



Dear Friends and Investors,

The core portfolio for Massif Capital was up 7.2% net of fees during the fourth quarter of 2021. Year-to-date, the portfolio returned 23% net of fees.

PORTFOLIO ATTRIBUTION¹

Four of our top five contributors in 2021 came from mining investments. Positions in Lithium Americas, Kazatomprom, Alphamin, and Ivanhoe contributed roughly 22.6% to the year's annual returns. Equinor rounded out the top five, contributing 3.2% to the portfolio, just slightly more than Africa Oil, which contributed 3.1%.

Dragging on returns was the tail end of our position in Vestas Wind Turbines, which during our two and half years of ownership roughly doubled but dragged on returns 2% in 2021 before we exited the position. Our two event-driven mining investments, discussed in further detail below, contributed -2.0%. Our tail risk hedge cost us 2.3% in 2021, the most expensive year since 2016 due to the market's lack of significant draw-backs. Our worst performer was Equinox Gold, which contributed a -2.27% return to the portfolio in 2021. We published an investment report on Equinox late in the year, in part to reaffirm our thesis. We remain confident in the value of Equinox at its current price and encourage readers to view the report.

INFLATION, ENERGY TRANSITION AND POLICY

We believe we may be at the precipice of a global energy crisis. This matters because the drivers of that crisis are unrelated to COVID constraints and traditional economic inflation expectations. Whether we revert to a pre-pandemic-like world or not, the structural undertones that are defining this energy crisis will persist.

Although difficult to see through the fog of the media cycle with its coverage of COVID and generalized inflation, high energy prices today are almost certainly not a function of COVID-related supply chain constraints nor a function of demand. We are, in reality, confronted with a growing energy shortage problem, exacerbated by a policy-driven transition to a carbon-neutral economy, and the constraints are bleeding up the supply chain. This is our stomping ground for generating outsized returns for the foreseeable future.

We are struck by the few factors that make this transition unique relative to historical transitions:

1. The current energy transition is both a replacement transition and an additive transition vs. historical transitions which have been primarily additive.
2. This transition is the first to move down the energy density ladder rather than up. This also means it is the first transition to move from lower capital intensity energy processes to higher capital intensity processes.
3. Finally, and perhaps most importantly, it is a timed transition. It is both a transition we have chosen to undertake now, and a transition we have decided needs to be completed within a particular time horizon. All previous transitions have been untimed, organic, and unplanned.

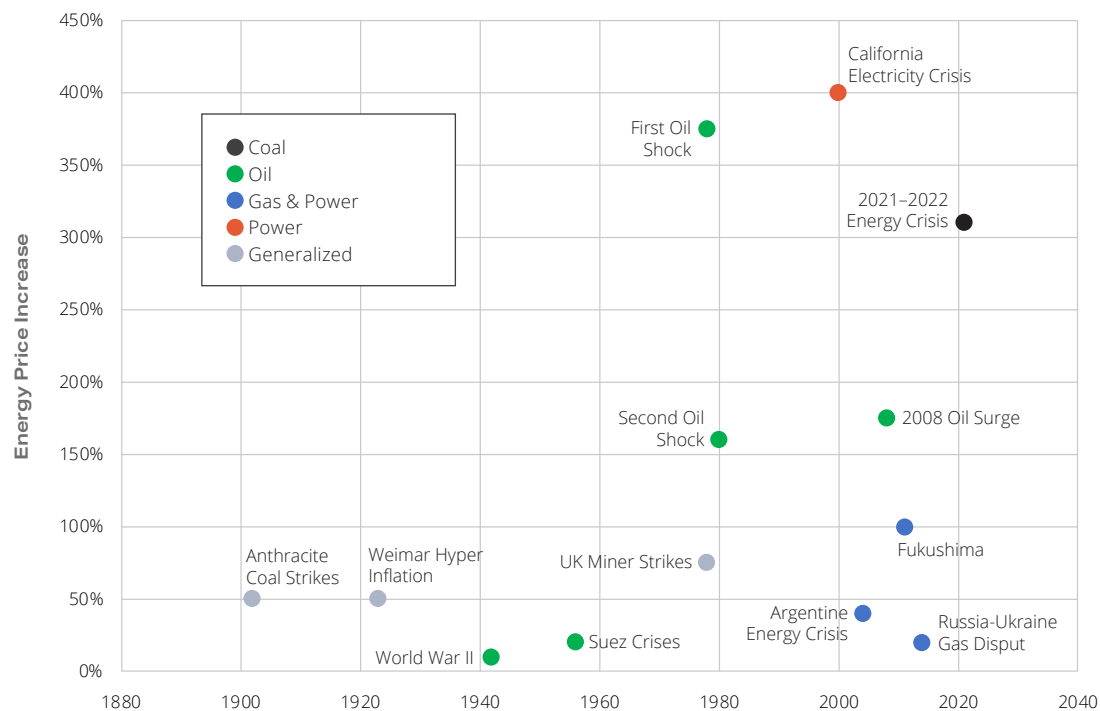
At its core, this is a policy-driven transition. Given the scale of the economic changes necessary, it is difficult to see how policies can drive a net-zero transition without creating unsustainable instabilities in affected markets. One of the more concerning instabilities is sectoral inflation.

