Rise of America

Remaking the World Order

THE FORBIDDEN CHAPTER

By

Marin Katusa

The Forbidden Chapter

Having finished reading my book, you now know the powerful case I make for the Rise of America.

But as the saying goes, *you ain't seen nothin' yet*.

This forbidden chapter connects the dots in a way you won't find anywhere else. Its content carries profound implications for global politics and economics.

This is the most important analysis I have written in my career, and it will be the most explosive presentation you will have read. I guarantee it.

In this chapter, I will discuss the following items:

- America's new foreign policy with China
- The evolution from capitalism to stakeholder capitalism
- The importance of carbon credits to America's Industrial Revolution
- How the American consumer will cause more geopolitical change and have a larger environmental impact than any military in history
- Carbon Rangers: Guardians of the environment
- How to profit from the greatest pool of capital ever entering one sector: Global War on Carbon

So let's get started.

That old axiom, *the only constant is change*, has never been truer. And the rate of change has become exponential. In the next thirty years, we are going to see more fundamental changes to our way of life than in all of previous human history.

We are on the cusp of revolutions in just about every human endeavor you can think of. From biotechnology to robotics to artificial intelligence to nanotechnology to energy production to materials, on and on. The list is endless.

As I've shown, America will lead the way.

But there's one thing I have not yet covered, and it's a whopper. It's a development that is destined to resolve one of mankind's thorniest challenges, it will affect geopolitics and geo-economics in profound ways (an order of magnitude greater than that experienced by the fracking revolution), it will create the most significant commodity of the twenty-first century, it will provide investors with the greatest investment opportunity of their lives, and it will all happen because of the powerful positive force of democratic capitalism.

Sounds like a tall order, doesn't it?

It isn't.

In fact, this change is hiding in plain sight.

Everyone, from politicians to economists to financial analysts to military defense planners, should be talking about it, all the time—and about the second-order effects it will have across the globe.

Yet astonishingly, almost no one is saying a word about it.

In a nutshell, it all comes down to a single, vital word: carbon.

Carbon

Yes, I know that some of you do not believe in climate change. Fine. It's neither my purpose nor my inclination to debate the issue here. Not that I even could. My technical background is in mathematics, and professionally I am the largest independent financier in commodities globally—not a climatologist.

But personally, I accept the science that tells us greenhouse gas (GHG) emissions are warming the atmosphere. I believe the impact is severe and will become even more severe in the future.

The *Airpocalypse* is upon us and has been for many years, with all of the negative consequences that warming brings with it. Over four million deaths a year are a direct result of air pollution and climate change. The number will continue to rise significantly.

It is overwhelmingly in our best interests to reduce our carbon emissions. From here on out, I will proceed as if that is settled. But my larger point is that *even if you disagree, **it doesn't matter***. Because looking ahead, shrinking our carbon footprint is going to be a major focus of governments, nonprofits, wealth funds, and increasingly, the private corporate sector.

I will show you beyond any doubt that the greatest financial opportunity ever is already taking shape. For your own wellbeing, you want to be on the right side of this revolution, which involves the direct offsetting of greenhouse gas emissions via carbon credits.

It's a classic win-win situation. I think it's foolish not to acknowledge the threat of climate change. But if you are in that denier camp, take comfort in the knowledge that remediation efforts will remove other pollutants from the air as well. I don't believe that anyone wishes to breathe dirtier air.

If you stand with the majority that recognizes the threat, you will cheer the fact that we can and do choose to address it. You'll have the added satisfaction of knowing that, given the chance, the American people will act responsibly in the face of an enormous challenge, and are capable of mounting a vigorous response.

And you'll see that it truly is possible to *do financially well by doing good*.

Here's the bottom line: **Capitalism will save the environment**.

Write that one on the wall.

It's an especially important truth to recognize at a time when the thinking of large numbers of people is headed in the opposite direction, toward a belief that some brand of socialism is the answer to all of our problems.

It isn't, despite how those loud socialist apologists often seem to voice the dominant opinion in the marketplace of ideas.

Capitalism, and the power of market forces, will not only continue to raise everyone's standard of living across the globe, as it has for the past several hundred years. It will, at the same time, save the environment from the degradation for which capitalism is so often blamed.

But it won't be the capitalism your parents know or the capitalism you learned about in school. Capitalism as we know it is evolving into capitalism 2.0, or stakeholder capitalism.

Stakeholder capitalism is the bettering of all involved in the marketplace: the company and its shareholders, the environment, the government, and the local population and indigenous people of the region. It has to be a positive for all—not just the company and its shareholders.

Don't believe me? I get it. Guardedly skeptical? Of course. Some segments of the media trumpet an opposing point of view, 24/7. But please, read on.

Most Americans don't even know what a carbon credit is. Purchasing a single carbon credit offsets the emission of one metric tonne of carbon dioxide or other greenhouse gas (GHG), which is measured and accounted for as CO_2e (carbon dioxide equivalent). A carbon credit is created each time a tonne of CO_2e has been sequestered (reduced) and independently verified by the auditors.

Carbon credits are a commodity because they must be created by the actual reduction of CO_2e (think absorption) from the atmosphere. These credits can then be traded on a trading platform, just like any commodity or stock. That is, they can be bought and sold on an exchange, like stocks or bonds. When a corporation uses a carbon credit to offset a tonne of emissions, the credit is gone forever. Carbon credits can never be recycled or re-used.

Thus, let's say you own a company that emits one tonne of GHG. If you fund or purchase one tonne of emissions reduction (one carbon credit), you have a neutral carbon footprint. That is called "net zero," meaning the amount of carbon emitted is equal to the amount of carbon removed from the atmosphere. Net zero will be a term you will read and hear about a lot over the next 25 years.

Before we project what the future of this sector will look like, let's first examine the inception of carbon credits.

In 1997, under the Kyoto Protocol, 180 nations signed up to reduce their GHG by 5 percent from 1990–2010. The U.S. was one of the few countries that did not ratify the protocol. Not that it much matters, because not one nation that signed onto the Kyoto Protocol met its target.

Why? Frankly, because it was implemented by government bureaucrats who had no skin in the game. Good intentions, without any financial consequences, will only achieve so much. Also, the Kyoto Protocol failed to get corporate sponsorship. I will show why that is absolute key to making carbon emissions reduction a reality and how it's already underway.

The U.S. was an original signatory to the 2015 Paris Agreement, along with nearly 190 other nations. The Paris Agreement was supposed to fix the flaws of the 1997 Kyoto Protocol and actually make a difference to the climate. President Trump withdrew the U.S. from the agreement in 2017. But the ping pong game continues, as President Biden signed an executive order to readmit the U.S. to the agreement in early 2021.

The Paris Agreement sets out a global framework to combat the worst of climate change by limiting global warming to well below 2°C above pre-industrial levels, in pursuit of efforts to limit warming to 1.5°C. It represents a bridge between current policies and the attainment of complete global carbon neutrality before the end of the 21st century.

Again, that's a lofty goal. It is definitely achievable, however, beginning with the buildout of the new structure for energy production that I outlined in Chapter 6. But without corporate buy-in and most importantly, the buy-in of average Americans, the goals will not be achieved. I will explain in detail the incentives for everyone, from the largest corporations to the parent driving their kids to school in a minivan, that will result in this goal being achieved.

The Paris Agreement was the catalyst to getting corporations to start making commitments of reducing their own greenhouse gas emissions. It was only a small percentage of corporations to start. That number has grown considerably since the Paris Agreement, but is still only a small percentage of public and private corporations.

In the early days after the 1997 Kyoto Protocol, carbon taxes seemed like the solution for the bureaucrats and politicians attempting to deal with CO_2 emissions. That is, government would hit emitters with a graduated tax, rising along with the amount of GHG their operations emitted. End-users, too, could be taxed.

The difficulty is that it's an indirect approach; it doesn't strike at the heart of the problem: physical GHG emissions reduction. In addition, a politician who got their hands on carbon tax money could spend it in ways having nothing to do with pollution mitigation and on self-serving policies. Do you trust most politicians to do the right thing? I don't.

Where they've been tried, carbon taxes have produced mixed results. Additional approaches needed to be implemented.

Carbon credits are a decentralized means of creating value by anyone who is creating a project that offsets CO_2 emissions. Carbon credits are tied directly to carbon emissions reduction, providing a strong incentive for companies to, once again, do well by doing good.

The carbon credit idea has caught on in Europe, but not so much in the U.S. That is about to change, in a very big way—and as the U.S. goes, so goes the rest of the world.

As we walk through this shifting political-economic landscape, it's important that you keep one of the key drivers of that massive shift in mind: demographics.

Demographics

Turn the clock back to 1946. World War II was finally over. G.I.s had returned home. Weary of conflict, Americans wanted nothing more than prolonged peace and the re-establishment of normalcy. They settled down. They began making babies like crazy. And thus the baby boomer generation was set loose on the world, kicking and screaming.

Baby boomers (those born between 1945–1964) emerged into a population that had been decimated by war and marked by abnormally-low birth rates. They quickly created a demographic bulge. By 1964, they were the most populous group in the country, a distinction they would hold for half a century.

As the boomers moved through their natural lifecycle, they gave rise to an economy designed around them. When you're the dominant population group, everyone wants to please you. That's where the profit is. Businesses shifted their focus as the years passed, catering to the fickle wants and needs of the youth culture of the '60s and '70s, the rising professionals of the late 20th century, and the aging citizens of today.

They were a curious group, these boomers.

For one thing, they were far more socially conscious than their parents. They fought for civil rights and brought about the end of the Jim Crow era. They established the principle of equal rights for women. They joined the Peace Corps. They marched in an effort to bring home their peers who had been sent into the quagmire of Vietnam, and to bring an end to the country's foreign forays.

They were enormously creative, contributing to an explosion of new music, art, and literature. And they were inventive, giving us personal computers and the internet, eventually transforming the way business was done in America and beyond.

At the same time, and often contradictorily, they were self-absorbed and the progenitors of the ultimate consumer culture. They had an insatiable desire for the latest hot

products, they wanted them at bargain basement prices, and they didn't care where the goods they purchased came from. Walmart's slogan—*Always low prices. Always*.—was pitched right at them, and their shopping habits made Walmart into the retail juggernaut it became. Ditto with Amazon.

Boomers inadvertently spawned the outsourcing and offshoring movements that led to the demise of American manufacturing and the rise of China as the manufacturer of just about everything. Cheap Chinese goods flooded the country, and dollars flowed out.

The consequences were a mixed bag. On the one hand, even though they toil for what seems like starvation wages to us, hundreds of millions of Chinese workers have been lifted out of poverty. On the other hand, working conditions in China are often hellish, and environmental considerations are ignored.

Boomers transformed America in many positive ways. Many of them put pressure on domestic businesses to improve conditions in their foreign-based manufacturing facilities. But for most, their social concerns ended at the border. As long as those athletic shoes remained affordable, customers preferred to turn a blind eye to the source.

Then the boomers had children of their own.

Enter the millennials (those born between 1981 and 1996). Just as the Boomers created a demographic bulge, so did their kids. Millennials surpassed boomers in total numbers in 2019, and by 2020, the millennials were the largest generation in the labor force.

They will now enjoy their turn as the favored demographic. Whether they will rule the roost as long as the boomers did remains to be seen. But considering that America has experienced declining birth rates for some time now, they look destined for a significant run.

Millennials are similar to boomers in their social consciousness. Their concept of America is of a country that has finally banished all forms of discrimination, where *fairness* in commerce and trade is valued and where all people have an equal shot at success. As they make their purchasing choices, they are going to be more selective than their parents. They also believe in climate change and they want to do something about it.

They have a vision that embraces what John Mackey, founder of Whole Foods, calls *conscious capitalism*.

In recent decades, the emphasis in corporate boardrooms has been on increasing *shareholder* value, to the exclusion of any other goal. Greed is good. Thus we have had a profusion of stock buybacks, M&As, and other maneuvers designed not to improve a company's performance but simply to drive up its share price, benefiting only the officers and shareholders.

Millennials may be leading the charge against this way of doing business, but ever-increasing segments of society are equally fed up. Companies are feeling the heat, as they are called upon to consider not just shareholders, but *stakeholders* as well.

What's the difference?

A shareholder owns part of a public company through shares of stock, while a stakeholder has an interest in the performance of a company for reasons other than the stock's price appreciation. Stakeholders tend to have a greater desire for the company to succeed over the long term.

