

COGNIZANT

3RD QUARTER 2021

THE PATH TO NET ZERO:
A MULTI-DECADE JOURNEY

SHIFTING TOWARDS RENEWABLES:
BERKSHIRE HATHAWAY & HONEYWELL

ANGLO AMERICAN:
MINING THE FUTURE

**THE PATH TO REIMAGINING THE
FUTURE HAS BEEN PLOTTED:**
WHO'S BRAVE ENOUGH TO WALK IT?



OLDMUTUAL

WEALTH

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INTRODUCTION

CHRIS POTGIETER, MD: OLD MUTUAL WEALTH TRUST COMPANY (PRIVATE CLIENT SECURITIES | TREASURY AND ADVISORY SERVICES | FIDUCIARY SERVICES)

For many decades, public perceptions of climate change differed between nations and fluctuated over time. However, given the increased frequency of extreme weather events, the loss of Arctic sea ice, changes in animal migration patterns and many other measurable occurrences, the issue is no longer a debate and the World Health Organisation has classified climate change as the greatest threat to global health in the 21st century.

As such, the need to reduce global emissions to limit climate change has become a key priority and has given rise to commitments by various countries to work towards achieving a net zero emissions future. So as the world becomes greener and the race towards net zero intensifies, we find ourselves on the cusp of a long-term structural shift in the global energy landscape. The required transition from fossil fuels to renewable energy is extremely complex and requires substantial investment. We therefore view the renewable energy transition as a multi-decade, multi-generational megatrend that will have far-reaching consequences across numerous industries and sectors.

Our feature article gives an overview of the complexities involved in successfully transitioning to renewable energy and outlines our views regarding the investment

landscape. As investors, we have a responsibility to encourage and drive this change, and therefore continue to closely monitor investment opportunities and assess the progress being made by the companies we hold within our clients' portfolios. In line with our investment philosophy, this means paying a fair price for companies with viable, sustainable business models, competitive moats, superior profitability and clear long-term growth prospects. Therefore, our approach is to invest in companies that have evidenced a commitment to sustainability with credible clean energy transition plans. Many of the companies we hold within our model portfolios continue to make strides in this regard.

Increased pressure on companies to adapt their business models is resulting in many companies across various sectors positioning themselves for the transition to renewables. While there is a growing trend of companies disposing of their carbon intensive segments, some have opted to retain these businesses and gradually shift towards a more sustainable mix. Berkshire Hathaway and Honeywell, holdings in the PCS Global Equity Model Portfolio, are two such companies, and we unpack their progress and future plans.

On the local front, we look at how Anglo American, a holding in the PCS Core Equity Model Portfolio,

is positioned for the transition to renewable energy. The mining industry specifically will see dramatic shifts in both the demand for their products and the regulatory environment. For some miners it will signal the beginning of the end, while for others it will be the start of a new growth trajectory. For Anglo American, years of portfolio rationalisation, operating efficiencies, balance sheet prudence, and a transformative strategic intent have placed it in a favourable position.

Environmental, social and governance (ESG) considerations are becoming a vital part of global investment strategies, as employees, consumers and investors adopt a far more hands-on approach to responsible business, investment and consumption. Farhad Sader, MD of Old Mutual Wealth, shares his thoughts on how building a business with a purpose that doesn't compromise performance makes both good business and investment sense.

I trust that you will enjoy this issue.

All the best,
Chris

THE PATH TO NET ZERO: A MULTI-DECADE JOURNEY

TASNEEM SAMODIEN, ANALYST AT PRIVATE CLIENT SECURITIES



On 23 June 1988, James Hansen, administrator of NASA's Goddard Institute for Space Studies, presented evidence to the US Congress that the Earth's climate was warming and that people were the primary cause: "The greenhouse effect has been detected, and it is changing our climate now." His testimony catapulted him to fame, making him one of the world's most famous climate scientists, and ignited a global debate on climate change.

Fast-forward to over three decades later, and the issue is no longer a debate. Our climate has become more volatile, as evidenced by marked changes in rainfall and weather patterns, the increased frequency of extreme weather events, the loss of Arctic sea ice, the melting of the Antarctic and Greenland ice sheets, changes in animal migration patterns and many other measurable occurrences. Along with this, comes a myriad of risks to humanity, including food insecurity, water scarcity, flooding, infectious diseases, extreme heat, economic losses and displacement. In fact, these impacts are so severe that the World Health Organisation has classified climate change as the greatest threat to global health in the 21st century.

Scientific studies have confirmed that reducing and offsetting carbon dioxide emissions is the key to mitigating climate change and global warming. This formed the basis of the 2015 Paris Climate Accord, whereby 197 countries pledged to contain global warming to below 2°C — a level considered to be tolerable for continued human habitation. Following this landmark agreement, the Intergovernmental Panel on Climate Change released a special report in 2018 indicating

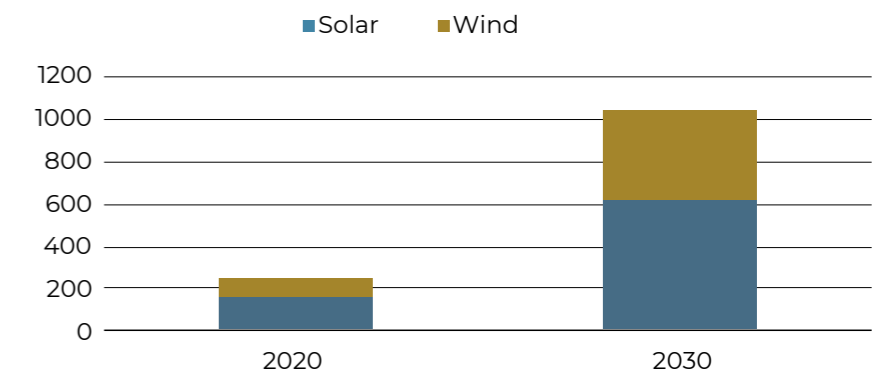
that **in order to sustainably contain global warming to below 2°C, global carbon dioxide emissions must be 45% lower in 2030 relative to 2010 and effectively reach net zero by 2050.** At the US Climate Summit earlier this year, US President Biden encouraged countries to either firmly commit to or accelerate their carbon neutral pledges and at present, 124 countries (including South Africa) have pledged to achieve net zero emissions by 2050. Collectively, these countries account for around 70% of global carbon dioxide emissions.