Sectoral inflation occurs when prices and wages in one sector of the economy demonstrate general flexibility upwards in response to excess demand but are relatively rigid in the downward direction, particularly in the presence of inelastic demand and fixed supply. The result is that, even if aggregate demand is not excessive, excess demand in some sectors and low demand in other sectors can still be sufficient for a rise in general price levels. This situation produces inflation because prices do not fall in demand-deficient sectors due to downward rigidity of costs. Still, prices do rise in the industries experiencing excess demand, resulting in a rise in the overall price level.

Should prices in supply-constrained sectors become excessive, inflation spread to demand-deficient industries through the cost of materials and labor wages can happen quickly. Excess demand in particular sectors will lead to a general rise in the price of intermediate materials, supplies, and components. The rising costs of materials will spread to demand-deficient industries, which use them as inputs. With governments globally focused — at the very least, rhetorically — on addressing climate change, principally through a combination of policies that subsidize explosive growth of material-intensive energy sources and attempt to restrict the supply of less desirable energy sources, waves of sectoral inflation rippling through the economy appear likely.

Energy prices have been on a wild ride over the past 12 months. Global gas prices traded over \$40/mcf, and European electricity traded well above €400/MWh, both up around 6x from levels we might expect. A basket of energy commodities — seaborne thermal coal, global gas, European electricity, and US gasoline — has risen by a weighted average of around 4x since 2018–20 levels, which already comprises one of the top three worst price rises in history. Today, the world is also 50% more reliant on these energy sources than oil vs. 1973 — one of the more severe energy crises that carried profound consequences.ⁱⁱ

Historical Energy Crises



Source: Thunder Said Energy, January 2022

We propose that, although the European situation appears to have struck suddenly, it has been many years in the making, especially in countries like Germany that have long had confused energy policies. It all came to a head this year when, on July 14, the European Commission unveiled the world's most ambitious policy package to eliminate fossil fuels in a bid to avert the worst consequences of climate change. Longer-term goals were the focus, for which the EU should be commended, as politicians so rarely think beyond the next election; at the same time, policy prescriptions failed to fully appreciate the potential pitfalls that lay immediately ahead on the road to decarbonization.

For example, idealistic energy policies in Germany have, so far, delayed the implementation of practical and economic options in the energy transition. Worse yet, the short-sightedness of the policies has put the country between a legislative rock and a hard place. The ramp-down of electricity from carbon-free nuclear and carbon-emitting coal, combined with the inability to ramp up renewables at the same pace, means that Germany is now likely to miss its 2030 climate targets unless it reduces energy consumption on an absolute basis. According to a statement released by the German Climate Ministry on January 11, the country needs to reduce its final energy consumption by 20% to 25% by 2030 to achieve their 2030 targets. Needless to say, healthy economies rarely shed that much energy consumption.

