

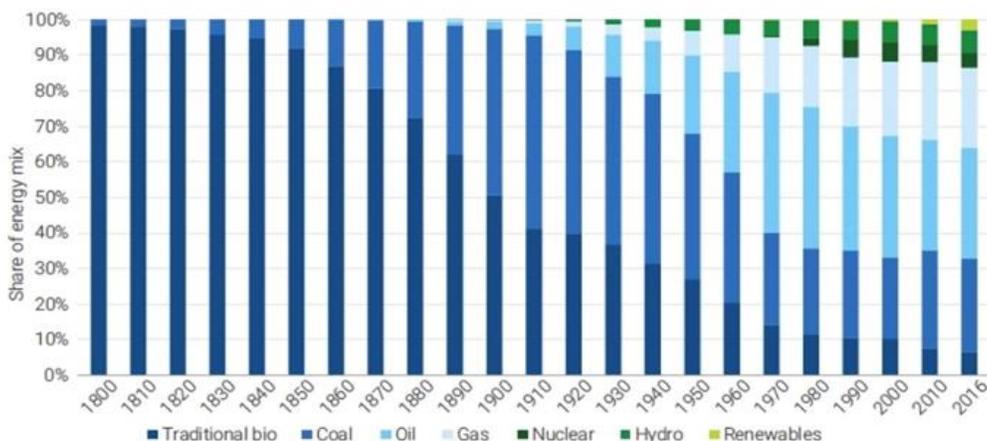
June 2022

ESG 1.0 Evolving to ESG 2.0?

Over the past year we have discussed the topic of Environmental, Social and Governance (ESG) as it relates to the energy sector; sharing our insights regarding government policy makers and the impact on select companies. ESG is a core element of our investment process at Sionna, and we believe it will be a key factor in not only how our society evolves, but in superior investment performance as well. Today's ESG world is composed of certain data sets of non-standardized questions, focused on a "ticking of the boxes" approach vs. a forward-thinking approach focusing on ESG milestones that are achievable given the technology/materials we have today. Until recently, the environmental portion of ESG focused on how to get to net zero by 2050-60 with an overwhelming emphasis on renewables, replacement of ICE vehicles with EV's and the electrification of everything. We believe the recent events surrounding the Russia/Ukraine conflict are shifting the mindsets of global policy makers from an *idealistic* approach (ESG 1.0) to a *realistic* approach (ESG 2.0) that will better serve the global community.

As we mentioned in a piece in December, the world was facing a tightening of energy supplies from various sources, including oil, natural gas and fertilizers. The Russian invasion of Ukraine has accelerated this domino effect globally. Given that today our world is essentially powered by hydrocarbons (see the following chart), and likely will be for decades to follow, we need to explore real-world solutions to reduce our total emissions impact until we are able to reliably and cost effectively ramp up the contribution from renewables. ESG 1.0 has seen nations compete for arguably scarce raw material resources that will increase in scarcity without significant investment; shape ESG policy to fit domestic needs; outsource reliance of hydrocarbon energy not considering the social or governance aspects of doing so, not to mention the environmental impacts and culminating into the concept of follow-the-leader without question vs. exploring each unique solution countries can bring to the table.

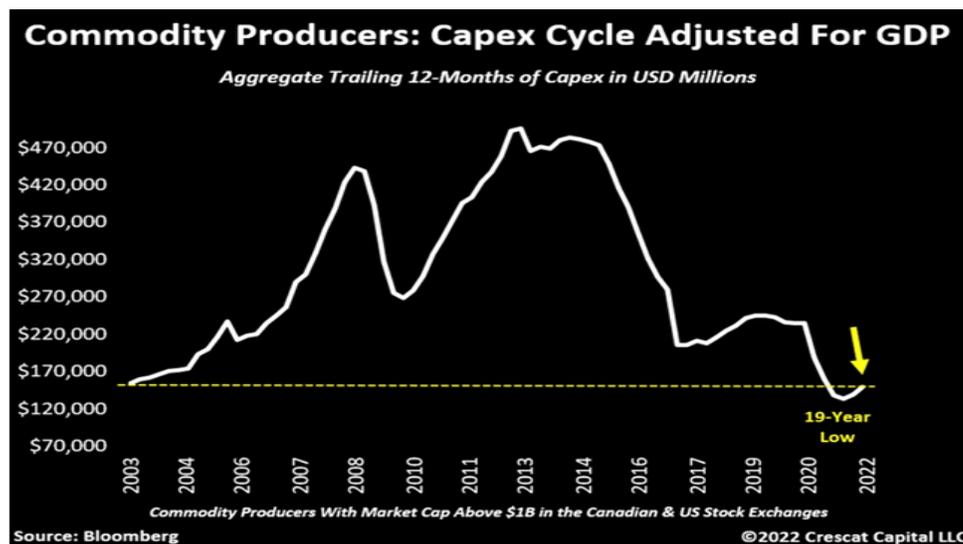
Global primary energy mix since 1800



Source: LGIM analysis, as at 31 December 2021.