CUE: RENEWABLE ENERGY

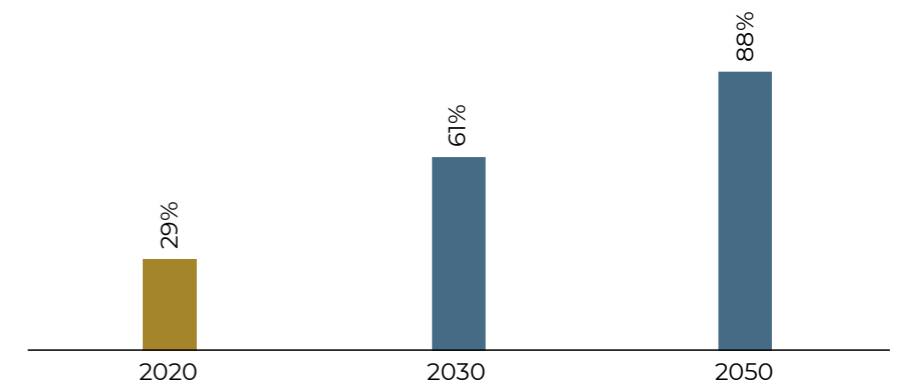
Given the relatively short period of time to effect the necessary emission reductions, it makes sense

to start with the greatest source of emissions. A study published by the International Energy Agency (IEA) in May 2021 confirmed that electricity production contributes around 75% of global greenhouse gas emissions. In this way, transitioning from "dirty" sources of energy (such as coal and oil) to renewable sources (such as solar and wind) is critical to achieving net zero emissions by 2050. According to the IEA, in order to achieve this, **the world's current wind and solar capacity would need to quadruple by 2030.** This will catapult renewable energy sources as a percentage of total energy production to 60% by 2030, which will see renewable energy penetration reaching nearly 90% by 2050.

Graph 1: Solar & Wind energy capacity additions (GW)



Graph 2: Renewable energy share in electricity generation



Source: IEA

THE FOURTH GREAT ENERGY TRANSITION

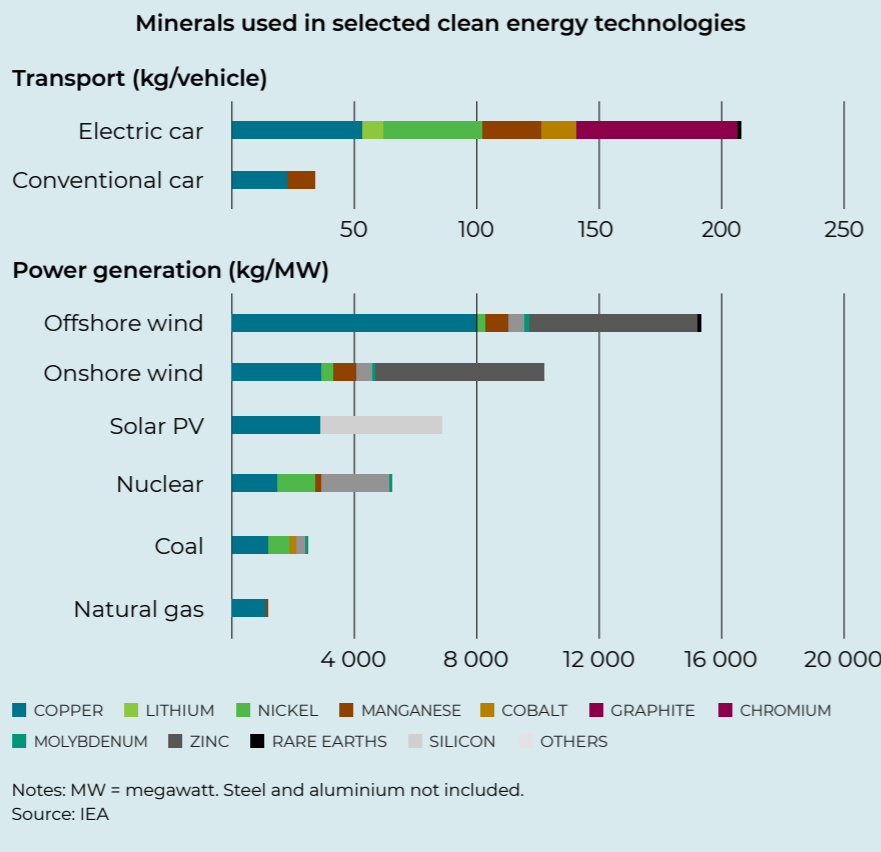
While the move to renewable energy will represent the world's fourth major historical energy transition, it is unlike any shift the world has attempted before, as it is driven by the need to avert a climate crisis and consume natural resources more sustainably. The Net Zero Emissions by 2050 goal envisages renewable energy contributing more than two-thirds to total energy production by the end of this decade. Relative to prior energy transitions, this transition requires a global energy system transformation that is unparalleled in its speed and scope.

Building a renewable energy grid demands a very different resource profile compared to traditional power plants, and is also more resource intensive. Consequently, demand for natural resources is expected to grow at a magnitude not experienced since the last commodities boom. For example, an onshore wind plant requires nine times more mineral resources than a similarly sized gas-fired power plant. Critical renewable energy minerals have been identified and their supply and demand fundamentals have been assessed in relation to the stated global climate ambitions.

CRITICAL RESOURCES IN SHORT SUPPLY

The types of resources used vary by technology. Lithium, nickel, cobalt, manganese and graphite are crucial to battery performance, longevity and energy density. Rare earth elements are essential for permanent magnets that are vital for wind turbines; while electricity networks require great volumes of copper and aluminium, with copper being essential for all electricity-related technologies.

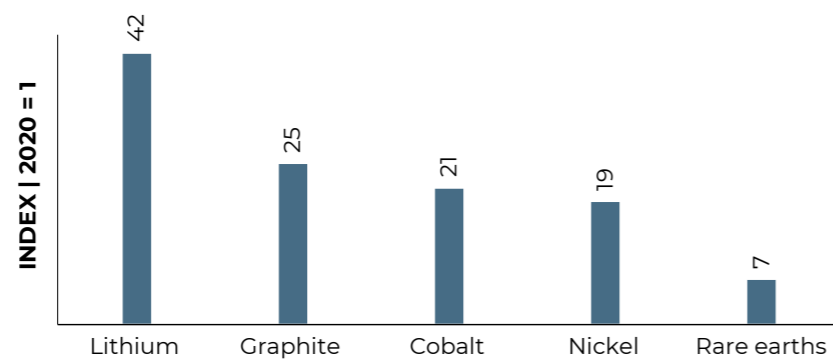
THE RAPID DEPLOYMENT OF CLEAN ENERGY TECHNOLOGIES AS PART OF ENERGY TRANSITIONS IMPLIES A SIGNIFICANT INCREASE IN DEMAND FOR MINERALS



The total market size of critical resources including copper, cobalt, manganese and various rare earth metals is expected to grow nearly seven times between 2020 and 2030. Lithium sees the fastest growth, with demand growing by over 40 times

by 2040, followed by graphite, cobalt and nickel (around 20 - 25 times). The expansion of electricity networks means that copper demand for power lines will more than double over the same period.