Stakeholders are not just owners and shareholders, but also employees of the company, bondholders who own company-issued debt, customers who rely on the company to provide goods or services, suppliers and vendors who are dependent on the company to provide a consistent revenue stream, the residents and indigenous people who live where the operations of the company are located, and of course the environment and wildlife habitat.

These are the pillars of *Conscious* or *Stakeholder Capitalism*, also known as ***C****orporate* ***S****ocial* ***R****esponsibility* (**CSR**). It's a self-regulating business model that helps a company be socially accountable to itself, its management, its shareholders, its suppliers, its customers, the general public, the government, indigenous peoples whose lands may be occupied by industry, and the environment.

CSR is an important part of the next evolution of capitalism. It will force companies to take the interests of *all* stakeholders into consideration—hence why I refer to the future of capitalism as "stakeholder capitalism." Shortly, you will see that the biggest benefit to corporations for achieving a high standard of stakeholder capitalism will be a low cost of capital. But before we jump to the conclusion, we will walk through the steps in this framework.

Companies will be held accountable by shareholders and consumers, to consider their impact on the environment as an integral of part their decision-making processes, instead of making choices based solely on the interests of shareholders. Under CSR, the general public is recognized as an external stakeholder, and companies have to avoid practices that negatively impact them.

Pollution, including carbon emissions, must be factored into the cost of doing business. CEOs get it. They are not stupid. They can see the writing on the wall. And the writing says that future corporate success is going to depend, in large measure, on *how well a company adheres to the principles of* **ESG**.

If you haven't heard of ESG yet, trust me—you will. It is an initialism of huge importance.

E = Environmental criteria.

These criteria consider how a company performs as a steward of nature. Environmental criteria may include a company's energy use, waste, pollution, natural resource conservation, and treatment of animals. The criteria can also be used in evaluating any environmental risks a company might face and how the company is managing those risks. For example, are there issues related to its ownership of contaminated land, its disposal of hazardous waste, its management of toxic emissions, or its compliance with government environmental and water regulations? And perhaps overriding all others, is the company engaged in the fight against climate change, as evidenced by its plan to reduce carbon emissions and its actual implementation of carbon reduction? The technology now exists to track in great detail and with great accuracy the compliance and effectiveness of these measures.

S = Social criteria.

These criteria examine how the company manages relationships with employees, suppliers, customers, and the communities in which it operates. Does it work with suppliers that hold the same values as it claims to hold? Does the company ensure its products and services do not pose safety risks? Do the company's working conditions show high regard for its employees' health and safety? Are other stakeholders' interests taken into account? Does the corporation's activity enable the increase in professional development of the local population, including indigenous people?

G = Governance.

This deals with a company's leadership, executive pay, audits, internal controls, and shareholder rights. Investors may want to know that a company uses accurate and transparent accounting methods and that shareholders are given an opportunity to vote on important issues. Has the company executed on its commitment to having a 50 percent female workforce or its goal for minorities to be present in executive-level positions? They may also want assurances that companies avoid conflicts of interest and practice diversity in their choice of board members, don't use political contributions to obtain favorable treatment, and of course, don't engage in illegal activities.

There is no comprehensive global system for corporate disclosure on ESG issues yet, but you can be certain that one will be forthcoming. A number of nonprofit organizations, such as the Sustainability Accounting Standards Board (SASB), Carbon Disclosure Project (CDP), Climate Disclosure Standards Board (CDSB), Global Reporting Initiative (GRI), and the International Integrated Reporting Council (IIRC) are presently developing metrics.

This is a revolutionary development. It has enormous economic and geopolitical implications that I'll go into in a moment. At the same time, it opens up an investment opportunity that, while still in its infancy, *is already financially outperforming everything else in the world!*

I know—you don't believe me. It isn't possible that the planet's number one investment is something you've never even heard of. I can't blame you for thinking that.

But answer me this: What then *has* been the top-performing investment of the past three years?

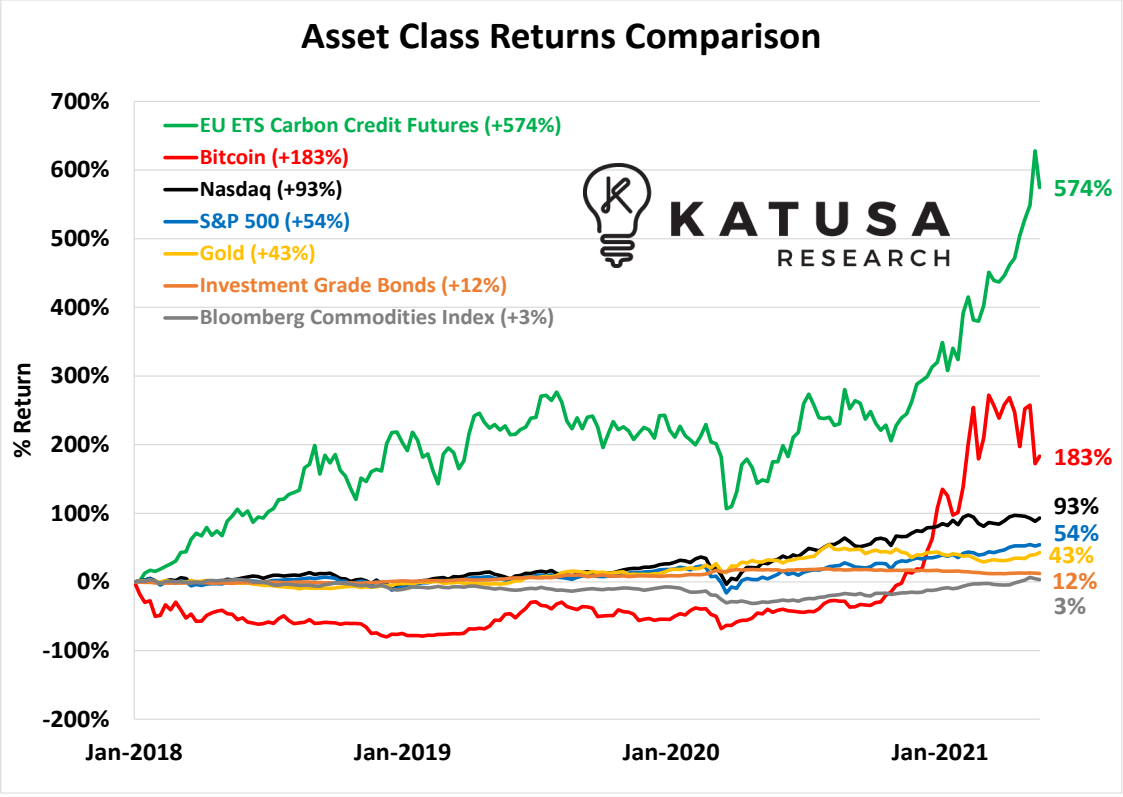
Go ahead, take your time. I can wait…

Still waiting…

Ok, did you say gold? Nah, not even close. The S&P? Not a bad choice. It's done well. The NASDAQ? Even better. Or perhaps you guessed Bitcoin. Now you're on your toes. Better still.

Nevertheless, if you said any of these, you didn't get it right.

Have a look:



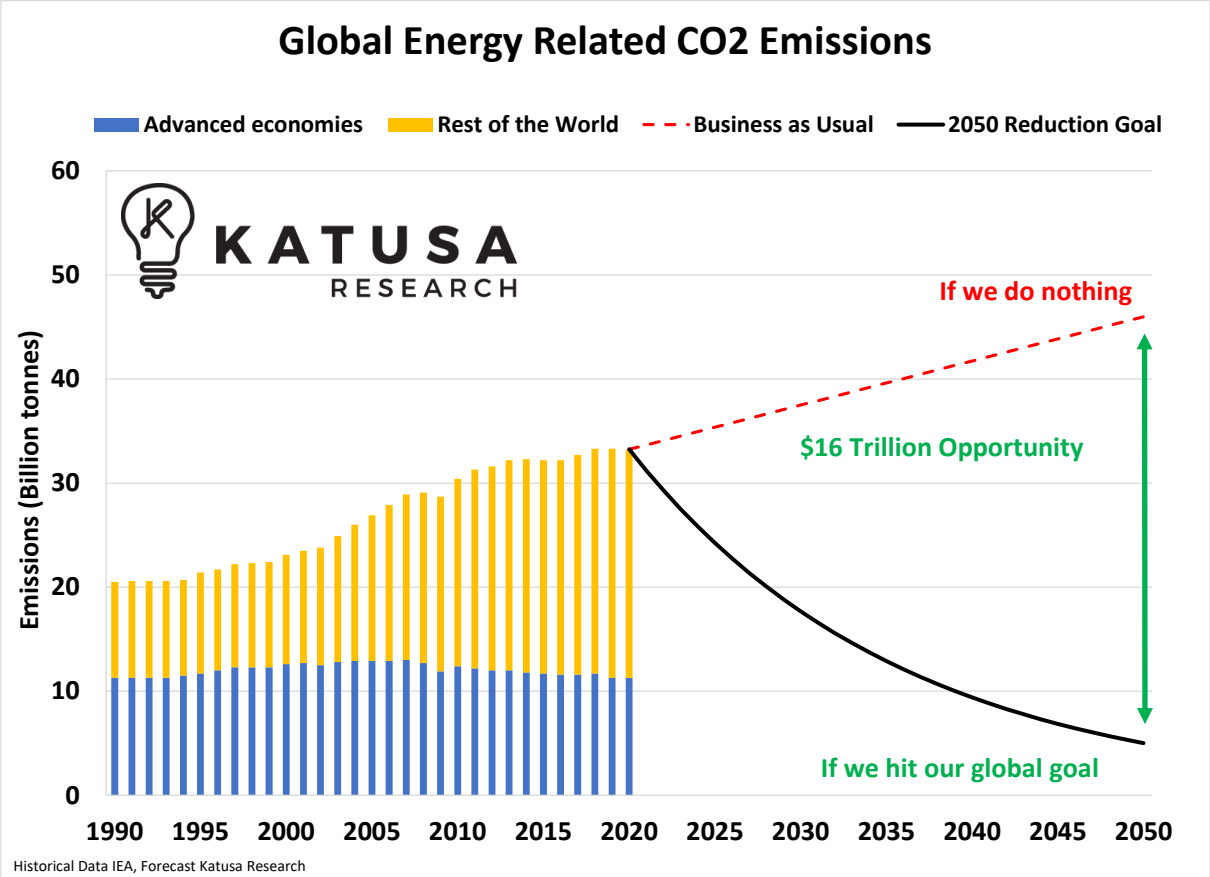
That's right. The correct answer is **carbon credits**. Since January 2018, almost no one has noticed that green line. But carbon credits have been the top-performing asset class in the world over that time period.

It's an invisible bull market, which means it is still very early in the carbon credit financial lifecycle.

The Carbon Opportunity

As dramatic as that chart is, we're only at the beginning of a stunning, multi-decade trend.

Here's another part of the story:



Think about what this chart means. It focuses on energy-related CO_2 emissions; it doesn't include all the other industries associated with reduced greenhouse gas emissions.

Here is an implied $16 trillion opportunity—at current carbon credit prices. It's not a stretch to imagine that the world's first trillionaire will be whomever most effectively solves the carbon emissions problem.

You're looking at yet another fantastic opportunity that will help fuel the Rise of America.

Green Shopping

I'll return to investment considerations in due time, but for now let's go on a CO_2-reduction shopping trip with some millennial parents for their kids' soccer team.

The decision is between two competing brands of soccer shoes and jerseys, where one is certified as *green* (i.e., from an environmentally-friendly supplier) and the other is not;

both are the same price. As noted, their social conscience will incline them toward the former.

How will they know which is which?

Simple. The seller will tell them.

Consider that over $500 billion in goods are imported each year into the U.S. from China with the click of a mouse by companies such as Walmart, Amazon, Home Depot, and Costco.

These companies use advanced artificial intelligence (AI) and big data analytics techniques to build a profile of every one of their customers (which includes just about everyone). They know who you are, your income level, the kinds of things you browse the internet for, what holds your attention the longest, and what purchases you've made. They have a good idea of where you fall on the political spectrum and how that affects your buying decisions.

These large retailers store a wealth of information on every product they offer for sale. They know everything about everything about every product.

But the retailers who have all this information do not share this data.

That will change.

The government will mandate that retailers provide data on material origination and the carbon footprint of all the products they sell.

Think of this like the change the food industry once made with the disclosure of calorie information on packaging and menus.

It will be in the best interest of companies such as Amazon and Walmart to be proactive and offer this information to their customers.

They certainly know more or less how carbon-compliant each of their suppliers is.

