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Top of my list of politicians who regularly send shudders down my spine is Minerals and Energy Minister Gwede Mantashe whose love affair with coal mines and Turkish power ships appears determinedly aimed at ensuring South Africa hangs on to its position as one of the world's worst carbon polluters.

Perhaps I do Gwede a disservice and in the process should plead guilty to heartlessness to the potential plight of 200 000 people employed along South Africa's coal value chain in a country with an official unemployment rate of 32.6 percent. However, in this instance I believe the lives of some six billion human beings – the entire population of planet earth – not to mention all the other living creatures whose lives are now at stake since it is clear we are critically close to a final climate tipping point. Indeed there are many better qualified than I who believe we might already have gone past the carbon emissions point of no return.

So today, since South Africa is currently playing host to some eminent persons who are here to try to offer us both a way out of our Eskom cash crisis and in turn a means of somewhat reversing our catastrophic national debt problem, I want to ask my readers to give me a few extra minutes of reading time to consider something most of you have probably never thought about before: the Gulf Stream which, in the scientific community is known as the AMOC.

Most people know the Gulf Stream as an ocean current which sweeps up the Atlantic carrying warm water as far as Iceland and which enables crops to grow and people to live in parts of the icy north which would otherwise be lost under hundreds of metres of ice and snow. You probably also know about the krill it carries with it which makes the Atlantic fishing industry such an important part of the world economy. But few of you probably know that this giant heat engine is slowing at a critical rate and, if it stops flowing, it could take 5 000 years to get moving once more.

So, if any you have ever watched, as I did in my youth, a gang of dockers heaving on a rail truck to get it moving and, most interesting to me at that time, that once inertia had been overcome and it was actually running along on its rails, most of the men could step back because it required only a few to maintain its momentum! What might take to re-start the Gulf Stream?

The Gulf Stream is just such a phenomenon. Since it got started it has only required a little continuous energy to keep it moving. But that energy is dwindling. The process is driven by changes in salinity and temperature. As warm water flows northwards, some evaporates which increases its salinity. It also cools when it mixes with fresh water from melting ice in West Antarctica and Greenland.

Cold, salty water is denser than warm fresh water and so it slowly begins to sink several kilometres below the surface where it displaces the water already there and so the whole mass begins moving south. This cycle, which moves nearly 20 million cubic meters of water per second, is the process of 'overturning' which drives the Gulf Stream. However, increased rainfall and the melting of continental ice due to global warming is diluting surface sea water and warming it up making the water lighter and, therefore, unable to sink – which, basically, slows down that whole engine.

Importantly, NASA studies in 2018 found that the Gulf Stream was at its weakest in at least 1,600 years. In August 2021, a study in Nature Climate Change said "significant early-warning signals" have been "found in eight independent AMOC indices" suggesting that the AMOC "may be nearing a shutdown".

Global warming is, of course, the consequence of the earth being wrapped in an ever-growing blanket of carbon dioxide. Since the beginning of the Industrial Revolution just 260 years ago – that's just one eighth of

one percent of the time since mankind first began using tools -- the acidity of surface ocean waters has increased by about 30 percent. This increase is the result of humans emitting more carbon dioxide into the atmosphere and hence more being absorbed into the ocean.

The planet's average surface temperature has simultaneously risen 1.18 degrees Celsius since then with most of the warming occurred in the past 40 years and the seven most recent years being the warmest.

Global sea level rose about 20 centimetres in the 20th Century. However, the rate in the last two decades is nearly double that of the last century and accelerating slightly every year. Meanwhile data from NASA's Gravity Recovery and Climate Experiment shows Greenland lost an average of 279 billion tons of ice per year between 1993 and 2019, while Antarctica lost about 148 billion tons of ice per year. And this latter fact takes us to the "Tipping Point" argument which is that at a certain stage an entire global weather system can pass a point of no return and tip over irreversibly bringing inconceivable disaster in its wake.

A 2018 study in the Proceedings of the National Academy of Sciences warned that if polar ice continues to melt, forests are decimated and greenhouse gases continue to rise to new levels, tipping points will be passed that guarantee a climate 4-5 Celsius higher than pre-industrial times, and sea levels 10 to 60 metres higher than today. Island nations will disappear and coastal cities will drown.