Graph 3: Growth of selected minerals (2040 relative to 2020)



Assessing the commitments of the Paris Climate Accord relative to supply and demand fundamentals in key natural resources, highlights a looming mismatch between the world's strengthened climate ambitions and the availability of resources that are essential to realising those ambitions.

An obvious solution is to increase the supply of these natural resources. However, miners have neither committed nor started exploration activities on a scale large enough to meaningfully increase supply. Miners may be waiting for a more substantial increase in the capital allocated to renewable energy projects, or they may be waiting for a more attractive price before investing in additional supply. The issue is that it may already be too late to avert a severe shortage. According to the IEA's research on the demand and supply of these critical minerals, it takes on average just over 16 years for a mining project to progress from discovery to production. In other words, even if miners started exploration activities this year, additional supply would potentially come on stream by 2037, by which time most of these minerals would already be in severe deficit positions and/or trading at unsustainably high prices.

A further concern for exploration and eventual mining is the geographic concentration of these resources given the deglobalisation trend experienced since the 2008 Global Financial Crisis. In the case of cobalt and rare earths, the DRC and China control more than 70% and 60% of global supply, respectively. High levels of geographic concentration, compounded by complex supply chains, increase the risks that could arise from physical disruption, trade restrictions and other developments in major producing countries.

In summary, the availability and accessibility of critical resources, together with the long lead times required to bring new production on line, all raise concerns and represent meaningful constraints to the renewable energy transition.

BALANCING ENVIRONMENTAL & ECONOMIC SUSTAINABILITY

In many countries, renewable energy sources, including solar and wind, have reached cost parity with traditional sources of electricity. For this reason, along with the need to reduce emissions, there is no longer any real economic incentive to invest in additional oil or gas plants. In a world of net zero emissions, coal demand is set to decline by 98% to comprise less than 1% of total energy consumption, and oil demand is expected to decline by 75%. Such drastic declines will have far-reaching implications for those countries and companies that derive income from the supply or processing of fossil fuels. The COVID-19 pandemic provided a glimpse of what this future could look like.

Amid the oil price collapse in 2020, Iraq was forced to borrow funds to pay public sector wages as oil revenue (90% of Iraq's revenue) missed expectations. This experience was not unique to Iraq, as many oil dependent economies found themselves unable to balance their budgets without resorting to external funding. While the pandemic impact was short-lived, the economic fragility of fossil fuel dependent economies was laid bare. Exacerbating the issue is the fact that many of these countries are emerging economies that are ill-prepared for a complete transition to renewable energy.

Furthermore, a sustained decrease in fossil fuel demand will lead to mass job losses in the industry. The IEA estimates that five million people in the oil, gas and coal producing industries could lose their jobs by 2030, with job losses more pronounced in communities that are highly dependent on fossil fuel production and conversion.

STATUS UPDATE: IT'S COMPLICATED

It is clear that energy transitions are far more complex than a switch from one energy source to another. Since the dawn of the industrial revolution, demand for energy-related resources (i.e. oil, petrol, coal, gas) and economic growth has been inextricably linked. Increased energy demand drove fossil fuel extraction, conversion and processing, which in turn boosted government revenue and fuelled economic growth. A transition to renewable energy therefore requires extensive systemic economic reform to decouple economic growth from the consumption of fossil fuels.

It is therefore unsurprising that governments have announced significant investments in renewable energy sources while simultaneously continuing to support their domestic fossil fuel industries. As at November 2020, G20 governments had committed US\$233 billion to support fossil fuel production, which remained greater than the US\$146 billion committed towards renewable energy and energy efficiency initiatives. A recent report published by the International Institute for Sustainable Development (IISD) highlighted that, based on current government commitments to increase or sustain fossil fuel production, the supply of coal, oil and gas will increase by 2% per annum by 2030. This is a far cry from the reductions in fossil fuel supply required to achieve net zero emissions by 2050.

The risk to government revenue, economic growth and potential exacerbation of poverty in emerging markets coupled with renewable energy's intermittency problems are two of the greatest challenges governments face in planning a "just" and economically sustainable transition to renewable energy.

A SIMPLE TRUTH

Even the most well-intended change will not be successful without support from those that are required to drive the change. The transition to renewable energy is a necessary step on our path to more sustainable consumption. However, it is people that drive demand for energy related goods and services. Societal norms and consumption preferences will therefore dictate how quickly we are able to reduce our energy related emissions. We need to reduce excessive waste and wasteful energy. Transport emissions can be reduced if more people walked, cycled, shared rides or used public transport. Less materials could be used if recycling rates were higher. Pollution and manufacturing related emissions can be reduced materially if we eliminated single use plastics. So while renewable energy will go a long way in reducing energy generation emissions, without the required behavioural changes, emissions will not reduce sufficiently to avert a global climate crisis.

THE INVESTMENT LANDSCAPE

The transition to renewable energy requires significant funding. The scale of the required changes and the opportunities that will be created, are attracting investment capital to "green" assets. However, from our perspective, many of the companies in the emerging renewable energy sector are small

and medium-sized enterprises (SMEs) that lack the fundamental qualities our investment philosophy is based on. Furthermore, the more mature companies in the sector are trading at valuations that we find difficult to justify.

We view the recent clean investment energy rally with caution. At the end of 2020, Tesla's market value was higher than that of the world's top seven car manufacturers combined. In the past year, the traded price of carbon permits on the European exchange rose 140% in anticipation of tougher emissions regulations. Over the same period, the value of the basket of renewable energy companies in the MSCI World Index tripled. The pattern of transformational technologies driving financial speculation is familiar from the previous booms in railways, oil companies and tech companies. Though these booms drove real economic change by channelling capital into new applications, the outcomes for investors varied, with many experiencing devastating capital losses.

As long-term investors and stewards of our clients' capital, we have an obligation to invest responsibly. In line with our investment philosophy, this means paying a fair price for companies with viable, sustainable business models, competitive moats, superior profitability and clear long-term growth prospects. Therefore, our approach is to invest in companies that have evidenced a commitment to sustainability with credible clean energy transition plans, rather than enforcing a strict "clean energy, no carbon" investment mandate. Many of the

companies we hold within our model portfolios continue to make strides in this regard, as explained in the two accompanying articles.

CONCLUSION

After decades of scepticism and inaction, the growing consensus on reaching net zero emissions by 2050 is cause for considerable optimism about what can be achieved through global co-operation. However, a measure of pragmatism is required, as there appears to be a disconnect between what needs to be done and what is practically possible.