Let us revisit the reality we all face today. Traditional energy and material industries have been starved of capital investment for numerous years as supply temporarily exceeded demand. We are now faced with a tightening of supply and increasing demand led by additional growth in energy transition and a normalization of economies from COVID-19. Unfortunately, the reality of this energy transition is the heavy reliance on key raw materials – the basic ingredients required to build the next generation of power and transportation infrastructure. One of the basic premises of economics is the law of supply and demand. As demand for these raw materials increases without a supply response, price becomes the variable moving higher to balance the market.

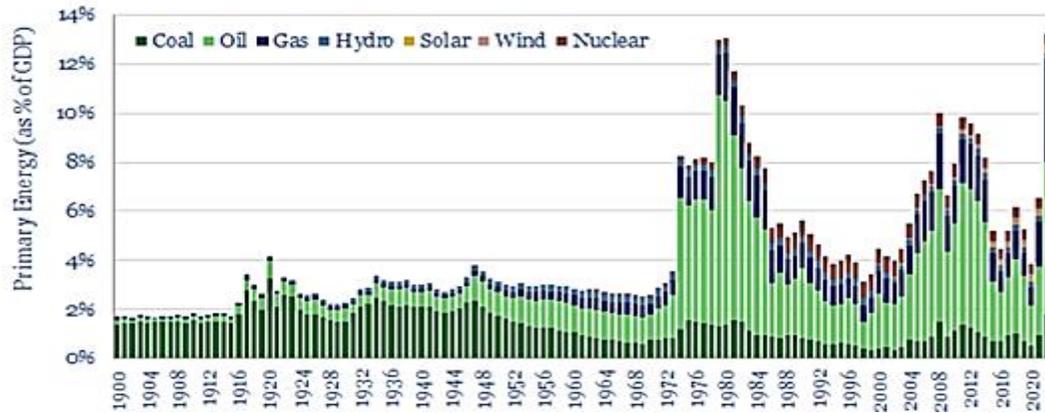
The reality of the emphasis on 'E', in ESG, via a focus on renewables alone will likely increase costs as all nations compete for these scarce resources – a term some call 'Greenflation'. Unfortunate consequences for developed nations may include: a delay of accomplishing emission initiatives; higher sustained energy prices; reduced economic growth and the knock-on impacts embedded within. For developing nations, consequences may be more severe and may include food shortages, energy rationing, poverty and political/economic upheaval. Please reference the following charts outlining the lower capital expenditures from industry, coupled with the higher share of the consumers' wallet going towards primary energy consumption not seen since the 1970s. Although this may seem to be an alarmist perspective, the reality of the situation requires alternative thoughts and actions that are now up for global debate.



A few (of the many) examples of alternative thinking to this problem include:

- The Canadian Federal Government's budget passage of Carbon Capture and Storage (CCS) investment tax incentives for industries to reduce emissions with a push to speed reductions by 2030. Will the provincial government in Alberta contribute in the months to come?
- The EU and UK are considering alternative energy sources including small-scale nuclear, and a recent shift in the government's perspective could move them towards natural gas as a bridge fuel with renewables developed in tandem.
- The proposals from various Canadian energy companies suggesting Canada could provide additional natural gas via Liquefied Natural Gas (LNG) terminals, and if permitted, could be fast tracked with the help of government.
- Another that stands out is EQT, a US-based natural gas company. EQT outlined the accomplishments of the U.S. in tangible emission reductions totaling ~61% from the curtailment of coal plants used for electrical generation with natural gas. If you'd like to learn more, EQT has a great presentation, you can find [here](#).

2022 will see 13% of global GDP spent on primary energy, the highest level on record (below). This is not an oil shortage or a gas shortage, but an 'everything shortage'. It must be cured.



Source: Thunder Said Energy.