The following graphic courtesy of NASA tells the complete story:



All of which brings me to this week's visit by eminent persons from the developed world intent upon lending us money at deeply discounted rates provided we are prepared to agree to a schedule of early coal-fired power station retirement. Seemingly too, despite Gwede Mantashe's foot-dragging, the Government is ready to comply. Last week the <u>Cabinet announced</u> that the country's updated NDC will soon be deposited with the <u>United Nations Framework Convention on Climate Change</u>. The NDC represents South Africa's contribution to global efforts to reduce greenhouse gas emissions and mitigate climate change.

"The top of the range of our revised NDC is consistent with the Paris Agreement's temperature limit of 'well below 2°', and the bottom of the range is consistent with the Paris Agreement's 1.5° temperature limit," the Department of Forestry, Fisheries and Environment said in a statement.

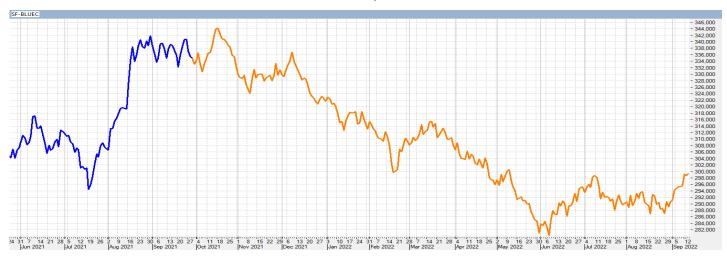
According to a recent report by the Presidential Climate Commission, based on South Africa's energy blueprint — the Integrated Resources Plan 2019 — "10,500 MW of electricity from coal will be decommissioned by Eskom. This includes the Komati, Hendrina and Grootvlei power stations."

In a nutshell, the proposed transaction framework will be aimed at "unlocking the market financing of approximately three quarters of a trillion rands of power sector infrastructure projects over the next 10 years (required to achieve the lower range of the country's <u>new Nationally Determined Contribution</u>), by supporting the "shareholder" with recapitalising the unbundling Eskom entities; and providing catalytic funding for a South African Just Transition Fund (JTF) to drive a credible, green economic rejuvenation in South Africa's coal-mining regions."

It is good news which has the potential to greatly improve South Africa's attractiveness as an investment destination. And here I cannot but highlight that the JSE average PE ratio is 7.4 and our Blue Chip average as calculated by the ShareFinder method of evaluation is 20.9 today compared with Wall Street's 23.63 as measured by the Dow Jones Industrial Average and 28.72 for the tech-heavy Nasdag.

By implication, if South Africa were to once again become attractive as an investment destination for the global community average share prices here might treble or quadruple with dramatic implications for our economy.

For now, here is ShareFinder's outlook for JSE Blue Chips for the next 12 months:



And this is Wall Street's outlook:



Do enjoy your weekend!

The month ahead:

New York's SP500: I correctly noted that the fallout of the US inflation rate analysis could last as long as another week before things turned upwards again and I sensed that the market would bump along the bottom until mid-October before resuming its upward trend. Now I see an earlier recovery and continuous gains from here until mid-December.

Nasdaq: I correctly saw the beginning of a brief recovery which was over by the 27th. Now I see further losses until the 13th to the 14th ahead of gains until the end of November.

London's Footsie: I correctly predicted a volatile decline which I continue to expect to last until next June. In the interim I correctly saw a brief recovery until October 7.

Germany's Dax: I correctly predicted weakness lasting until mid-October ahead of brief gains until the second week of November. Thereafter it is steadily down until early April.

France's Cac 40: I correctly predicted the volatile declining trend that I expect will continue until mid-2022.

Hong Kong's Hangsen: I correctly predicted a retraction which I now see being prolonged until mid January followed by of very volatile gains for the first half of the New Year.

Japan's Nikkei: I correctly predicted an interim peak around the 28th followed by a decline until mid-October and then another final up-trend to early November ahead of a long decline until April.

Australia's All Ordinaries: I correctly predicted a decline which I now see lasting until late October until a two to three-month recovery sets in. Thereafter I see it bumping along the top until mid-March before the next long decline sets in.

JSE Top 40 Index: I correctly predicted the start of a recovery until early October ahead of four months of weakness until mid-February.

ShareFinder JSE Blue Chip Index: I correctly opted for gains until mid-October. Thereafter I see a long decline until mid-year.

Rand/Dollar: I wrongly predicted the recovery should start within days but I still anticipate an imminent brief recovery until the third week of October ahead of further losses until late January.

Rand/Euro: I correctly predicted weakness until early-March.

Bitcoin: I wrongly predicted brief gains. Now I still see weakness until late December.

The Predicts accuracy rate on a running average basis since January 2001 has been 86.41 percent. For the past 12 months it has been 93.75 percent.