The availability of critical minerals is a key challenge to the adoption of renewable energy. While governments have committed to achieving net zero, the pathway remains unclear, as does their plans to ensure that the transition is viable for economies that are financially dependent on fossil fuels. Furthermore, past energy transitions have taught us that the process is slow, gradual and increases the diversity of energy sources, as opposed to eliminating an energy source in its entirety. In this instance, significant behavioural change will be required to meaningfully drive human-related carbon emissions to more sustainable levels.

So while the transition to renewable energy is absolutely necessary and is well underway, we view this transition as a multi-decade, multi-generational process that will gather momentum well beyond the stated deadlines of 2030 and 2050. As investors, we have a responsibility to encourage and drive this change, and will therefore continue to closely monitor investment opportunities and assess the progress being made by the companies we hold.

THE HISTORY OF ENERGY TRANSITIONS



The first big energy transition was from wood and charcoal to coal, beginning in the iron industry in the early **1700s**.

By **1900**, coal was the primary industrial fuel, taking over from biomass to make up half the world's fuel use.



Oil was the next major energy source to emerge. The oil era took off with the introduction of the Ford Model-T in 1908 and the boom in personal transportation after World War II. Oil overtook coal to become the world's largest energy source in **1964**.

By **2020**, oil provided **30%** of total energy supply, while coal supplied **26%** and natural gas **23%**.



Biomass demand peaked in the **2000s**. Biomass is plant or animal material used as fuel to produce electricity or heat. Examples are wood, energy crops and waste from forests, yards, or farms. Since biomass technically can be used as a fuel directly, some people use the terms biomass and biofuel interchangeably.

Historically, new energy sources were adopted because they were cheaper and more accessible; the new sources added to existing energy sources and over time comprised a majority share of the total energy mix. However, all energy sources continued growing as global populations grew and electricity demand accelerated. It is also notable that every new energy infrastructure technology has taken between 30 and 100 years to move from invention to attaining a 5% share of the global energy market.

SHIFTING TOWARDS RENEWABLES: BERKSHIRE HATHAWAY & HONEYWELL

VICTOR MUPUNGA, SENIOR RESEARCH ANALYST AT PRIVATE CLIENT SECURITIES

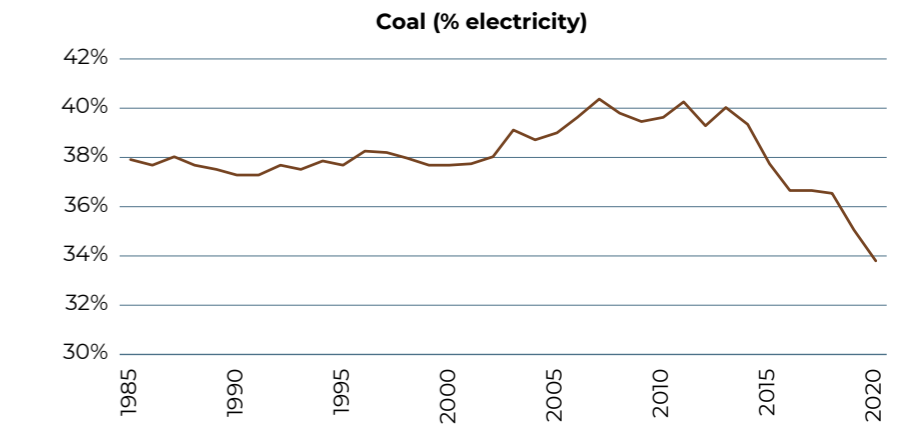
Earlier this year, a little known environmental, social and governance (ESG) activist investor named Engine No.1 attracted global attention when it won a fierce proxy voting battle and saw three of its nominees being elected onto ExxonMobil's 12-member board of directors. Given that ExxonMobil is the largest carbon emitter among the oil majors, with its directors having long been regarded as doing too little to reduce emissions, Engine No.1's triumph was seen by some as an indication that no industry is immune from the pressure to green up its act.

COMING INTO FOCUS

For most investors, the "E" in the "ESG" triad has not always been the most important consideration. For a long time, many considered governance to be more consequential and therefore afforded it more attention. However, increased climate risk awareness, some standardisation in the rating of environmental metrics and the large inflows of capital into environmentally sustainable investments have all played a role in bringing environmental concerns to the forefront of listed companies' and shareholder agendas. Indeed, recent corporate activity by several global miners in unbundling or disposing their carbon intensive assets has led some to conclude that the shift to more sustainable energy sources will accelerate in the coming years.

While some companies have opted to go the route of completely disposing of their "dirtier" assets, others have instead chosen to retain their carbon intensive businesses while gradually shifting their operations to a more sustainable mix. Their view is that selling an asset or unbundling a segment of their business does not stop it from existing. Rather, it simply replaces one owner for another, which does not serve society as a whole. A more responsible approach, they contend, is to strategically and steadily transition to a more sustainable mix over time, while taking into account other societal factors such as potential job losses that may be accelerated by a quick divestment. Furthermore, they argue that "dirty" energy sources, such as coal and oil, are still responsible for a large share of global energy generation and will still be around for a long time. As such, they view the renewable energy versus coal debate not as

Graph 1: Coal's share in electricity generation



Source: World in data

an "either/or" choice but rather a gradual shift that will take time, probably beyond the targets set out for 2030 or 2050.

BUFFETT'S WAY

One company's board that firmly holds this view is Berkshire Hathaway, a holding within the PCS Global Equity Portfolio. Berkshire's Energy segment (BHE) generates, transmits, stores and distributes energy. While power is generated from various sources, the segment still owns a sizeable fleet of coal power plants, with over 40% of its electricity estimated to come from coal and about 25% from gas. BNSF Railway, another Berkshire subsidiary and one of the world's largest railways, plays a critical role in the transportation of coal for electricity generation, industrial use and export from the US. As a result of these operations, CDP Worldwide, an international organisation that works to increase environmental disclosure among companies, estimates that Berkshire was responsible for 189 million tons of greenhouse gas emissions in 2018.

These metrics continue to draw much criticism from environmental activists, particularly because

Berkshire remains one of the largest, most well-known and widely followed companies across the globe. However, it is worth highlighting the counter-argument, which points to the significant investments and time Berkshire is committing towards renewable energy sources.

From a time investment perspective, Berkshire recently detailed an US\$18 billion wind and solar investment to rework and expand the transmission of electricity throughout the West coast of the US. This project began in 2006 and will only be completed around 2030. Due to the long payback period and complexity of dealing with different state laws and landowners, there were few companies or governmental entities willing to take on this huge project, which BHE found appealing. In his 2020 annual letter to shareholders, Warren Buffett pointed out that BHE is a rarity among Berkshire's subsidiaries (and utilities in general) in that it does not pay any dividends to the holding company. This is a direct result of the significant amount of capital that is required to transform the US electrical grid, which in turn informs BHE's investment plans over the coming decades.