In the United States, a nation that has long been pilloried for its lack of ambitious top-down regulatory reform on the environmental front, CO₂ emissions have fallen by 970 million metric tons over the last 15 years. This is 45% greater decline than Japan, Germany, and the UK combined, the only other three significant emitters to reduce their emissions during that period. The decrease in US emissions takes the country back to an emissions profile last seen in 1991/1992, based on 2019 emissions levels. This is not to

suggest that the US does not have a lot of work to do or that some smart regulations would not help, but it is instructive because it demonstrates the power of not letting the perfect be the enemy of the good.

The US accomplished this feat via widespread coal-to-gas switching. Once again, this factual reporting of past events should not be misconstrued as an assertion that natural gas is the solution to climate change for other countries or the globe. The point is that there are many steps and routes to our end goal. Every country, each with its own many and diverse strengths and weaknesses, must approach decarbonization in the way that best addresses its individual needs for human development and environmental stewardship. This will undoubtedly be a slow process, slower perhaps than climate science suggests is wise. However, an overly prescriptive policy combined with ideological zealotry that condemns anything that does not fit neatly into a small box of environmentalist-approved approaches is a sure path to failure. Between a slow and unpredictable course and an inevitable failure, we will take slow and unpredictable.

Here is the rough math on looming energy shortages. The world produces about 70,000 TWh of primary energy.ⁱⁱⁱ Coal, gas, and oil still provide roughly 85% of all primary energy (about 59,500 TWh). Additionally, each energy source is subject to substitution effects on the margin, meaning a sharp undersupply in one can impact all three. The oil market looks balanced, with persistent undersupply being less of a concern than gas or coal. In 2019, 27% of the global primary energy came from coal. Given planned or forced retirements, roughly 11,000 TWh of primary energy will be removed from the coal industry by 2030.^{iv} Renewables are looking to add 7,000 TWh by 2030. The remaining delta likely needs to come from an enormous global ramp-up of natural gas (450 bcf/d in total, or growing from 18,000 TWh to 50,000 TWh, approximately).

In Europe, gas supplies have fallen by 15% over the past decade. To make up the difference, Europe has scaled up LNG imports and increased its reliance on Russia from 13% to 40% of domestic supply. LNG is a good gas market to study as it is the marginal global supply for gas-importing regions such as Europe and Asia. With the onset of COVID, several LNG projects have been delayed. Estimates suggest that the LNG markets are likely 30% undersupplied by the middle of the decade. It's projected that 20 Mtpa of new projects will be brought online in 2022, a low figure compared to the 25–40Mtpa brought online between 2017–2019.^v This year, it will be essential to watch Groningen, Europe's largest gas field with a production target of 3.9 bcm for the year, down from a high of 88 bcm of annual production in 1976. Any increase or decrease in production targets out of Groningen will impact the severity of the energy supply gap in the near term. In early January, it was reported that Dutch authorities might increase planned production from 3.9 bcm to 7.6 bcm to "guarantee the security of supply" in the Netherlands and Germany. We will know before April 1 how much gas will be planned for extraction. The full closure of the giant field could come as early as 2023 due to the risks of earthquakes associated with drilling.

A key question moving forward is who will produce the energy needed in the present when the government incentivizes investment in energy for tomorrow? Do economies tip into a recession if policies create unaffordable high energy prices? If, for example, Germany cannot achieve its decarbonization goals without reducing energy consumption by 20% to 25%, what kind of straitjacket does it put the economy in? Can such an energy reduction be anything but economically regressive?^{vi}

Given most roadmaps, gas appears significantly underinvested. However, the incentive price for new capital investment looks problematic. Despite 50–60% lower CO₂ intensity per kWh of usable energy versus coal, gas development has decelerated as a result of political bickering. Fantasies for perfect hypothetical future energy have derailed the appetite for ready CO₂ reductions (which can also be paired in the future with carbon capture technologies in a lower-cost roadmap to net zero). Thus, it is common for investors to demand 15–20% IRRs today when financing new gas value chains instead of the 6–10% historically, which re-inflates the marginal cost of production.