Mothers for a Clean Future

Soon, Amazon and its competitors worldwide will enable their customers to filter for clean, green-certified net-zero products when they are searching for a product. That includes everything from clothing to books to trinkets to food.

This single option will be a game-changer for the environment, more so than any tax or trade tariff the government could impose on China. Why?

Because it empowers the customer to choose a clean, green, carbon-neutral product that will not have the future economic environmental and social liability costs associated with it.

The giant retailers are smart. They know that consumer dollars are increasingly coming from the demographic bulge, and it's just good business to give those buyers whatever they ask for. Thus if a millennial customer wants to know how *green* the manufacturer of any given shoe might be (and they *will*), Amazon will oblige. It will take no effort at all on the company's part to post such data, right next to the specs on size and color.

More importantly, the government will mandate the carbon emissions cost to be included at the time of purchase. The price of carbon will be included in the overall price, just like taxes and shipping. The price of carbon emissions will be collected by the retailers, like Amazon, paid by the customer, and will then go to a government "green bond fund" that will be used to provide a low cost of capital to the coming industrial green manufacturing revolution in America. This will result in decreasing cost of goods and a stable, American-based supply chain for Americans.

The government will probably eventually mandate some code for a "green rating." But it won't really have to. Retailers will already be way ahead of the game. It's just good business.

This is transformative for commerce. Soon, for the first time, buyers are going to be exposed to the real cost of the products they purchase. During the heyday of globalization, that cost was masked, especially for goods from China. Consumers had no way of knowing how much of its manufacturing was subsidized by the Communist government, or how environmentally destructive the factories were.

Now they will, and this gives customers with a conscience enormous market clout. The "American Consumer" will become an incredible force of power that China is not expecting.

The public will be able to compare not just the price of a Chinese-made product, but also formerly hidden costs such as greenhouse gas emissions and the future impact costs of such "dirty" cheap products with the cost of similar products made by an American company that is carbon neutral (net zero) and ESG-aware. When all the variables are added up, American products, made in this country, will be found to be quite competitive with imports, and buyers can vote for green, made-in-America products with their dollars.

Again, these are considerations that have a wide appeal but are especially important to the millennial generation, which will constitute the demographic bulge for decades to come.

I can't stress enough how incredibly impactful this is going to be going forward. **Going *green* will revitalize the domestic American economy.**

And there's a whole lot more to the story. At the same time the American economy is heating up, the American consumer will deal a major strategic blow to the U.S.'s primary adversary in the world today: China.

Carbon credits will have the biggest impact on the global geopolitical balance since fracking.

Imagine a world where Amazon, Walmart, and Costco allow their customers to choose between a carbon net zero product and a product from a country that releases more carbon emissions than the rest of the OECD nations combined.

Imagine the industrial revolution of green jobs and manufacturing as customers exercise their right to purchase net zero products made in America for the same overall, carbon-adjusted price as goods coming from China.

It will happen.

And it will constitute the single largest disruption we have ever seen to the Communist and other autocratic regimes across the developed world.

Change is coming, with the Rise of America leading the way.

Now let's look more closely at the geopolitical circumstances under which all of this will unfold.

The Art of Competitive Engagement

For the last forty years, America's strategy with China has been one of cooperation and minimization of competition. It was the basis of *globalization*, an economic arrangement that benefitted both trade partners. Outsource cheap jobs, import cheap goods, and both sides are happy.

Now, however, globalization has run its course. The supply chain gaps that opened up during COVID lockdowns really exposed its weaknesses. But it was on shaky ground even before the pandemic, for a lot of reasons that we needn't go into here. All we need to know is what happened next.

President Trump rattled China's cage, initiating a strategy of competitive engagement with the U.S. But Trump's strategy completely failed as it devolved into a trade war—a series of tariffs and counter-tariffs—out of which no good can ever come. History has proven tariff wars never work.

Will President Biden's policy be different than Trump's with regard to China? Not at its core. The days of U.S. cooperation and minimization of competition with China are over. Full-on competitive engagement is here to stay, for both sides. Both China and the U.S. are now playing for keeps. China is playing a strategy of the long game and has done many things right.

But there is a key difference between the strategy Trump took and the one Biden is taking. That difference is securing key alliances with nation members of the EU. President Trump's mistake was alienating the EU's leaders over the EU nations' lack of

financial commitment to support NATO. Biden, to the contrary, is working to secure the EU as a firm ally in the plan for competitive engagement with China.

Biden's choice for secretary of state reflects this. Anthony Blinken spent many years in France during his adolescence. He is fluent in French and, in France's bureaucratic circles, he is seen as "one of us."

Blinken grew up in Manhattan and attended Dalton, a very expensive prep school in the Upper East Side, then went on to Paris. He returned to the U.S. to attend Harvard and received a law degree from Columbia Law School. It's the perfect upbringing and resume for a lifelong bureaucrat and future secretary of state.

Secretary of State Blinken's strategy is not to reset relations with China that were fractured and stressed by Trump. The new administration's approach is to reset the fractured relations with the EU, starting with France, then Italy and Germany. Then the rest of the EU will fall in line. The resetting of relations with the EU, and then solidifying a strategic alliance with them, will in the Blinken/Biden strategy provide leverage against Russia and enhance full-on competitive engagement with China. (Japan, Korea, and India—other Chinese adversaries—had no choice but to join an alliance with the U.S., so they are already on board.)

A key component of competitive engagement will be supplied by the American consumer. Freed up to make fully-informed purchasing decisions based on cost and full-cycle carbon footprint costs, buyers will increasingly choose to back American businesses and decrease their tacit support of the authoritarian Communist regime.

Instead of state-subsidized Chinese enterprises undercutting American firms, the opposite will take hold. John and Jane Smith will feel really good about themselves as they realize they're instrumental in hobbling the artificially-inflated Chinese economy.

Do you understand what a massive geopolitical and macroeconomic shift this will be?

Whatever you think, multiply it by ten.

The Securing of Resources

Before I leave the subject of China, one more thing.

Just like in the past, the securing of modern resources is key for a competitive advantage.

Churchill brilliantly led the British naval fleet from coal to oil, which helped win WWI against the Germans.

As you've read, the combatants in competitive engagement today are the U.S. and China, with each continually jockeying for position. As a result:

- **A race for strategic metals, technology, and mineral deposits is fully underway.**

China is playing for keeps, as it always does. With the U.S. government now moving towards full competitive engagement, the control of strategic resources will be critical for America's success (without resources, you don't have manufacturing capabilities or military preparedness).

China is currently ahead of the U.S. when it comes to some resources, notably rare earths. But America is working hard to shore up its own supply lines (by exploiting domestic rare earth deposits, for example).

As discussed in Chapter 2 of *The Rise of America*, to that end, the distinction between **+SWAP Line** and **–SWAP Line** nations comes into play. In short, the security of the U.S. as a nation depends on establishing or maintaining strong relationships with developers in +SWAP Line nations and avoiding the political risk posed by dependence on –SWAP Line nations for natural resources. In general, the country is doing a good job of it—while China has its own problems in this area.

This is not only a geopolitical story; it also has profound investment implications. I have been pounding the table in an attempt to get people to understand the political risk in –SWAP Line nations, which I believe the investment community has completely mispriced. Again, refer back to my earlier SWAP Line discussion.

I believe this will be a multi-year developing story in the resource sector. All commodities will be exposed to greater or lesser amounts of risk, depending on where their extraction projects are located. Reliance on +Swap Line nations for supply will be key.

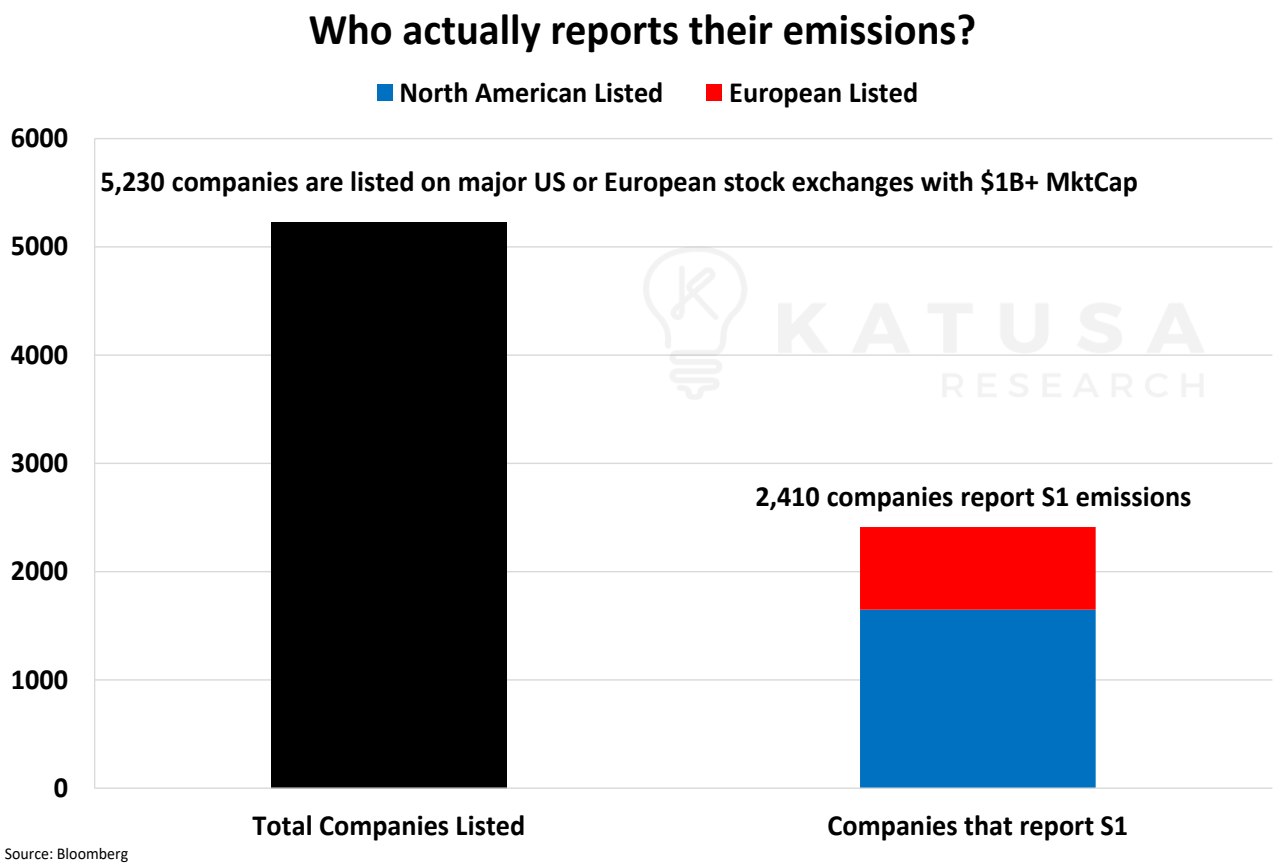
Calculating Carbon Costs

I have yet to see any research reports that incorporate the cost of carbon emission costs in their NPV calculations. This would clearly impact the valuations and expected cash flows. Carbon emissions will become a liability on corporate balance sheets. An investor can get ahead of the trend by incorporating these eventual costs into their evaluation models to better asses the real value of a company. Those who ignore will get hit later. Fortune favors the bold, but pays the informed.

Going Green Is Good Business

Now let's return to some further carbon reduction considerations.

There are more than 5,200 companies with $1 billion+ market caps that are publicly listed and trade on the North American and European stock exchanges. Of those, 2,400 companies report their Scope 1 greenhouse gas emissions.



A little background:

- Scope 1 emissions are the direct greenhouse gas emissions from company operations.
- Scope 2 emissions are the indirect greenhouse gas emissions from energy purchased by the company.

Scope 1 and Scope 2 emissions are within the direct control of a company. The criteria for identifying and reporting them is well established, transparent, and consistent across industries.

- Scope 3 emissions include the indirect emissions (not included in Scope 2) that occur in the value chain of the company (this includes both downstream and upstream emissions).

These remain underreported. There needs to be more legislation and international body governance on Scope 3 emissions as they include many “grey” areas open to interpretation and debate.