At the end of last year, BHE had made a cumulative investment into green power generation of approximately US\$34 billion. Given the long payback periods and the absence of dividends, there is a need for large and transformative renewable projects to be backed by companies with solid balance sheets. This gives credence to Berkshire's approach of gradually shifting to renewable energy sources over time, rather than immediately shunning cash generative non-renewable sources and "going along with unrealistic visionaries desiring an instantly new world" as Buffett recently put it.

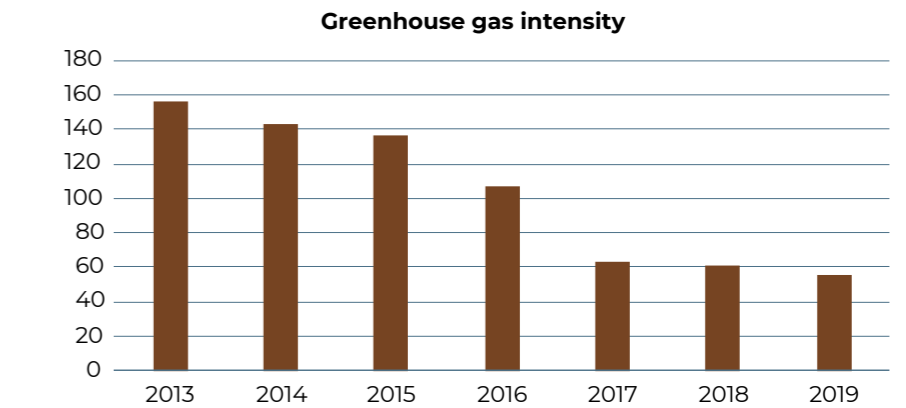
AN INNOVATIVE AND A HOLISTIC APPROACH

Honeywell International is another holding in our Global Equity Portfolio that has some notable exposure to carbon intensive industries. The group's Performance Materials and Technologies segment, which contributed around 30% of group profit pre-COVID, has oil and gas customers. Within this segment, Honeywell provides equipment, systems, instruments, software and related services to improve operational efficiencies across multiple industries, including coal, oil and gas. While we would regard Honeywell's exposure to these industries to be relatively small — at just over 10% — the group's approach and progress in reducing its carbon footprint is notable.

While retaining exposure to high carbon emitting industries, Honeywell has developed a range of solutions that its clients across various industries can use to monitor and reduce their own carbon footprint. One such innovation is Solstice, a molecule compound¹, which is now widely used in grocery store freezers, car air conditioners, home insulation



Graph 2: Honeywell's greenhouse gas emissions



Source: Company reports
Greenhouse gas intensity = Carbon dioxide equivalent divided by revenue

and aerosol sprays. Simplistically, Solstice replaces harmful chemicals (chlorofluorocarbons) which were previously used in the aforementioned common products. According to Honeywell's estimates, the total Solstice portfolio across industries has the same impact on the environment as removing more than 42 million vehicles from the road for one year, an aggregate reduction of 200 million metric tons of greenhouse gases to date.

More specific to renewable energy, the group's alternative energy producing clients are able to outsource the management of some of their operations or projects to Honeywell. The key attraction for clients is that the model and contracts offered are outcome based, which shifts some risks from the client to Honeywell. An example of this would be Honeywell partnering with a solar energy provider to reduce its levelised cost of electricity² (LCOE) by 10%, the saving of which will be split by some predetermined proportion between Honeywell and the client. Honeywell will then install a range of systems and manage the operation to achieve the targeted saving, thereby creating value for both parties.

Judging by Honeywell's environmental disclosure, the group has seen notable success with its holistic renewable energy and environmental approach. Its Solstice technology is widely used across the refrigeration market, with over 30 000 installations in the last six years. The group's total annual energy usage and greenhouse gas emissions have declined every year since it began disclosing the data eight years ago. As shown in graph 2, greenhouse gas intensity has also declined by 65% between 2013 and 2019.

A SUSTAINABLE MIX

Increased scrutiny on public companies' environmental impact is forcing management teams to reassess their business models. While there is a growing trend of companies disposing of their carbon intensive segments, some have opted to retain these businesses and gradually shift towards a more sustainable mix. Berkshire and Honeywell are two such companies. While they do not give us massive exposure to the renewable energy sector, they are making notable strides by investing in the sector. In our view, this holistic approach to environmental impact and renewable energy investments is a responsible means to achieving a sustainable energy mix.

¹ A compound is a substance which is formed by two or more different types of elements which are united chemically in a fixed proportion.
² Summary measure that represents the per-kilowatt hour cost of building and operating a generation plant.

ANGLO AMERICAN

MINING THE FUTURE

SAMEER SINGH, RESEARCH ANALYST AT PRIVATE CLIENT SECURITIES



As the world races to achieve carbon neutrality and net zero targets over the coming decades, industries and companies will find themselves under increasing pressure to work towards fulfilling this goal. The mining industry specifically will see dramatic shifts in both the demand for their products and the regulatory environment. For some it will signal the beginning of the end, while for others it will be the start of a new growth trajectory. For Anglo American (Anglo), a key holding within the PCS Core Equity Model Portfolio, years of portfolio rationalisation, operating efficiencies, balance sheet prudence and a transformative

strategic intent mean the best is yet to come.