Ironically, if we optimize around reducing CO₂ emissions, the failure to invest in natural gas will spill over into oil and coal shortages, where these different fuels compete as substitutes (in industrial heating and electricity generation). A lack of gas will be the single most significant barrier to short-term decarbonization in a global energy system that still consumes 8 GT per year of coal, underpinning over 40% of all emissions to provide 27% of all energy. Although it has gone largely unrecognized, the rising role of natural gas over the last two decades has reduced carbon emissions globally more than any other single thing done by any government or corporation.

High prices are unlikely to be met with a re-acceleration of investment in current energy, but rather further political posturing and narrative management. We find it unlikely that those who have publicly advocated for complete divestment from all fossil fuels change their tune when the cost of that drive is overall failure to transition. It is uncomfortable perhaps for some, but a humming economy is critical to the transition. As is already somewhat evident, we will see a re-casting of the facts and attributing price increases to corporate market manipulation and a call to ban inherently volatile and expensive fuels.

The most politically acceptable answer to fixing energy shortages will be increased investment in new energies. This is important and necessary, but not sufficient. Wind and solar investment in 2020–21 ran 20% below the level needed to meet most net-zero roadmaps, in which these two resources need to ramp up to supply at least 20% of all global energy by 2050. Unfortunately, wind and solar investment alone is not sufficient to rebalance global energy markets in the mid-late part of this decade. Back-of-the-envelope math suggests that when you invest roughly \$1B in oil, gas, or coal, the result is approximately 25–35 TWh (per year) of new energy supply. This is 25x more energy per dollar of investment than renewables. A \$1B investment into wind and solar adds about 1 to 1.3 TWh (per year) of new energy into the world's 70,000 TWh energy system.

If we extrapolate out the world's 3,500 TWh energy shortage in 2025 from underinvestment, solving the problem with renewables alone requires an additional \$3 trillion above what is already earmarked to be invested. We expect renewable investment to step up materially, but is it realistic to mobilize an additional trillion per year, particularly in a rising inflation and interest rate environment? We think billions of dollars will flow into new wind and solar, presenting several exciting investment opportunities, but we don't think it is a legitimate solution for near-term energy shortages this decade.

We find the proposed impact-free energy future to be characterized by its radicalism (the declared intention of rooting out all environmental evil and tearing it up once and for all, although it targets only a single environmental sin while creating others that go undiscussed) and its aestheticism (the goal of building a new world economy free of any environmental imperfections). Such ambitions strike us as disingenuous and inclined to

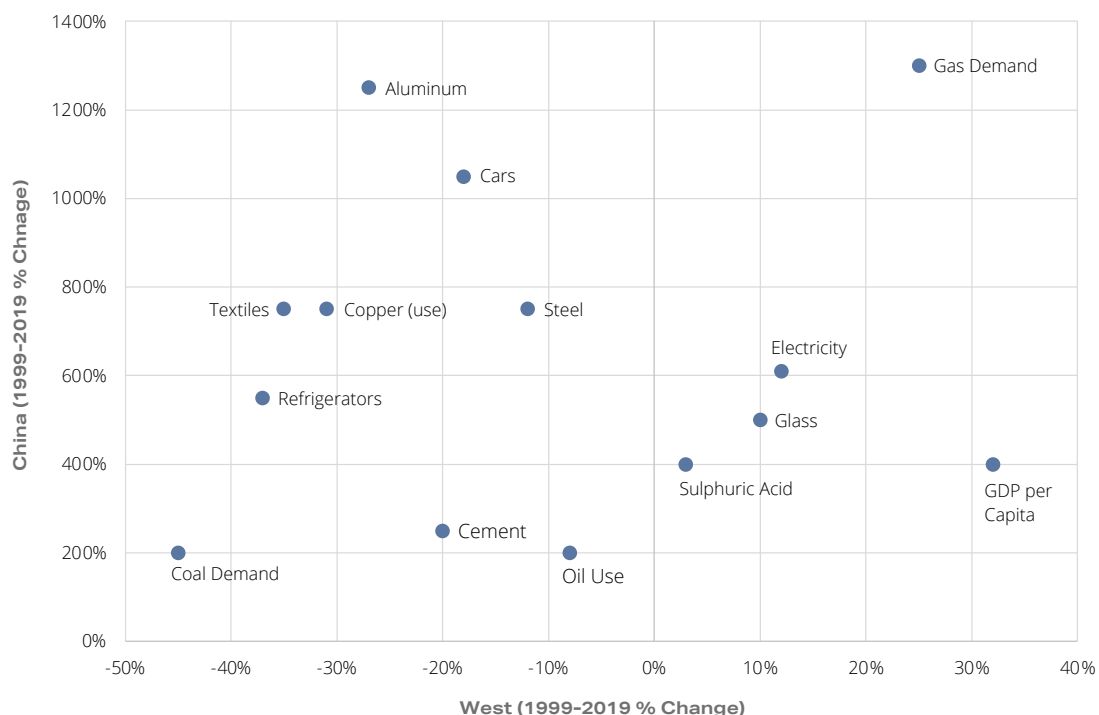
irrationalism: that is, they ultimately rely only upon inspiration without considering practicality.