The chart above only includes Scope 1 carbon emissions, as there are no debates or discrepeancies concerning these. Only 40 percent of large-cap companies reporting Scope 1 will change. Regulatory authorities such as the SEC are on the case. It’s only a

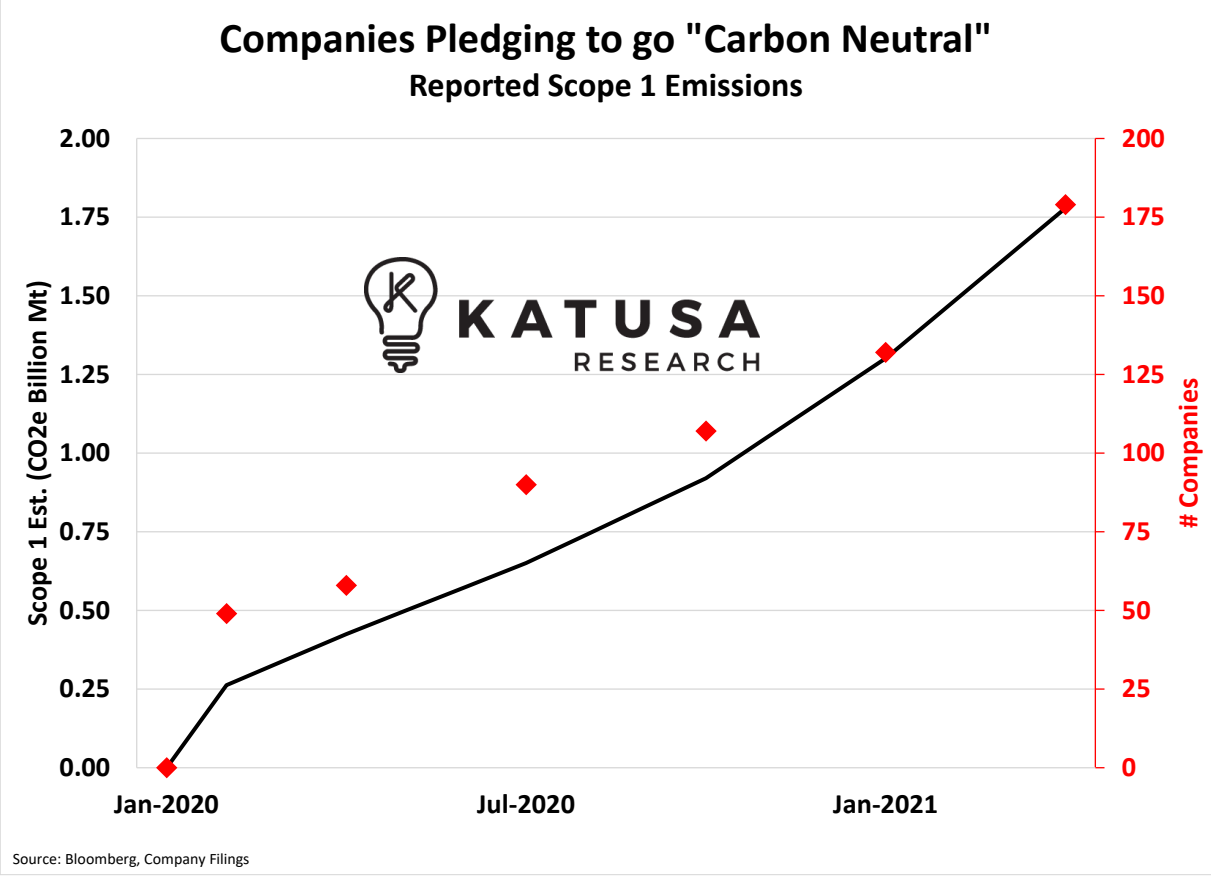
matter of time before they mandate that all companies include a Scope 1 emissions report in their financial statements.

Scope 2 reporting will follow, and perhaps eventually Scope 3.

But reporting is one thing—action another. Currently, out of those 5,230 companies with $1 billion+ valuations that are publicly listed in North America and Europe, only 457 (8.7%) have publicly announced some kind of plan to reduce GHG emissions as of May 25, 2021. This does not mean that the companies have actually achieved any reductions—only that they are talking about trying to implement strategies (many of which they have not even started).

Again, this will change. In 2020, more than 125 larger coporations announced plans pledged to voluntarily go carbon neutral based on their Scope 1 emissions.

It's a number that's growing fast, as you can see from the following graph.



The trend is obvious, as more and more companies sign up to do this.

Oh sure, the cynic might say. *These companies are all talk. When push comes to shove out in the real world, they'll just drag their feet, winding up like the 100 percent of Kyoto Protocol members who missed their targets. Won't they?*

No, they won't.

Is this because the archetypal bunch of rich old white men manning America's corporatocracy suddenly saw the light, bought into the concept of climate change, and out of the goodness of their hearts want to clean up the environment? Not at all. It's about something more fundamental: the *cost of capital*.

Read that again. **The cost of capital**. I can't overstate the importance of this.

You already know that capital is the lifeblood of business. Companies must have access to it in order to grow, and sometimes merely to fund continuing operations. **What you may not know is that the fastest-growing source of capital on the planet are large ETFs and funds with clear ESG mandates.**

Huh?

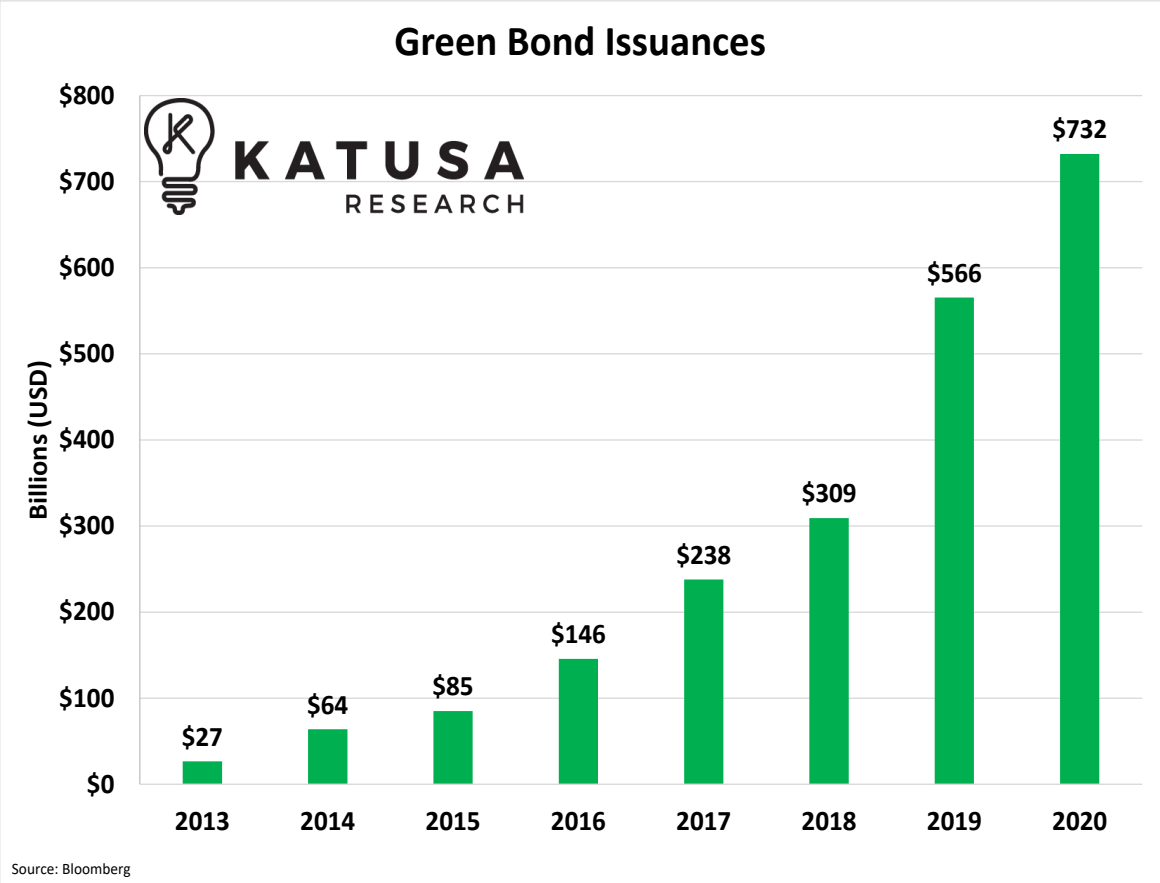
That's right, *green bonds* are the newest and largest source of growth in the bond market. And the bond market dwarfs the stock market. The bond market is where the smart money and big pools of capital—like pension funds and sovereign wealth funds—go to invest.

If you'll allow me to mix my colors: green bonds are ***red hot***. A decade ago they barely existed. But since 2013, they have seen over 2,600 percent growth.

And they've only scratched the surface of the capital that's available. As millenials gain traction in the market, grow their wealth (much of it as a result of the biggest transfer of assets in history as their parents retire), and become major players in the investment space, they will insist that all funds they invest in use green bonds with an ESG mandate.

That market is probably more robust than you think. From a December 2020 report by mutual fund management firm VanEck: "The U.S. has a large green bond market comprising corporate, agency and muni issuers with over $200bn of issuance, accounting for 21% of the global market and ranking it #1 in terms of country of issuer."

Check out what's happened with green bond issuances over the last seven years:



That's some growth!

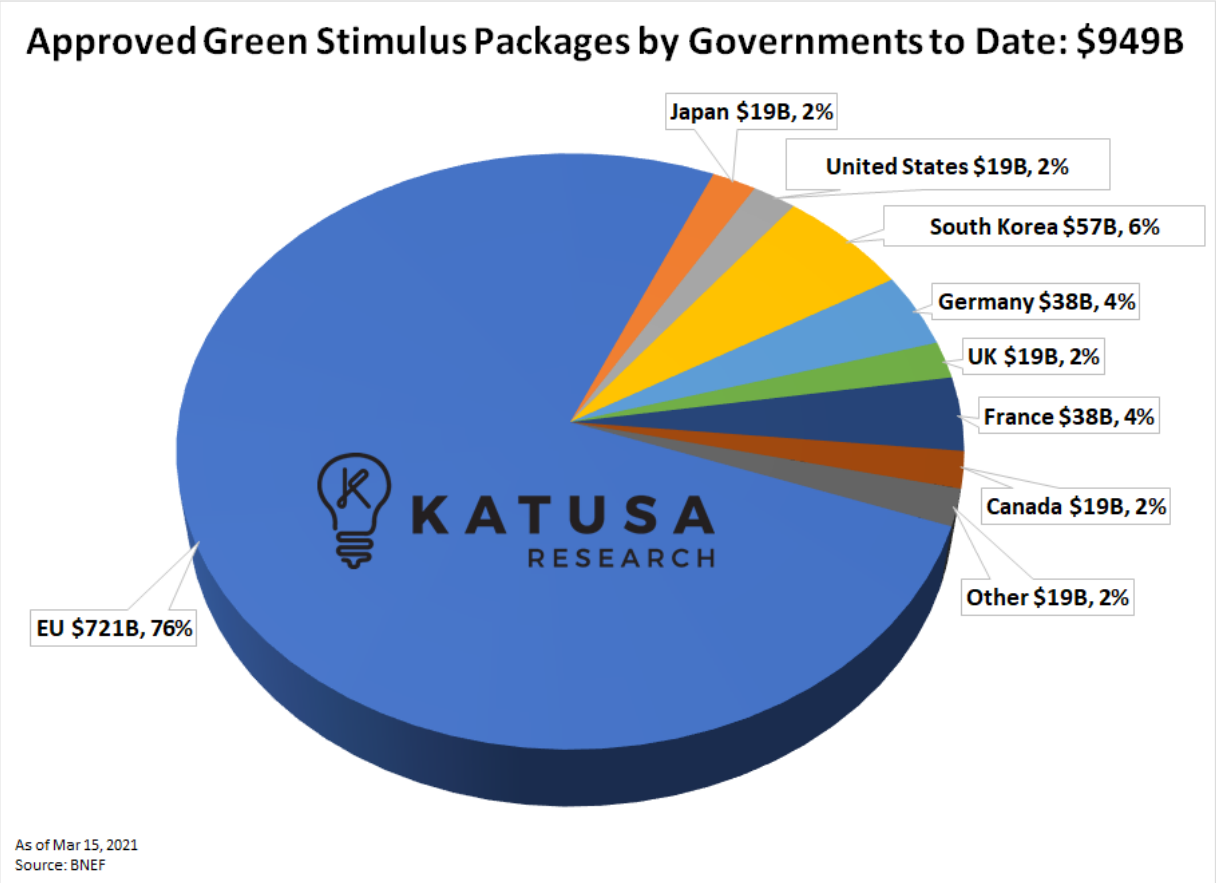
And extrapolating from this, using a 60 percent average year-over-year growth rate, the green bond market will increase by another *hundredfold* within the next decade.