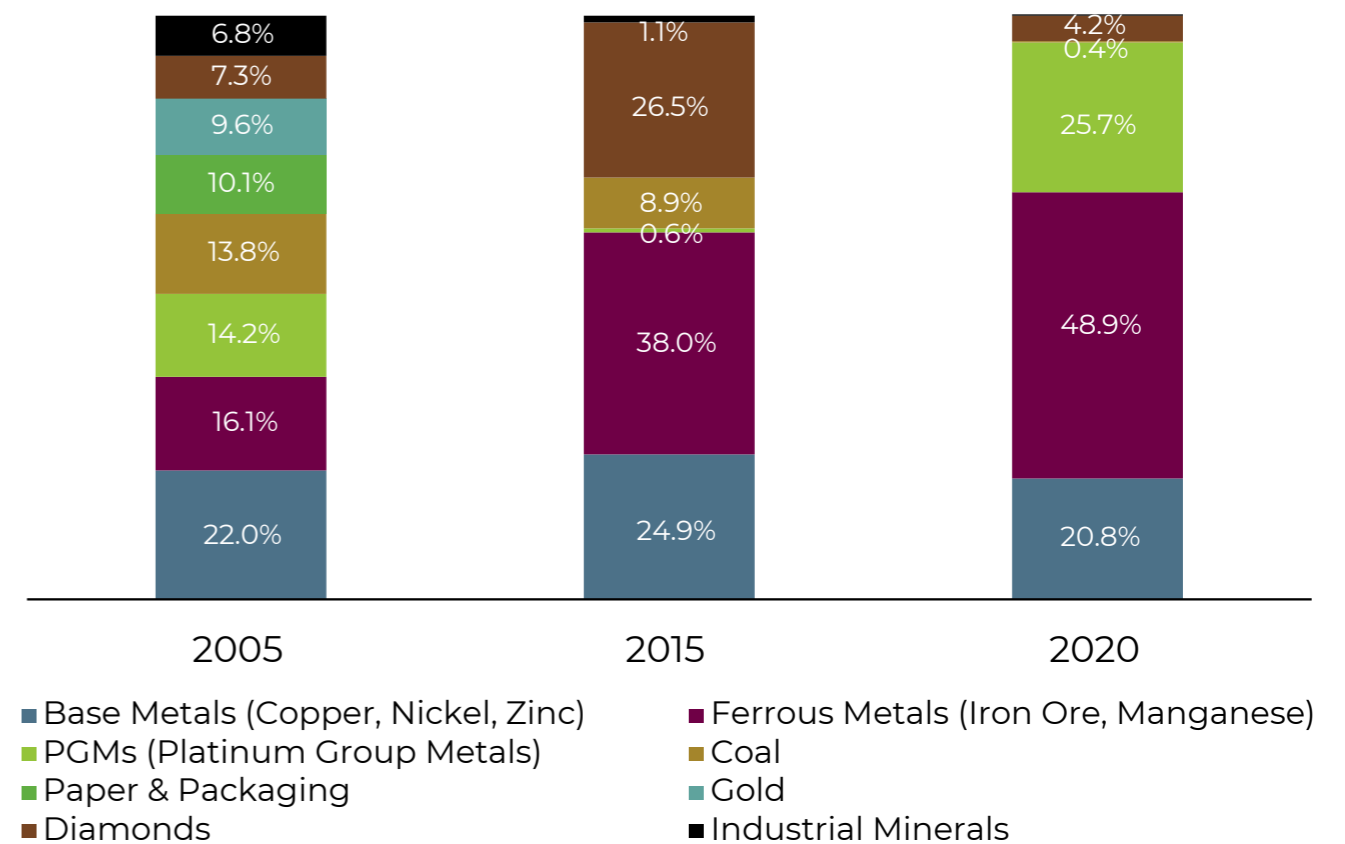
SHARPENING ITS FOCUS

Having started as a gold miner, Anglo has grown to become one of the world's largest miners, having generated US\$30 billion in revenue in 2020. Notably, the composition of Anglo's product and mining portfolio has evolved over the years. Since its inception in 1917, management has largely been focused on expansion, gaining efficiencies and growing into other sectors. However, the 21st century ushered in a phase of consolidation, which saw the group shifting from operating eight business units with multiple commodities to four key business units and six commodity/metal groups.

Relative to 15 years ago, the change in Anglo's earnings mix is notable. Perhaps less easily identifiable is the shift in strategic focus since 2015. Recognising changes in demand as a result of growing emerging markets and consumer trends, management prioritised iron ore, platinum group metals (PGMs), high quality copper, and most recently, crop nutrients over coal. Beyond key commodity mix changes, the group has embarked on broad but impactful efficiency programmes aimed at streamlining its processes and cutting costs. However, there is more behind Anglo's change in strategy than simply leaning into cyclical commodity trends.

Graph 1: A changing commodity mix

Earnings Mix by Commodity



Source: Company Reports

MINERS – PART OF THE PROBLEM AND SOLUTION

Mining, as an extractive activity, leaves a long-lasting mark on the environment and additionally, the processes of extraction and refinement emit a substantial amount of greenhouse gases.

According to McKinsey, 4% - 7% of global greenhouse gas emissions are as a result of commodities extraction and usage in terms of scope 1 and 2 emissions. This rises to 32% - 35% when scope 3 emissions are considered¹.

In working towards a net zero future, mining businesses can

adopt various short- and long-term decarbonisation strategies, as outlined in the accompanying image. While implementing these strategies will impact earnings in the short and medium term, it is important to keep the long-term investment case in mind.

DECARBONISATION STRATEGIES

SHORT TO MEDIUM TERM



Efficiency Improvements:
More efficient extraction technologies



Materials Handling Processes:
Using battery- and hydrogen-powered vehicles



Renewables:
Incorporate renewables into energy mix

MEDIUM TO LONG TERM



Downstream Partnerships:
Research more efficient production processes and end use cases



Portfolio Transition:
Shift away from carbon intensive towards green value chain commodities

Source: Morgan Stanley Research

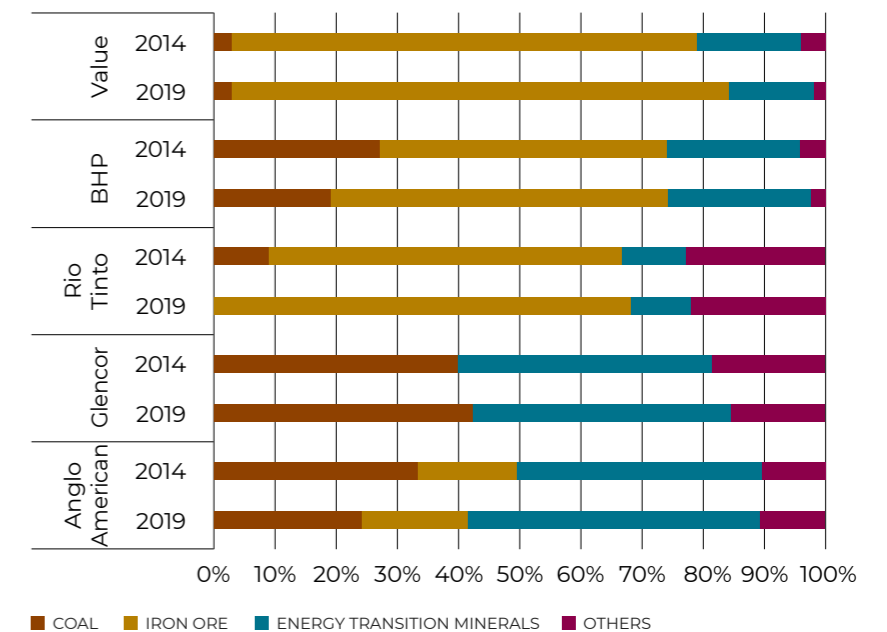
PGMS AND THE HYDROGEN OPPORTUNITY

Renewable energy, electric vehicles and battery storage, electricity networks and other clean energy technologies require significantly greater amounts of critical minerals than we are currently consuming. Transitioning to and meeting this increased demand will be a key focus for all miners over the next few decades.