Furthermore, utopian greenies and ESG investing evangelists compound their philosophical errors with the startling assumption that we have solved the problem with the current toolset. All that is left is to follow an already established plan, regardless of the scale, timeline, and cost. Given the complexity of the natural environment, the complexity of the man-made economy, and the additional complexity created by the interaction of the two, it seems more reasonable to suppose that the “inexperience and unpredictable effects of our actions will necessitate ad hoc adjustments that cannot be built into the overall project from the start.” This implies significant weakness to any top-down mandated transition plans with an undiversified solution set, which we believe is an apt description of most transition plans.^{vii}

There is space for pragmatic policies to ultimately re-accelerate. Policymakers are beginning to run low on options to save energy in the short term. We think a big theme for 2022 will be large cash subsidies for energy savings (clearly a band-aid, not a solution), which come in addition to the economic incentives for energy efficiency from high power prices. Energy shortages incentivize energy-saving technologies. We think a serious, perhaps even global, dialogue will emerge to completely re-characterize the public perception of nuclear power soon after. There is too much evidence to support its use in a decarbonizing economy. This re-branding will likely come on the heels of political necessities and from new fission and fusion reactor technologies hopefully in the latter part of this decade.

We will be looking at individual industrial and energy supply chains, particularly in the developing world, for opportunities in this environment.^{viii} The consequences of energy

20 Year Change in Industrial Activity, China vs. the West by Market



Source: Thunder Said Energy, January 2022

shortages are likely to be most severe in geographies that consume the most industrial energy. Today, 30% of all global energy is consumed in China, where 11,000 TWh per year of energy use for manufacturing now exceeds the energy usage across the entire US economy.

China has incurred some of the most severe consequences of energy shortages. Half of all provinces have had electricity rations, and factories have reduced working days. This has already begun flowing through the economy to cause inflation in the prices of materials and products made in China and ultimately imported to the West: from metals to PV silicon to manufactured products. If we experience a sustained energy shortage, it will have the greatest impact on industrial emerging economies where activity is price-sensitive and may be curtailed. Shortages flow through the economy at a lag. Even if the COVID situation improves, global supply chains may stay tight in 2022.

PORTFOLIO REVIEW

Global Ship Lease, Inc. (GSL)

We initiated a 6% position in GSL, bringing total maritime transit exposure up to ~9% of the portfolio when combined with our 3% SBLK position. GSL is a containership owner, leasing ships to container companies (such as a Maersk) at fixed rates. As owners, they own and manage the vessels (responsible for crews, maintenance, insurance) but do not have fuel costs. GSL focuses on mid-size to smaller containerships, which serve the faster-growing inter-regional trade routes that represent ~70% of global containerized trade volume.