Look at it this way: mega-corporations from Apple to Exxon all tap into the bond market for the big money needed to fund their businesses. When they do, they want to access the very lowest cost of capital. Anyone unable to meet the strict demands of the green bonds' ESG mandate will be shut out of its low-cost capital. They will have to pay higher interest rates to borrow money.

That's why the old white dudes running most of these corporations are forcing their companies to reduce their carbon emissions. It's pure self-interest. They have to secure future sources of capital at a low cost and, increasingly, this is what it will take. If they fail, their operating budget goes up, profits fall, and before long they're out hunting for a new job that pays as well. Good luck with that.

The 8.7 percent of major companies that are at least talking about emissions reduction will be first to the table. But now the other 91.3 percent will have to quickly follow suit if they expect to access this gargantuan source of capital.

Washington has been slow to catch on to what's happening, largely because of the Trump administration's aversion to anything with the word *green* attached. But the EU has jumped in with alacrity. You'll see this in the following pie chart, which depicts all approved funding from national and subnational governments earmarked to spur a green economic recovery (note that that's nearly a trillion, with a *T*, despite limited participation from the U.S. government as yet).



You can expect this to change rapidly under the Biden administration. Trillions of domestic dollars will enter the green bond market, and the federal government is not likely to sit on the sidelines.

Will we see green bond offerings from the Treasury? It's going to be tempting, especially given the $2 trillion price tag on Biden's infrastructure plan, his stated goal of net-zero emissions by 2050 with 100 percent reliance on clean energy, and Republican resistance to tax increases.

And there's precedent. Many countries have already issued government green bonds, including France, Germany, and Chile—with the U.K. and Canada slated to join the party in late 2021.

Being readmitted to the Paris Agreement opens the door for the U.S. to take more of a leadership role in coordinating global efforts to combat climate change. Forthcoming cooperative efforts to nail down global green finance standards will provide a higher degree of regulatory certainty to investors and issuers, thereby spurring even faster growth of the U.S. green bond market.

See the emerging theme here? Once again, companies and individual investors will be offered the opportunity to do well financially by doing good. And all of these developments, taken together, will be a **monumental game-changer**.

The Great Rotation – From Carbon Intense to Carbon Zero

The thing to remember is that carbon credits are not command-and-control regulations, like taxes. They are a market-based mechanism.

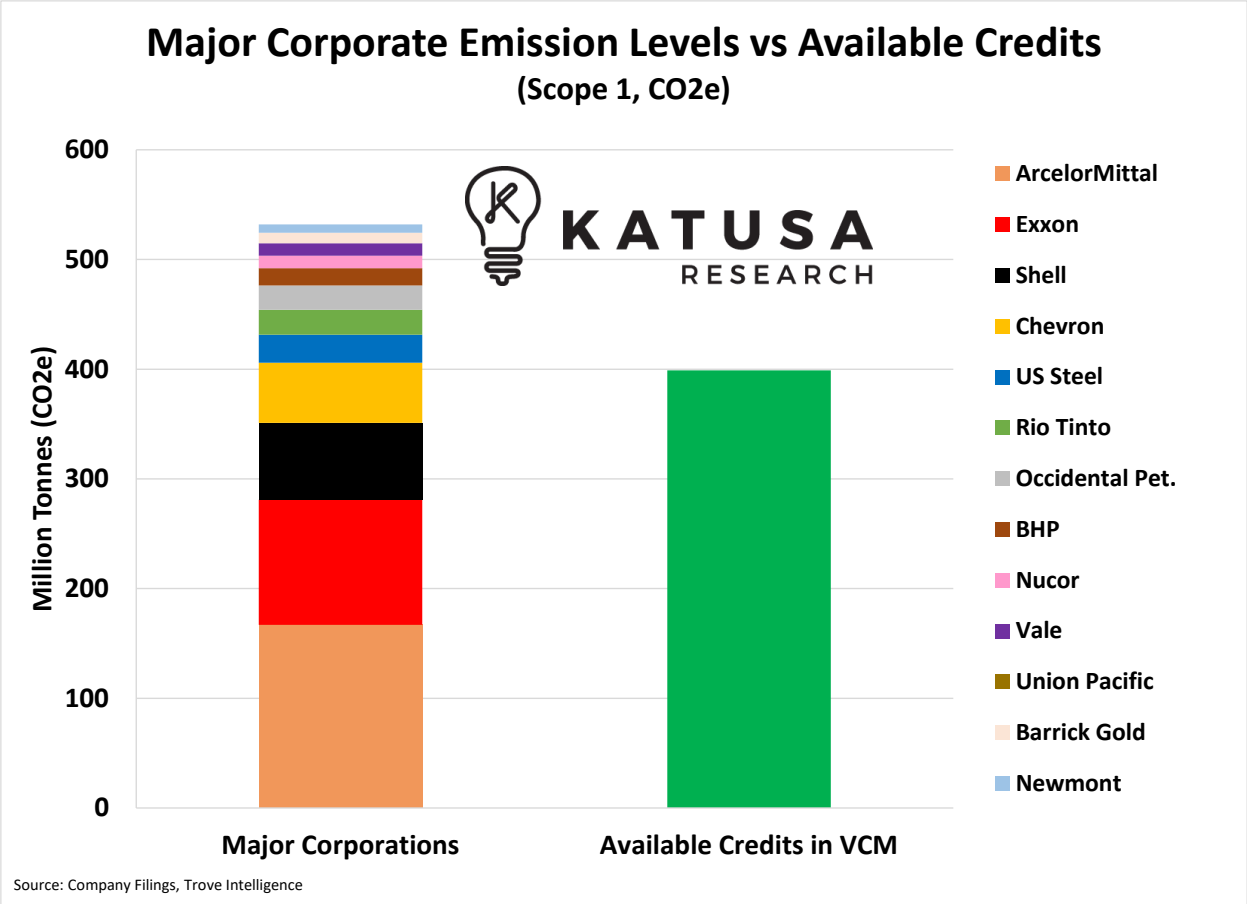
The other key aspect is that there is no replacement for carbon credits, and they are not easy to produce. Just like any commodity, they take money, time, and know-how. You can't just create them out of thin air as you can a tax.

In order to produce a carbon credit, you either have to do something that reduces CO_2 emissions by one metric tonne, or you have to sequester a carbon offset (more on that in a moment).

As I've shown, less than 10 percent of the publicly listed companies in Europe and North America with a value north of $1 billion have announced that they are even thinking about GHG emission reduction targets. But more and more companies will commit to reducing emissions, if for no reason other than the positive effect on their cost of capital.

Thus the price for carbon credits must increase along with their demand. And there aren't enough of them to go around right now.

If just a small subset of companies tried to go carbon neutral, well… four companies could easily acquire all of the carbon credits available in the **Voluntary Carbon Market** (**VCM**).



I want you to look at that chart and think about this incredible economic opportunity for a second. It would only take four companies I selected to go carbon neutral for one year to consume all of the carbon credits on legitimate platforms that have been created and certified since 2010.

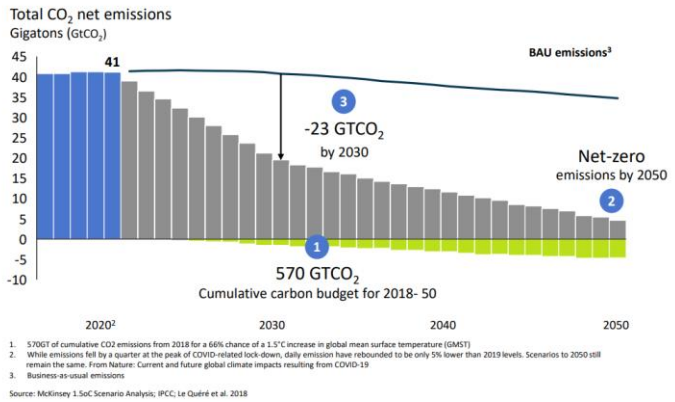
That's right: only thirteen companies would consume ten years worth of all the carbon credits created globally to go carbon neutral for one year.

To take this thought even further, about 180 million carbon credits were created and certified globally in 2020. Just Shell and Exxon going carbon neutral for one year would gobble 100 percent of those credits. That is an incredible supply/demand gap and an incredible opportunity for entrepreneurs to create quality carbon credits that will meet corporate demand.

The transition to "decarbonize" the world is at an incredible inflection point and one that all Americans, especially investors, need to be aware of. This is going to be a major investment trend for the next three decades. (I'll have more to say about investments a little later.)

The 2015 Paris Agreement set the course, creating a legally-binding treaty on climate change. A binding agreement brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects. The goal is to limit global warming well below 1.5 degrees Celsius.

The following chart shows the projected reductions required to meet the terms of the Paris Agreement.



This is an absolutely massive undertaking.

The European Union has a stated goal to reduce greenhouse gas emissions by up to 55 percent by 2030 (compared to 1990 levels), and the European Commission outlined its roadmap for the European Green Deal earlier this year. The deal sets the stage for net zero carbon emissions by 2050. The total fiscal response is estimated to be over €7 trillion. I think it's going to take much more money than that. And the governments will have no hesitation printing more.

Here at home, analysts at Princeton University computed that the path to net zero for the United States will require over $9 trillion in capital expenditures over the next thirty years.

Both the dollar figures and the infrastructure required for this type of agenda are astronomical—almost unfathomable.

Some of the most influential figures in global finance are staking their careers on this movement.

- Mark Carney, former governor for both the Bank of Canada and the Bank of England and the financial advisor to Boris Johnson
- Tim Adams, President and CEO of the Institute of International Finance
- Annette Nazareth, former SEC Commissioner
- Bill Winters, CEO of Standard Bank

These four individuals—among the most powerful people in the world when it comes to international finance—have joined together to create the **Taskforce on Scaling Voluntary Carbon Markets**.

The goal of the task force? To promote the expansion of capital flow into global decarbonization strategies and to meet the goals of the 2015 Paris Climate Agreement.

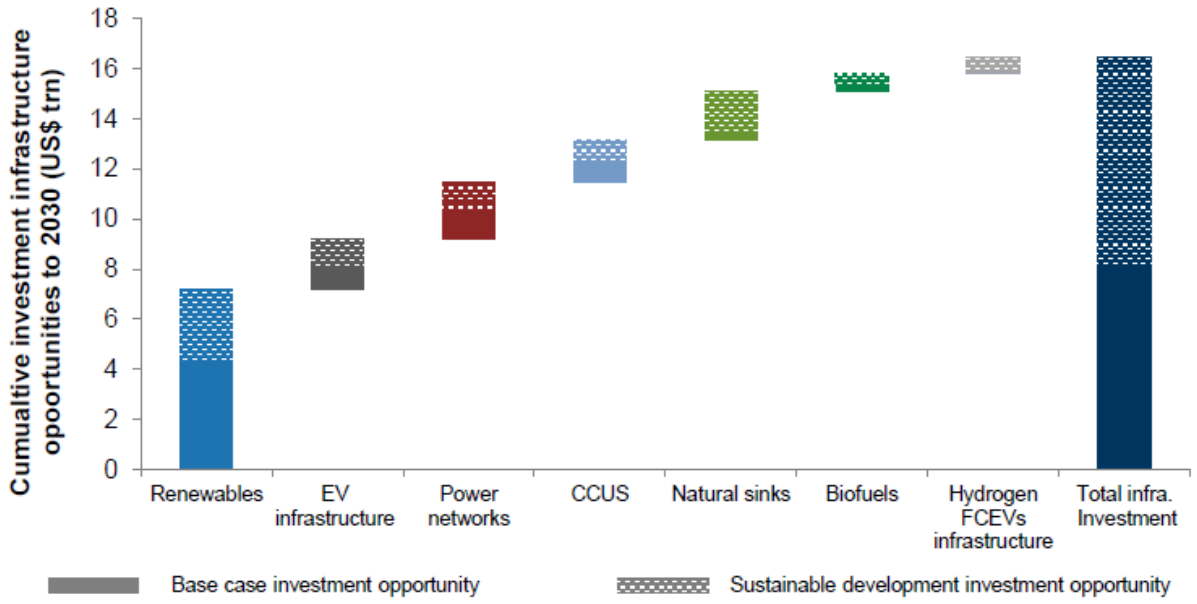
Make no mistake: The actions taken by this group should not be glossed over. This is not just some "feel good" volunteer endeavor for these folks. They are the brightest minds in global finance, they're serious, and they set precedents for the rest of the world to follow. I wouldn't be surprised to see them win a Nobel Prize within a decade for their efforts.