PGMs are integral within the energy transition value chain as the catalyst in the production of the green economy and power generation from green hydrogen² fuel cells. Once thought of as “dead weight” in a post-internal combustion engine world, PGMs can expect decades-long demand on the back of growing hydrogen penetration. As a source of power, hydrogen stands to replace fossil fuels in both energy/heat uses and transportation, accounting for a large percentage of total greenhouse gas emissions.

This shift will have a pronounced impact on miners, especially those producing coal. According to McKinsey, in order to achieve the below 2°C global warming target, steel-making coal production would need to decline by 80%. The steel industry accounts for around 9% of Scope 3 emissions, and thermal and metallurgical coal constitute around 50% of the global mining market. This shift, however, also presents opportunities for commodity producers to “green up their act” by replacing coal with green hydrogen as a source of energy, thereby making their processes more carbon-friendly. Some projects underway include green steel, which incorporates green hydrogen in the steel-making

Graph 2: Production portfolio value of selected diversified major mining companies, 2014 and 2019



Notes: Energy transition minerals include copper, lithium, nickel, cobalt, manganese, molybdenum and platinum group metals. The value of the 2014 production portfolio was estimated using 2019 prices to remove price effects. Source: IEA analysis based on companies' annual reports and S&P Global (2021).

process – although only applicable to a particular steel-making process called direct reduced iron/electric arc furnace, it does represent best practice and its adoption is growing fast.

DOING THE RIGHT THINGS RIGHT

As shown in graph 2, relative to its peers, Anglo is well placed for the transition to renewable energy.

In addition to managing the largest portfolio of critical transition minerals, Anglo has spent the last five years outlining and implementing strategic operational enhancements that will change the way it conducts business for decades to come.

Anglo's efficiency journey began with its P101 productivity

programme, which comprises a collection of initiatives focused on delivering industry-leading performance and productivity across all of its commodities and operations. P101 continues today in an evolved form, with the focus widened from incremental operating efficiencies to longer-term strategic shifts that take pressing climate change concerns into account. This is what Anglo calls FutureSmart Mining.

The goal of the programme sees the combination of technology, digitalisation and sustainability to create an environment where mining can co-exist with society, in a more aware and responsible role. Practically, FutureSmart Mining incorporates transformative innovations that will impact how

¹ Categories of carbon emissions

- Scope 1 – Direct greenhouse gases from sources owned or controlled by the company
- Scope 2 – Indirect greenhouse gases from electricity purchased and consumed by the company
- Scope 3 – Indirect greenhouse gases that occur in both upstream and downstream activities within the value chain

² Hydrogen is a clean-burning molecule, meaning that it can help to decarbonise a range of sectors; however, most hydrogen is still made using fossil fuels. Green hydrogen, on the other hand, is created using renewable energy instead of fossil fuels.

Anglo sources, mines, processes, moves and markets its products. This will mean mining with a much-reduced environmental footprint supported by new processes, such as precision mining technologies, data analytics and automation. There are four concepts that

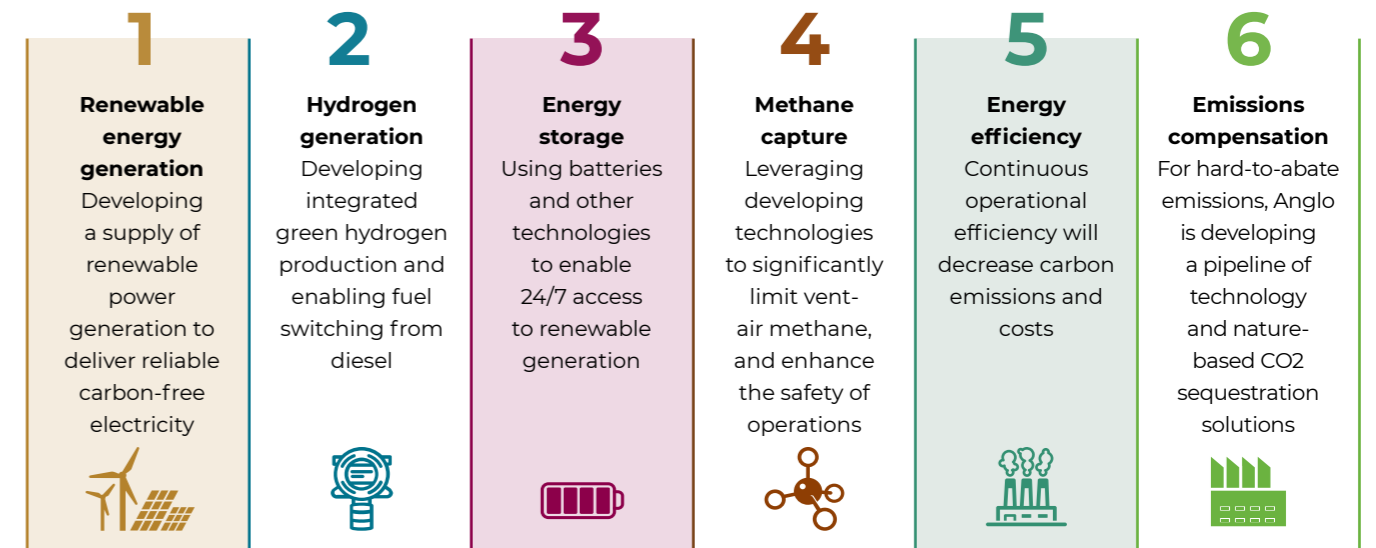
underpin FutureSmart Mining that will guide the business as it moves towards its carbon neutral targets. These are detailed in the image below.

Taken together, more efficient and future-fit operations mean less waste, fewer inputs, reduced

energy consumption and lower capital intensity, which are all earnings accretive. Within the broad agenda FutureSmart Mining aims to address, Anglo is focusing on the six levers on the next page, which together will provide the foundation for a zero carbon future.



Source: Company Reports



PROGRESS ON THE GROUND

Anglo has already secured 100% renewable energy for all of its South American operations and is currently testing the mining world's first hydrogen electric haul truck. If successful, similar trucks will be used across its global operations, helping to decarbonise the process of materials handling. The company is also working with the South African Department of Science and Innovation, and other private sector energy partners, on a feasibility study for a Hydrogen Valley. The proposed valley will stretch from Anglo's Mogalakwena PGMs mine along the industrial corridor to Johannesburg and end at the south coast of Durban. Regional PGM miners will play a central role in Hydrogen Valley and its associated value chain.