As they own its containers, their business is both pro-cyclical (chartered tonnages used as growth platform by liner shipping companies) and counter-cyclical (with the sale and lease-back structures used by liner companies as a balance sheet management tool). GSL has a track record that includes both organic acquisitions and a strategic combination in Q4 2018 that doubled the size of the fleet.

We like GSL because they do not have as much operational leverage as a company like ZIM (which leases on both sides of the trade), and they sign 2-5-year contracts. Liners have been eager to secure that capacity for extended durations spanning multiple years, significantly longer than has been the case historically and well-aligned with GSL's strategic preference to lock in value over time and provide forward visibility on cash flows.

The container market is currently very tight. The Shanghai containerized freight index was up 76% on the year. Over 100 container ships were waiting for a berth in LA/Long Beach as December closed, approaching the annual peak. Spot rates for the trans-pacific route are higher now than in December, which was higher than in November. According to analysis out of Stifel, much of the rate increases in container shipping rates can be attributed to supply chain inefficiency, as genuine underlying demand was just 3% greater than incremental supply.

When traffic jams are removed, normal velocity patterns can return quickly. However, there is no evidence that traffic jams are loosening soon. It seems likely that

normalization will occur eventually, but there is also a developing perspective that carriers could counter-balance normalization by canceling trips to artificially bring capacity in line with demand at rates close to the current robust prices — strategy that was carried out successfully at the start of the pandemic.

The factors driving both the demand for containerships and the limitations to supply growth appear to be increasingly durable, particularly as forthcoming environmental regulations in 2023 are expected to reduce the operating speed and thus effectively reduce the capacity of the global fleet. As such, we think the conditions appear to be able to sustain the tight market for at least our observable forecast period.

Event-Driven Mining Investments

Currently, the portfolio contains two investments in event-driven mining stocks that make up about 6% of the portfolio. Lumina Gold and Cornerstone Capital Resources, two of our worst performers, are down -36% and -12%, respectively. The relative weakness of Lumina in comparison to Cornerstone Capital Resources is intriguing. Lumina's weakness aligns with general weakness in the gold sector, but we suspect that softness in the price of gold for most of last year vs. the stronger and more stable copper price seems likely an explanation for divergence. There are reasons to be optimistic, though. Efforts to sell Lumina's key asset, Cangrejos, continue. Additionally, the firm successfully reorganized multiple land packages into a single concession, streamlining permitting and development.

More critical is the Exploration Investment Protection Agreement signed last year. In this agreement, "the Government of Ecuador pledges to maintain legal certainty and stability for the investment and provide non-discriminatory treatment compared to other similar projects regarding the administration, operation, expansion, and transfer of the Company's assets. In addition, the Government commits that it will not subject the Company and its investments to arbitrary or discriminatory measures. The guarantee also extends to property rights, which bars any confiscation or other termination of rights without fair compensation and forbids restrictions on the legal transfer of the investment (e.g., the project or local holding companies) by the Company or its shareholders"^{ix}. One can never entirely rely on such documents, but they are reasonable indications of the current perspectives.

In the case of Cornerstone, the Cascabel concession remains one of the great undeveloped copper projects globally. With the promotion of Darryle Cuzzubbo to the position of CEO, following the ousting of long-time CEO and founder Nick Mather in January, we see the light at the end of the tunnel. The Cascabel project was always too big and technical for an independent like SolGold to take on by itself, as Mather seemed inclined to do. His ousting and the elevation of a long-time BHP hand to the CEO position paves the way for progress on either joint development with BHP or an outright sale of the asset to BHP. There are other contenders for the project, but BHP's existing equity position makes them one of the more likely homes for Cascabel.

Kazatomprom (KAP)

We exited our position in Kazatomprom earlier in the year, having more than doubled our money. Nevertheless, we have kept a close eye on the stock and the uranium sector. We mention this as Kazakhstan is grabbing headlines for the government's violent

suppression of social unrest currently underway. Recent political events have produced a swift but minor sell-off in Kazatomprom. This makes sense to us, as the type of political unrest underway is unlikely to have a long-term negative impact on operations.