For comparison, it took approximately 150 years for the United States to build out its current electricity infrastructure network. To meet the net zero goal, that entire system needs to be overhauled in just twenty years. Possible, but it will cost trillions of dollars.

Net zero is the largest government make-work project in history, and it is at a global scale.

Globally, clean tech has the potential to drive USD$16 trillion of green infrastructure investments and create 15 million–20 million high-paying jobs worldwide by 2030.

Cumulative investment in clean energy transition to 2030 (US$ tn)



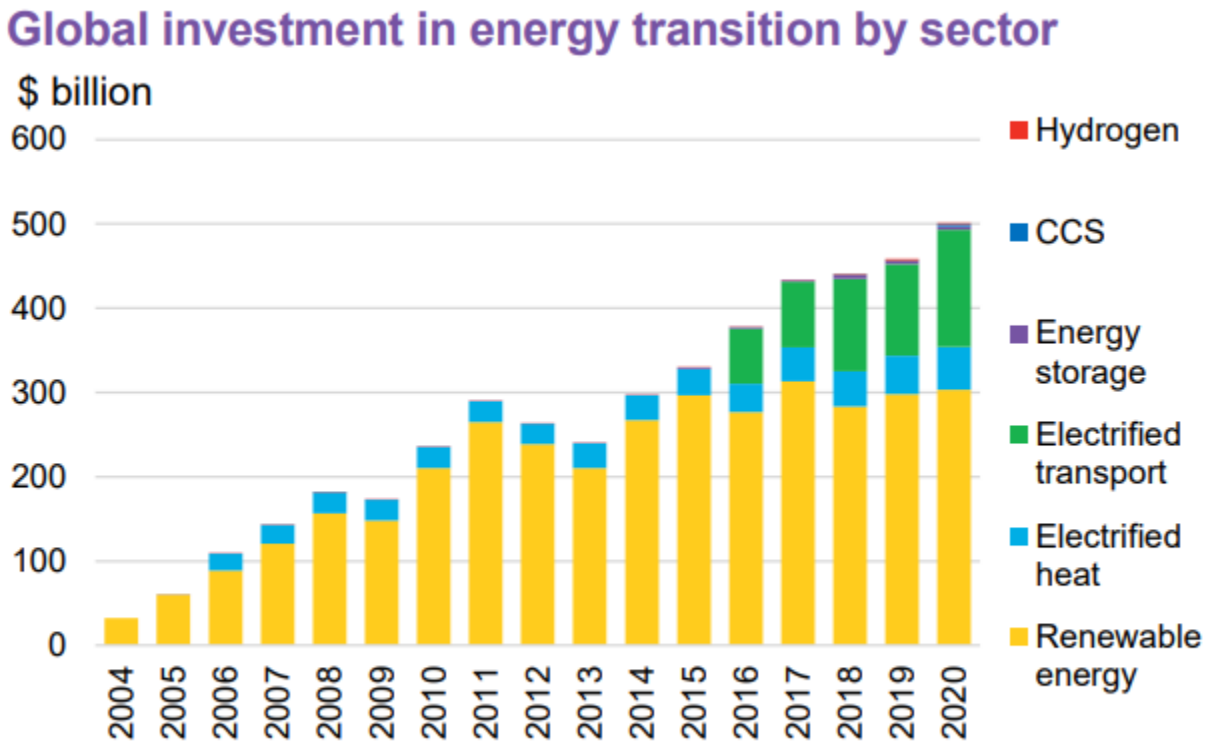
Source: IEA WEO (2019), Goldman Sachs Global Investment Research

Ultra-low long-term borrowing rates both at the government and corporate levels make this fiscal expansion possible (in conjunction with Fiscal Monetary Coordination (FMC), which I covered in Chapter 3 of *Rise of America*). In January 2021, U.S. Treasury Secretary Janet Yellen said the game has changed (is that ever an understatement!) and she expects ultra-low interest rates to remain in place for a long period of time. She even mentioned the ability of the U.S. Central Bank to issue fifty-year bonds.

While total debt has risen over the past decade, the cost of that debt, meaning the interest payments on a relative basis, have not increased. Low rates are key to this type of global fiscal expansion.

Big Goals Need Big Money

In 2020, global investment in the low-carbon energy transition totaled $501.3 billion, up from $458.6 billion in 2019 and $235.4 billion in 2010. Renewable power and electrified transport consistently account for a major portion of investment dollars.



Source: BloombergNEF

**CCS = Carbon Capture and Sequestration*

This is a trend that is expected to continue for the next thirty years.

Big Oil Knows

A key trend underpinning clean energy investment is the push by oil and gas companies to build low-carbon portfolios. Most of the European majors have set goals to achieve net zero, not only from their own operations, but also from the consumption of the energy products sold to customers. Total oil sector capex in 2020 was over $200 billion. Total clean energy investment was 250% higher at $500 billion, and higher than in any previous year.

In May 2021, the first oil producer went carbon neutral by offsetting their Scope 1 emissions, and they were subsequently certified a net-neutral oil producer. Others will follow. Why? Because of the low cost of capital offered to the company and the increase in investment demand compared to its peers who have not achieved net zero.

The oil companies know they will have to go carbon neutral or eventually die because of a higher cost of capital and fewer investment dollars willing to invest in their company. All of the major North American and European oil companies have announced carbon emission reduction plans. State-owned oil companies have not yet followed this trend.

The Path to Net Zero

How does the world go from its current levels of CO_2 emissions to net zero?

There is no one-stop shop for the transition. It requires enormous fiscal commitment from public and private organizations and across every sector. I believe the political landscape has changed dramatically over the course of the past few years, and that the government will provide the backbone necessary to truly kickstart the revolution.

The largest public financial institutions, such as the World Bank, the International Finance Corporation (IFC), and the International Monetary Fund (IMF), have all thrown their weight behind the movement. Household names like Microsoft, Disney, Google, Siemens, and even oil giant British Petroleum have made enormous commitments to decarbonize.

The largest facilitators for global pollution, such as Amazon and Walmart, will soon make it available for their customers to have the option to purchase low-carbon and net-zero products. Corporations that purchase only products that are net zero will also advertise this and get access to a low cost of capital and goodwill from investors and customers.

How will global emissions be reduced?

Emissions reductions will target four key areas:

1) **Electric Mobility** – The solution will be electric vehicles for personal and public transportation. Aviation is a very difficult source of emissions to reduce, since there is currently no good substitute for jet fuel. Hydrogen fuels are considerably far from any sort of commercial application. The aviation sector will likely buy emissions credits rather than redesign aircraft. CORSIA is leading the charge in airline companies greening themselves through carbon offsets. It's a start, but there's still much to do.

2) **Power Generation / Electricity** – The solutions will be an immediate phase-out of coal (coal-to-gas switching), LNG, and renewable power. Nuclear power is rarely mentioned in a green agenda, but nuclear reactors provide an indispensable source of baseload power. There will be a nuclear renaissance. Elsewhere, the focus will be on largescale renewable operations combined with battery storage as battery technology improves. This will require time and money, but technology will get there.

3) **Industrial, Basic Materials, and Agriculture** – These sectors will provide the biggest challenge. Emission goals can be accomplished through electric arc furnaces for steel production, green cement (CO_2 injections), precision farming, and energy grasses. Much progress is required.

4) **Carbon Capture and Storage** – The solutions will include geological storage, land sinks, methane capture in agriculture, and other best practices. Of the four, this is the sector that offers the biggest opportunity for investors. It will make the most near-term progress and help fuel and fund the progress of the other three sectors.

All of these will be massive job creators and will throw off lucrative investment opportunities.

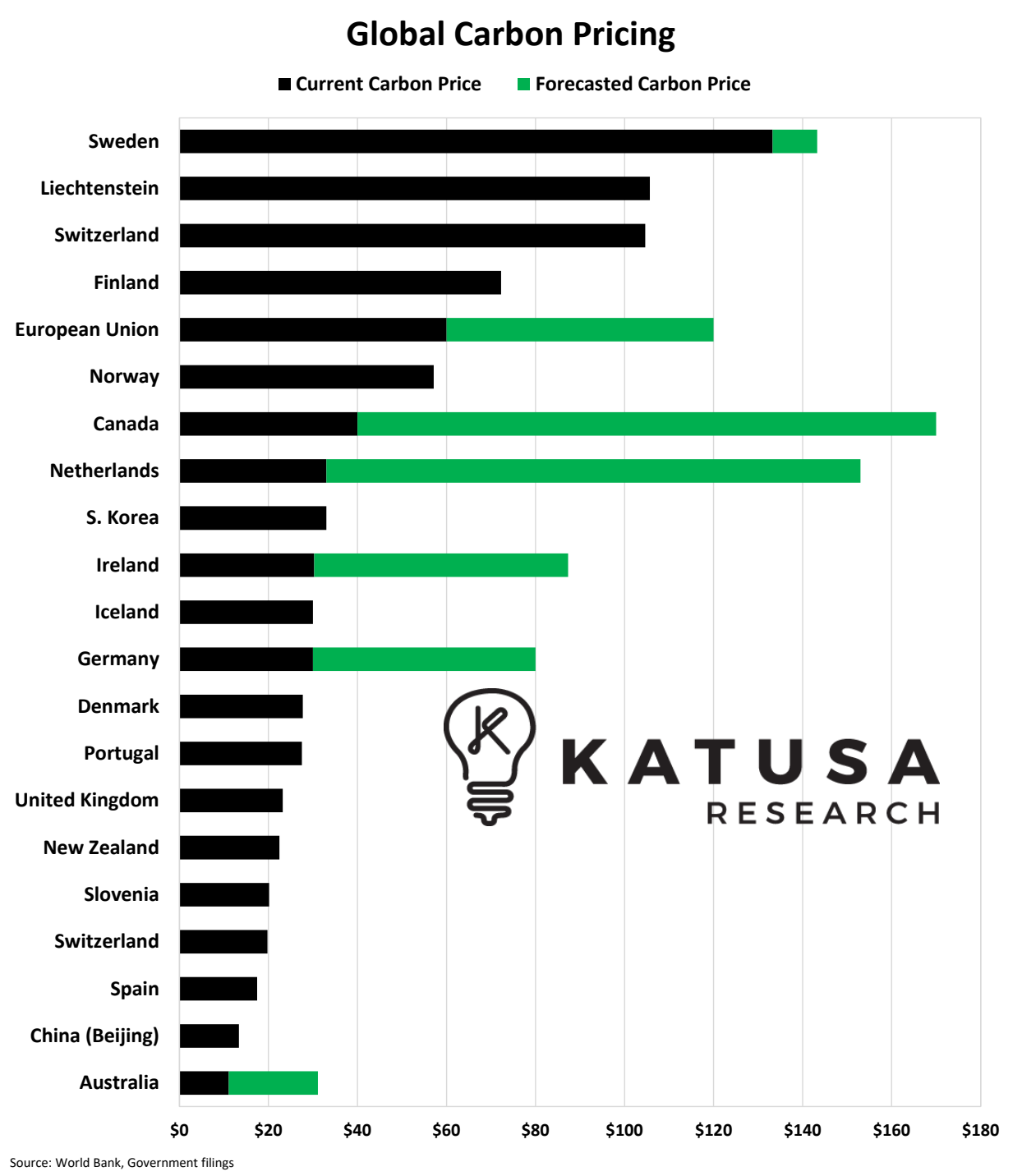
Carbonomics: Government and Shareholder Roles in the Carbon Revolution

The carbon revolution is not just about everyone buying a Tesla and bolting a few solar panels to their roof. In order to truly decarbonize the globe, we need to go much further than that.

Decarbonizing will happen through mandated compliance with government authorities and also from shareholder pressure.

Governments around the world are putting a price tag on pollution.