From an investor's perspective, Anglo is doing all the right things and is executing them well too. Qualitatively, management have tied their fortunes to decarbonising the group with 8% of long-term incentives linked to reductions in greenhouse emissions and 5% of their annual bonus linked to key programmes related to

the environment. For Anglo, its success lies in tangibly connecting corrective measures with the long-term economic rationale.

Operationally, the group has already realised an 8% improvement in energy efficiency and a 22% saving in greenhouse gas emissions. Earlier this year, the group concluded the spin-off of its South African thermal coal business and announced the sale of South American thermal coal. Looking ahead to 2030, Anglo is targeting a 30% improvement in energy efficiency, a 30% net reduction in greenhouse gas emissions, and aims to have eight carbon neutral sites. By 2040, the group aims to be carbon neutral across all of its operations.

CONNECTING THE FUTURE TO THE NOW

To reach the goal of net zero, diversified miners can expect and should plan for increasing stakeholder pressure and evolutionary business process transformation. Across the sector, miners are allocating around 1% of expected 2021 earnings to energy transition initiatives. While this might seem small now, the value is expected to increase over

time. Over the medium term, the state of technology and required infrastructure development will determine the cost and speed of the transition.

Anglo stands as an example of how making these transformative changes can be beneficial to both shareholders and the environment. By 2023, the combination of P101 and FutureSmart Mining will deliver a US\$2.5bn improvement in annual earnings.

Over the long term, appropriate climate strategies will minimise business risks, lower operating expenses, boost productivity and gain the favour of ESG-focused investors and stakeholders. This will support lower costs of capital and enhance equity values. While valuation will always be subject to the vagaries of commodity cycles, it is critical that investors appreciate that decarbonisation is an eventuality and its requirements will be the defining feature of commodity cycles in the future. At PCS, we believe that for companies like Anglo, doing the right things right, will transform their business and redefine their role in society as we know it.

THE PATH TO REIMAGINING THE FUTURE HAS BEEN PLOTTED WHO'S BRAVE ENOUGH TO WALK IT?

FARHAD SADER, MD: OLD MUTUAL WEALTH

It would have been hard to imagine 15 years ago this year, when the documentary “Who Killed the Electric Car” was released, that by 2021 electric vehicles (EVs) would be fundamental to every country’s mobility, environment and manufacturers’ business plans. Where we are today is a story of bravery, tenacity, and, importantly, timing.

In the movie, filmmaker Chris Paine examines the birth and death of General Motors (GM)’s first EV. The vehicle required no fuel, oil, muffler or brake changes and was, seemingly, the world’s first perfect car. Yet six years later, GM recalled and destroyed the EV-1 fleet.

Far from being a textbook businessman (despite his eccentric and seemingly erratic behaviour, though some may beg to differ), Elon Musk has been credited for making electric vehicles mainstream by charting a path defined by boldness, foresight, and a fearlessness to think big.

In my view, Tesla has shown us over the last 15 years that doing good need not be only about charity. On the contrary, building a business with a purpose that doesn’t compromise performance makes both good business and investment sense.

Musk has used first principles to relook old problems and reimagine the future instead of accepting the status quo.

And like Tesla, the young challenger brand that shook up the car manufacturing industry from the top down, young South Africans have the ingenuity, perspective and purpose of shaking up the old guard. Myself included.

The cynics may shout “wishful thinking”, but looking at the examples offered by Musk and

others like Trevor Noah, Zozibini Tunzi and the heroic Nkosi Johnson can help us consider how millennials and Gen Z – the two generations that will dominate the workforce in a few short years – see their purpose in the world.

Young entrepreneurs across Africa are already looking at systemic failures and asking how they can be solved. In addition, they are paying great attention to strategies that drive wealth and investment opportunities.

By encouraging the inherent creativity, problem-solving and entrepreneurship found in youths – whether through employment, mentorship, investment, funding or business incubation – we hold the human potential of solving some of the most pressing social and environmental issues at a profit, generating shared value for stakeholders, including investors.

According to PwC’s report “2022: The growth opportunity of the century”, environmental, social and governance (ESG) considerations are becoming a vital part of global investment strategies, as employees, consumers and investors adopt a far more hands-on approach to responsible business, investment and consumption.

South African companies seeking to be on the right side of business strategy (unlike GM, for example) will need to actively find opportunities to empower young, brave workers to join the dots of where the world is headed and the changes that need to be made – as Musk did.

Conversely, companies that jealously protect short-term profits ahead of long-term ESG sustainability may find themselves subject to “who killed the brightest idea”, or worse – not even be in business in the next 15 years.

THE AUTHORS



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After graduating with a Postgraduate Diploma in Accounting in 2015, Tasneem joined the Old Mutual Chartered Accountant Training Programme in 2016. During the subsequent three years, she worked within various businesses in the Old Mutual Group, gaining valuable experience in functional areas such as internal audit, risk management, finance, group planning and investment analysis. In 2018, she was placed within Private Client Securities, first in the Finance team to assist with the annual financial statements and then in the Research & Investment team to assist with investment portfolio reviews. Tasneem successfully completed her articles at the end of 2018 and is a qualified Chartered Accountant (SA).



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Victor joined PCS in 2016 and was previously employed as an investment analyst at Maestro Investment Management, where in addition to equity research, he was responsible for managing a number of private client equity portfolios on a discretionary basis and managing the client relationships. Prior to that, he was a fund accountant at Investment Data Services where he prepared and reviewed valuations and accounting records of hedge funds. Victor graduated from the University of Cape Town with a Bachelor of Business Science (Hons) in Finance in 2007. He is also a CFA Charterholder.



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Sameer joined PCS in March 2016 and was previously employed as an investment analyst at Old Mutual Multi-Managers where he was responsible for absolute return and fixed interest asset class and asset manager research. Prior to that, he was a trainee investment analyst at SYm|mETRY Multi-Managers. Sameer holds a Bachelor of Commerce degree in Business Management from UNISA.



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Farhad was appointed as MD of Old Mutual Wealth on 1 February 2020. He is responsible for all clients' wealth management needs and ensures a holistic financial planning process through a comprehensive range of capabilities – including advice, fund management, estate planning, unit trusts and bespoke solutions. He has over 16 years of experience in strategy, distribution, operations and IT. He spent the last 10 years in executive management positions across various Old Mutual businesses as the MD of Old Mutual Investment Administrators (OMIA), General Manager of the Agency Franchise Division and, more recently, as the Chief Operating Officer of Old Mutual Wealth where he was involved in every element of delivery and crafting of the Old Mutual Wealth strategy. Farhad holds a Master's degree and is an Alumnus of Harvard Business School.



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