Events could undoubtedly spiral out of control, but we do not suspect a full-blown civil war is likely. Absent such a situation, it seems improbable that Kazatomprom's operations will be much impacted. Any rise in Uranium price as a result of this unrest is unwarranted. No one is incentivized to disrupt Kazatomprom's business except for anti-government forces, which appear incapable and uninterested in such activity.

Furthermore, given Kazakhstan's geography and neighborhood, suppression of discontent, and implementation of a harsh authoritarian regime (harsher than it already is), should it prove necessary, can likely proceed without much notice or interruption from the rest of the world. As a reminder, Kazakhstan is a landlocked country bordered by Russia, China, and a handful of unhelpful but weak neighbors. Russia and China will certainly not oppose any actions by their smaller but resource-rich neighbor.

Kazakhstan does make for a natural client state of either Russia or China, which could be a problem should those nations choose to compete for supremacy. A fight over the country by the two, like we currently see in Eastern Europe over Ukraine between Russia and the West, seems unlikely. Given the recent history of the Russian-Kazak relationship, it does not appear likely that China will want to interfere too much, especially given that Russian troops are already on the ground in the form of Collective Security Treaty Organization^x troops and assuming resources continue to flow.

With the Russian state's success with publicly traded state-owned entities, both as a tool of statecraft and as a source of revenue, we have trouble envisioning a situation in which they want to mess with the smooth operation of a theoretically potent tool like Kazatomprom. Readers may not like this coldly practical realpolitik reading of the situation, but it is an essential viewpoint for those with money on the line.

Running an investment management business is not all investing, thinking, and writing, regardless of how much we wish it were. We also need to raise capital and improve the business's longevity. As many of you know, this was our fifth full year of operations, and since inception, we have been focused on managing a core portfolio that is mirrored onto the separately managed accounts of our investors. In the background, we have been working towards a fund launch. Last year, we secured a commitment from a family office to seed a fund structure. That fund is in the process of being launched and will be up and running later this month. We are excited about this change and thrilled that most of our existing investors will be making the jump from SMAs to the pooled vehicle with us.

This transition should reduce our administrative burden and free up more time for research and writing. It also gives us access to more markets and unique opportunities previously unavailable. We are confident that these changes will translate into a better product for our investors.

As always, we appreciate the trust and confidence you have shown in Massif Capital by investing with us. We hope that you and your families stay healthy over the coming months. Should you have any questions or concerns, please do not hesitate to reach out.

Best Regards,



WILL THOMSON



CHIP RUSSELL

FOOTNOTES

ⁱAttribution of the core portfolio, gross of fees. Results in individually managed accounts will vary.

ⁱⁱThunder Said Energy, January 2022.

ⁱⁱⁱPrimary energy is energy found in nature that has not be subjected to human engineering or any conversion process. When measuring energy consumption, primary energy would be the measure as far up the supply chain as one can go.

^{iv}The world is projected to add 1 GT of new mines per year into a much steeper decline of mine closures and capacity coming offline.

^vThunder Said Energy, January 2022

^{vi}Energy efficiency and demand side resources are going to play a big role over the next decade as we elaborate further in the piece. This reduction in primary energy usage is certainly possible, but likely a challenge.

^{vii}An Introduction to the Thought of Karl Popper, Roberta Corvi

^{viii}Aluminum is a good example. It's an energy intensive material, whose production releases 10x its weight in CO2 emissions. During the '73-'74 oil shock, two-thirds of the world's aluminum was smelted in the US and Europe. It was the US and European factories that took the hit of the energy shock, curtailed output and laid off employees. A highly visible event to western companies, and investors. Today, only 10% of the world's aluminum is made in the US and Europe. So, the industrial effects of energy shocks are not nearly as likely to be as visible in the West.

^{ix}Lumina Gold Corporation, December 2021.

^xThe CSTO is a kind of post-soviet state NATO.

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