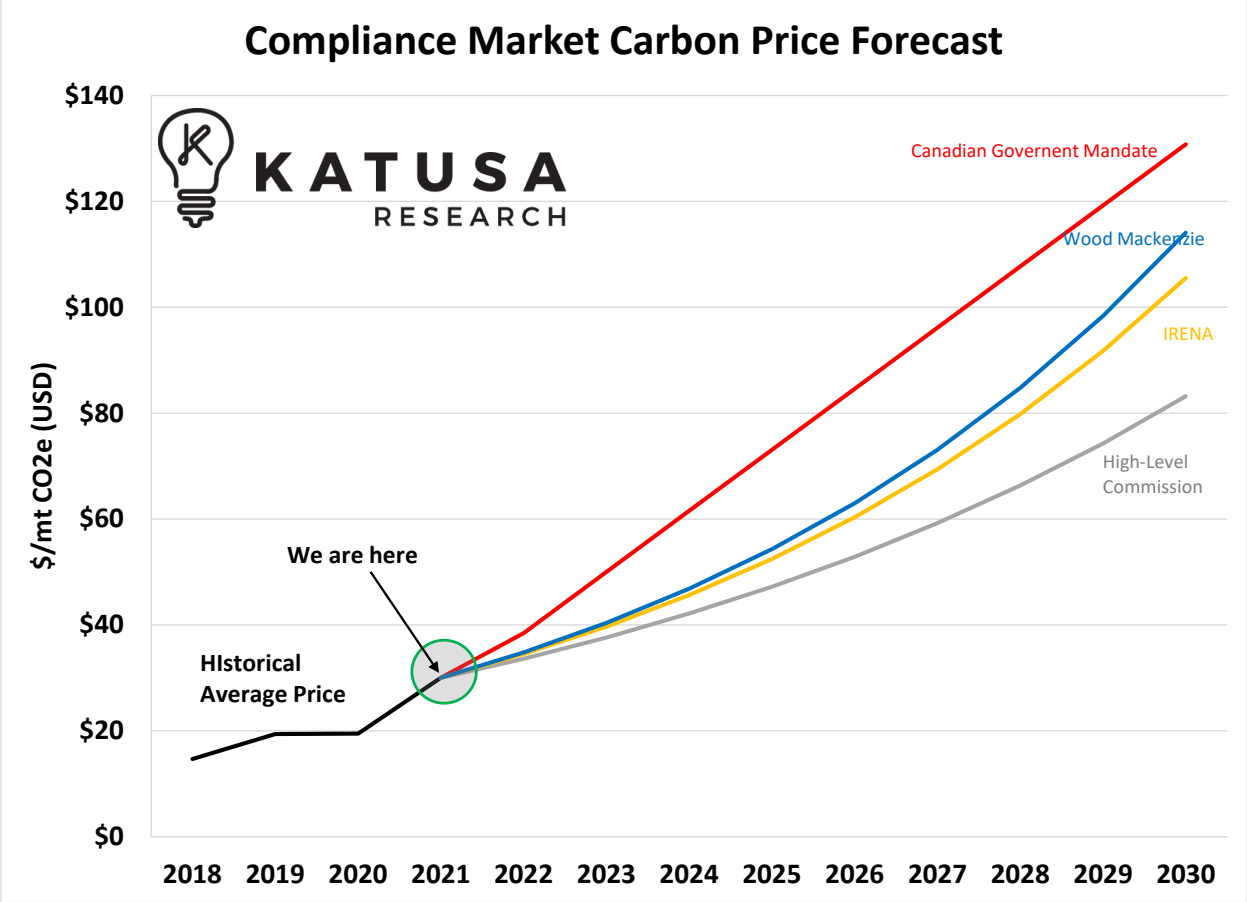
The following chart shows pricing initiatives per carbon credit. In total, there are sixty-four pricing initiatives across forty-six countries that account for a combined 24 percent of global carbon emissions.



In Europe, the cost to emit 1 tonne of greenhouse gases has increased 35 percent in the past year. These credits are actively traded, and today the cost is over €35 per tonne. These costs are well telegraphed by European governments to keep increasing. It is widely expected that emissions prices in Europe will eventually reach over €100 per tonne.

In Canada, the carbon price is currently $40 per tonne. Next year it will be $50 per tonne, and by law, it will go to $170 per tonne by 2030. As the price goes higher, the trade-off becomes increasingly in favor of capital expenditures on low-carbon technologies, rather than just paying to pollute.

It is reasonable to expect the price of pollution to rise significantly over the next thirty years. The following graph shows a few estimates.



The one thing politicians have done efficiently throughout history is raise taxes. Expect that to continue moving forward. But this time, it will be done with the goal of saving the world from carbon emissions. Expect politicians across all nations to do this. Again, this will support the price of carbon credits.

With this knowledge, you can claim your share of the coming multitrillion-dollar tax revenue by positioning yourself as part of the carbon emissions solution.

There are fortunes to be made in this sector.

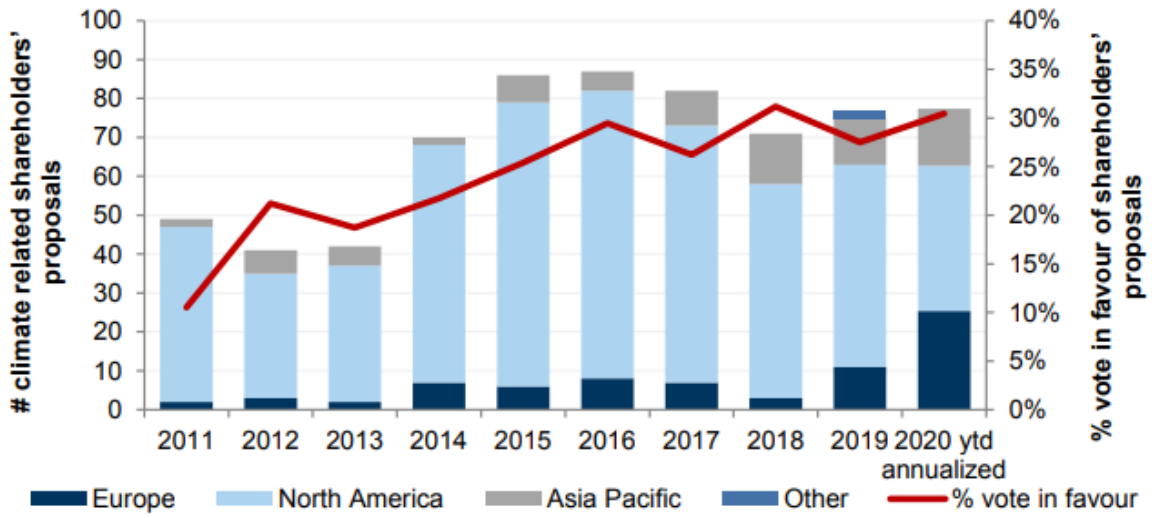
Climate Change Advocacy Roils Markets

Now let's look at what's happening in markets.

It is not just the government putting their foot down. Shareholders are as well.

The shareholder voice is becoming increasingly loud and more active when it comes to climate change. The following graph shows the number of climate-related proposals by activist investors over the past ten years versus the percentage of in-favor votes.

Exhibit 10: Investor engagement in climate change keeps rising...
Number of climate-related shareholders' proposals vs. % vote in favour



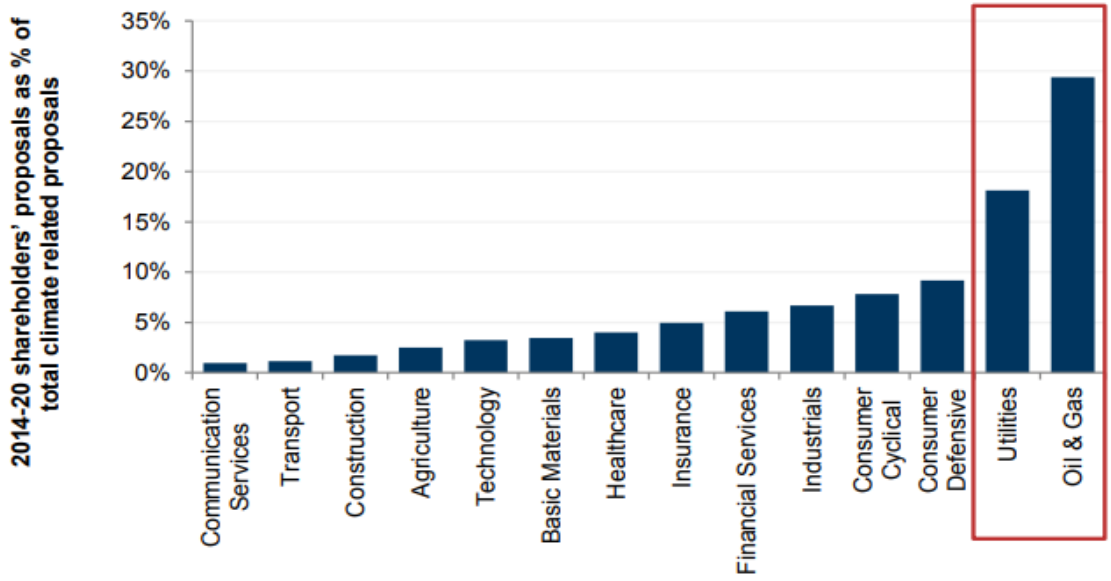
Source: ProxyInsight, Goldman Sachs Global Investment Research

As you can see, the number of climate-related shareholder proposals has increased by almost 50 percent since 2011, and the percentage of investors voting in favor has tripled over the same period.

This investor pressure, however, is not uniformly distributed across sectors and shows a clear bias towards energy producers versus energy consumers. Data since 2014 shows 50 percent of proposals targeting energy producers (oil & gas, utilities) while only 30 percent of the proposals target the sectors that account for most of the final energy consumption.

Exhibit 49: ...with a targeted focus on energy producers (oil & gas, utilities)...

% of climate-related shareholder proposals, split by industry, 2014-20



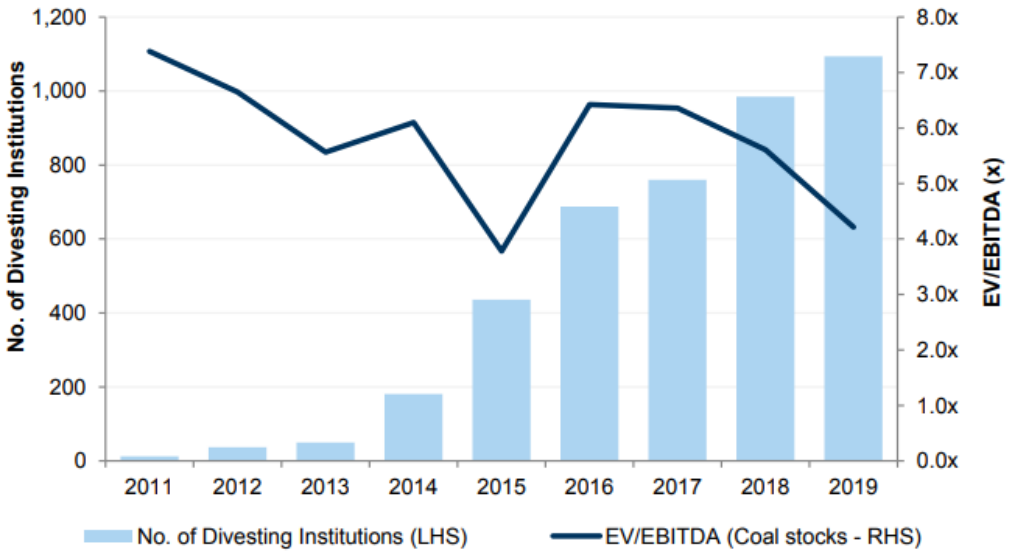
Source: ProxyInsight, Goldman Sachs Global Investment Research

There is no better proxy for the way the world is going than the number of institutions that are avoiding investments in coal companies. In 2019, cumulatively more than 1,000 institutions have divested of their coal company holdings, up from effectively zero just ten years ago.

In 2020, more than sixty global banks, including BNP Paribas, UBS, and Danske Bank, introduced financing restrictions and enhanced due diligence on new coal mines or coal-fired power plants.

Exhibit 51: Investor divestments are already evident in the coal industry

Number of divesting institutions (LHS) vs. coal stocks EV/EBITDA (RHS)



Source: Thomson Reuters Datastream, DivestInvest, Goldman Sachs Global Investment Research

Over the past five years, companies that score highly on ESG metrics have outperformed those with poor scores. One might think that expenses associated with ESG practices would lead to higher costs, and that may be correct. The other side of the coin, however, is the additional positives that come from high ESG scores. The lower cost of capital and increase in shareholder capital negates any cost increases that comes from creating a high ESG standard for a corporation.