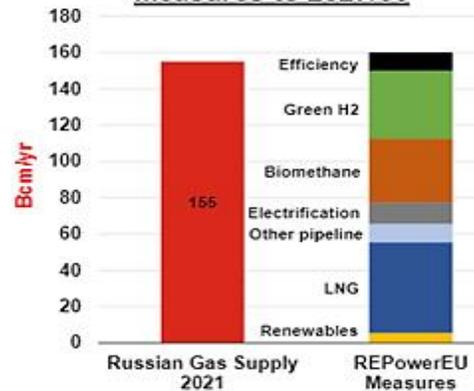
Through an initiative, called REPowerEU, illustrated below, the EU has proposed to be independent of Russian hydrocarbons by 2030. However, the initial efforts will be focused on natural gas, which the EU relies on for ~21% of its primary energy consumption for power, heating, industrial, fertilizer and a host of other requirements. To put this into perspective, a few statistics are in order: EU natural gas consumption in 2019 was ~500 billion cubic meters; imports are ~80%, as domestic production was cut by ~half over the past decade; Russia accounts for 40-45% of imports (past three years) and the proposed curtailment of domestic natural gas fields, nuclear and coal are sure to exacerbate the issue if enacted. Although some of the proposals are achievable, many are stretch targets.

EU Racing to become independent of Russian gas by 2027, but at what cost?

REPowerEU medium to long-term gas security of supply / demand reduction measures assessment

Renewables	LNG/Other	Electrification	Green H2/ Biomethane	Efficiency
Lifting RES production target for 2022 by 15 TWh, saving 2.5 Bcm/yr in gas via Solar Rooftop initiative	Lift LNG imports by 50 Bcm/yr, lift non-Russian pipeline imports by 10 Bcm/yr	Double 2030 heat pump target of 30 million new units, with 10 million additional units to be installed in 5 years, saving 12 Bcm/yr of gas	Double biomethane production target to 35 Bcm/yr by 2030 Increase target for green hydrogen production by 15 MTPA – 10 MTPA imported and 5mt produced in EU - to 20.6 MTPA, replacing 25-50 Bcm/yr of Russian gas by 2030	EU-wide savings, e.g., by turning down thermostat by 1°C, saving 10 Bcm/yr of gas
Lift 2030 target for 480 GW in wind and 420 GW in solar capacity by 80 GW to save 3 Bcm/yr of gas				
Achievable with delay	Achievable at high cost	Achievable, limited 2030 impact	Aspirational target for the 2030s	Achievable within year

Russian Gas v REPowerEU Measures to 2027/30



Given the world’s population continues to rise and the history of energy transitions typically being additive to overall energy consumption at lower costs/higher efficiencies, we may be in for a rude awakening in the years and decades to follow. Outside of the requirement to reduce emissions, healthy energy transition should be composed of a few key ingredients, including affordability, security of supply, sustainable or bridge fuels (available for 50-100 years), abundance, and importantly, available to all. What we can’t afford today is the hoarding of required raw material inputs, protectionism and deglobalization leading to ‘have’ and ‘have-not’ nations, leading to inefficient outcomes. A few headlines of late suggest we may already be heading down this path: “Why Elon Musk Wants Tesla to Start Mining Lithium”; “Rivian CEO Believes Battery Supply Chain will be the Next Disaster”; “Canada Announces its First Critical Minerals Strategy” and “Biden to use Defense Production Act for U.S. Critical Minerals”. The UN sustainable development goals are outlined below, but without goal #7 leading the flow-through diagram, many (and potentially all) of the other 16 goals are arguable not attainable.



Source: United Nations

As previously mentioned, alternative options could solve not only the EU’s reliance on Russian energy, but global reliance on coal over the coming 10-15 years. LNG has the potential to become a cost-effective bridge fuel for energy transition until renewables growth is achievable at increased scale – and this is one avenue that ESG 2.0 may turn to in this volatile environment. In today’s world, all energy molecules are required but the choice of at what cost, or how quick policy makers set the pace is the question. Pausing, reflecting, learning from our mistakes, and then planning our next actions before we leap again would be prudent and could lead to improved future outcomes. With much emphasis placed on the ‘E’ in the past, we need to pay more attention to the ‘S&G’, so clean, affordable, and reliable energy is available to all. Sionna will continue to monitor not only how these important next steps take shape, but also how we can position our portfolios to benefit our clients’ returns going forward. We envision additional volatility in the energy and materials industries over the medium term and believe the coming quarters will be extremely telling as to which direction ESG 2.0 is steered into.

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