long term, a reinforced system such as the EU Emissions Trading System's (ETS') carbon emissions trading regime could be an important part of the way forward.

In her address to the European Parliament days after the outbreak of war, EU President Ursula von der Leyen set the tone for Europe's future policy imperatives. ''We must no longer be reliant on Kremlin gas,'' she declared. ''We need to redouble our efforts … to put Europe's energy security on a stronger footing … In the long run it is our switch to renewables and hydrogen that will make us truly independent … Every kilowatt of solar, wind, hydropower, or biomass, reduces our dependence on Russian sources … It is a strategic investment.''

Figure 7



Abbreviations: Acc. Case = accelerated case; NECPs = National Energy and Climate Plans; and GW = gigawatts.

Source: International Energy Agency analysis based on NECPs.

But in the same address the EU President admitted that short-term measures to take up the slack from lost Russian energy would focus on immediately increasing supplies from Norway and stretching capacity from other European suppliers, involving the construction of new gas terminals and installations to distribute the energy to industrial and domestic users.

And so the debate will run – align long-term energy mix choices with climate change ambitions, or prioritize short-term security of supply? Whichever the outcomes on the battlefield and at the negotiating table (or screen), the implication is that the energy mix will not only be quite different from before, but also quite a lot costlier.

In a peacetime scenario, standards of living are paramount, and the maintenance of employment as well as affordable energy may increasingly press on governments – especially those with elections in the offing – to stay the pre-war course. The tide of compassion for the victims and survivors of war may slowly ebb as the reality of lower living standards for the European middle class hits home. In France, where presidential elections were held in April, Marine Le Pen, the second-round challenger to the incumbent president Macron, stated on the campaign trail, "Yes, we support Ukraine … but at what cost?"

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Author Biography

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Colin Waugh has spent much of his career in investment management, research and trading. He was a Partner, Portfolio Manager and Head of Research in the New York firm of Galtere Ltd, a $2.5bn commodity-based global macro fund, until 2009 when he joined Lombard Street Research (LSR) as an Associate Director for Commodities Research in LSR's Global Strategy

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A regular China visitor and event speaker over the past decade, he also maintains an active interest in digital applications in banking and financial sector reform and digital solutions for developing market financial inclusion. He holds a Certificate in Future Commerce from the Massachusetts Institute of Technology and is also a Director of Dublin-based Vitro Software, a global medical technology company.

Waugh has also worked extensively in Africa on development and migrant-related humanitarian projects and has published two non-fiction books about African political leaders: "Paul Kagame and Rwanda" (2004) and "Charles Taylor and Liberia" (2011).

Colin Waugh's previous articles for the *GCARD* are available here.