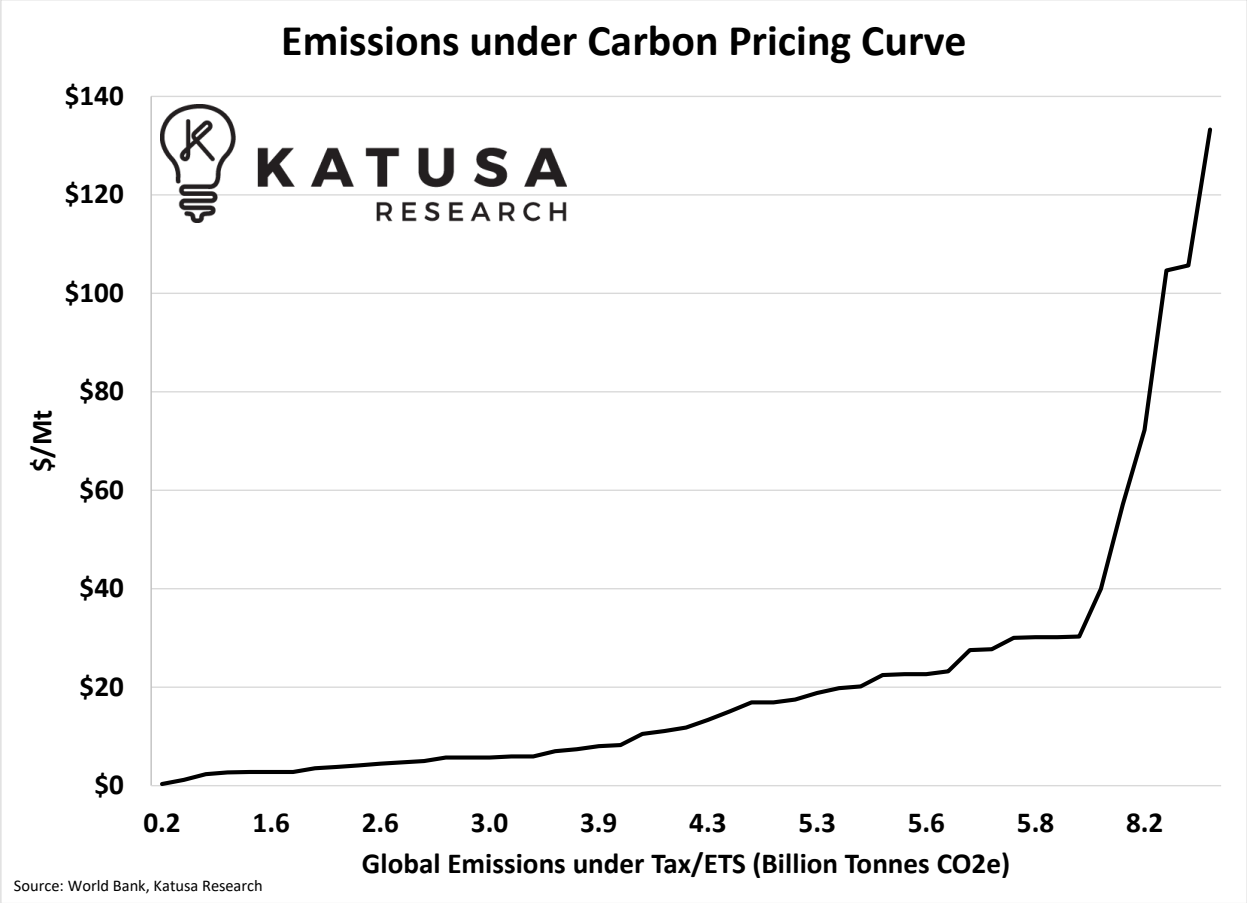
Regardless, investors have clearly accepted that they would rather choose a company that has better sustainability, social, and governance practices than one that does not.

The recent COVID-19 crisis has tested the resiliency of corporations and in my view will likely reshape their roles in the world going forward. In a recent survey by JUST Capital, 89 percent of Americans polled agreed that this is an opportunity for large companies to hit “reset” and focus on doing right by their workers, customers, community, and the environment. That sounds like stakeholder capitalism to me.

That means carbon pricing will be different this time around.

The biggest driver of higher carbon prices is simply the fact that most of the world’s pollution is not covered by any form of taxation or penalty.

That won't be the case for much longer. The carbon pricing and complementarity measures enacted in the Paris Agreement are substantially stronger than those in place at present. For example, 76 percent of global emissions are currently not priced. Furthermore, for those emissions that do face a tax of some sort, the price paid on pollution is very low (under $20/tonne), as shown in the following graph.



Carbon pricing is a key determinant in how fast or slow decarbonization happens. As countries around the world push to meet their emissions targets, the price of carbon has to go up. High prices of pollution will force companies to change. But high prices create high costs and lead to lower profits, which in turn lowers reinvestment into clean technologies. So, it is not as simple as slapping on a huge tax and saying "we're done."

Carbon credit systems, government subsidies, and the ultra-low costs of borrowing will all be decarbonization drivers.

Carbon Credits

Okay, so what is a carbon credit anyway?

It is a certificate representing one metric ton of carbon dioxide equivalent that is either prevented from being emitted into the atmosphere (emissions avoidance/reduction), or

removed from the atmosphere as the result of a carbon reduction project (reforestation, carbon sinks).

The carbon credit has a monetary value, determined by supply and demand. It can be traded and sold just like a stock, cryptocurrency, fiat currency, or commodity. Once the carbon emissions are offset by the carbon credit, that carbon credit can never be used or recycled again. One and done.

Credits are earned in one of two ways: either by directly reducing emissions through things like switching to renewable power, or through **offsets**.

- Offsetting is the process by which a company spends money on carbon credits to balance out their emissions.

For example, let's say a company emits 1,000 tonnes of CO_2 per year. The company can become carbon neutral by planting enough trees and getting the carbon credits certified by an independent third-party verification firm. So while the company still emits greenhouse gases, it has taken the appropriate steps to remove the same quantity of carbon from the atmosphere. This results in a carbon-neutral balance.

Forestation projects are particularly popular, since trees are a long-term investment that improve as a carbon sink over time.

Emissions reduction is the act of physically reducing emission levels through, for example, using solar power instead of coal to generate electricity. A company could choose to build a renewable power facility to replace a coal or natural gas plant. Because there is a direct reduction in the company's emissions levels from switching the fuel source from dirty power generation to clean, this would qualify as an "offset," and carbon credits would be created upon certification. A company that accumulates offset credits in this way can sell their excess credits to another company for a profit.

The emissions market, which aims to reduce carbon and other greenhouse gas emissions, can be split into two broad categories.

- **Regulated Compliance Markets** – These are driven by government-mandated emission levels. These mandates are positioned through various emissions taxes or maximum emission levels (cap systems). High taxes and caps on emission levels force companies to comply through the reduction or offsetting of GHG emissions.

- **The Voluntary Carbon Market (VCM)** – This is driven by internal corporate policy to operate in a sustainable manner and to offset or reduce company emission levels. For example, Microsoft has pledged to become *carbon negative* by 2030, meaning it will remove more GHGs from the atmosphere than it emits over the course of a year. Eventually, Microsoft wants to erase its entire carbon footprint. Other major corporate entities are falling over themselves to follow suit.

> The voluntary carbon market is where I see the largest financial gain for investors.

Respected independent verification firms for carbon credits, like Verra, are approved by governments and NGOs to perform credit-related services. If you wish to get certified, audited carbon credits, you have to apply for them through one of these independent carbon credit certification firms. Once issued, carbon credits can then be put onto the blockchain and listed on a platform such as the Carbon Trade Exchange (CTX), where they can be bought and sold like stocks.

The voluntary carbon market is forecasted to grow 15x over the next ten years and 100x by 2050. I know this sounds crazy—but these are not my projections. They're from some of the most conservative firms in the world.

Companies will be forced to "green" themselves because, as I explained earlier, the cost of capital for ESG-compliant companies is going to be lower than for those who are not ESG-focused. They will have no choice.

Take the Norges Bank for example. It hosts the largest sovereign wealth fund in the world, with assets in excess of $1 trillion. Norges has mandated that its investments must clear specific ESG thresholds in order to qualify for its money. That is why the bank has sold off all its carbon-intense investments, including all Canadian oil sand producers.

Norges is a leader in this regard. Other major funds such as the Canadian Pension Plan Investment Board (CPPIB) have not yet made any major changes, but they will. And many other institutions around the world will follow.

Companies can avoid being cut out by greening themselves, which will be done by purchasing carbon credits in the voluntary carbon market to offset their emissions.

The Russell 3000 Index, which is the widest array of companies listed in the United States, is a solid proxy for the potential growth in the carbon credit market.

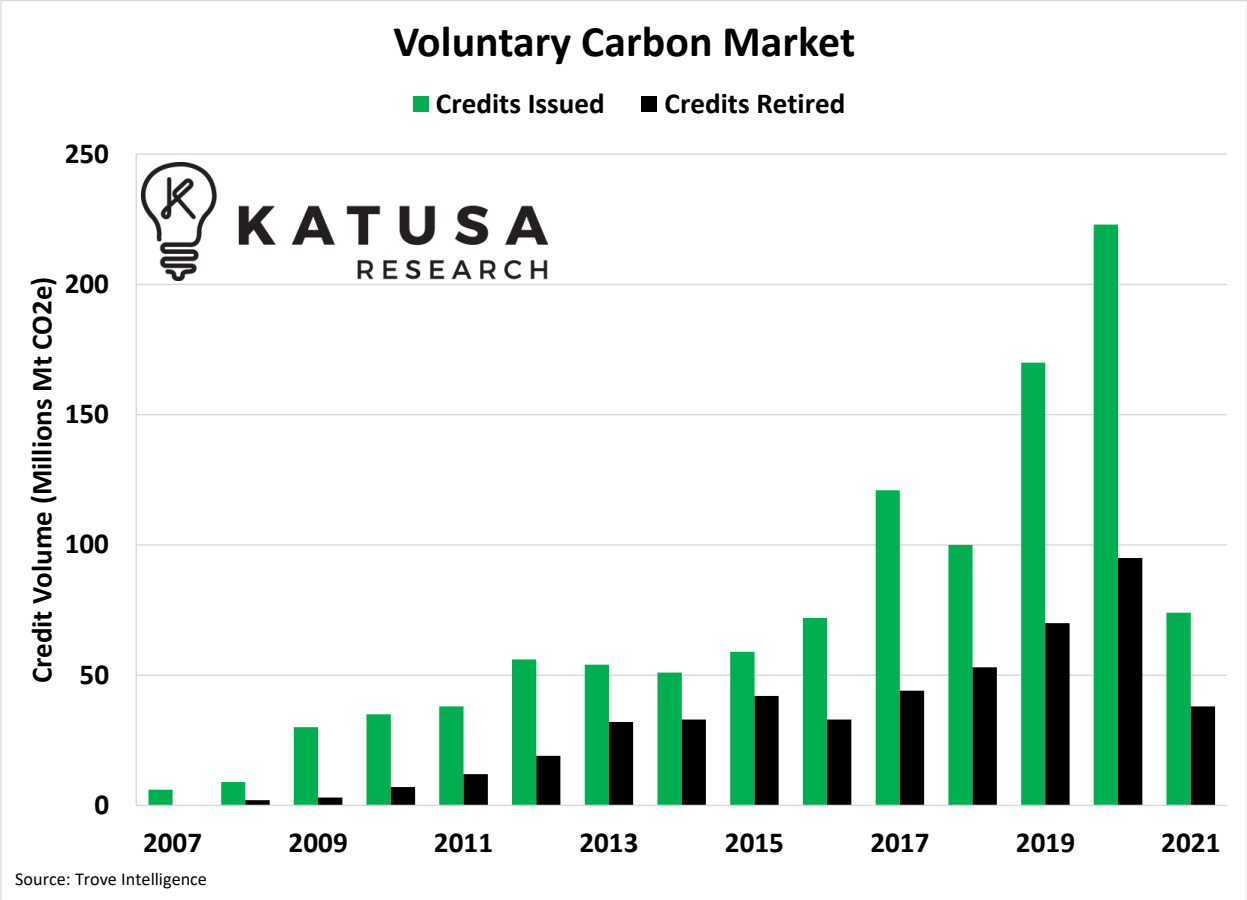
As the name implies, the Russell 3000 is composed of 3,000 companies, ranging in market capitalization from USD$200 million up to a USD$1 trillion. Of the 3,000 companies in the index, only 351 companies report their GHG emissions. Those 351 companies in 2019 emitted 1.6 billion tonnes of carbon emissions. You can bet dollars to donuts that the other 2,649 companies emit GHG too.

Which means a "carbon crunch" is coming.

Not All Carbon Credits Are Created Equal

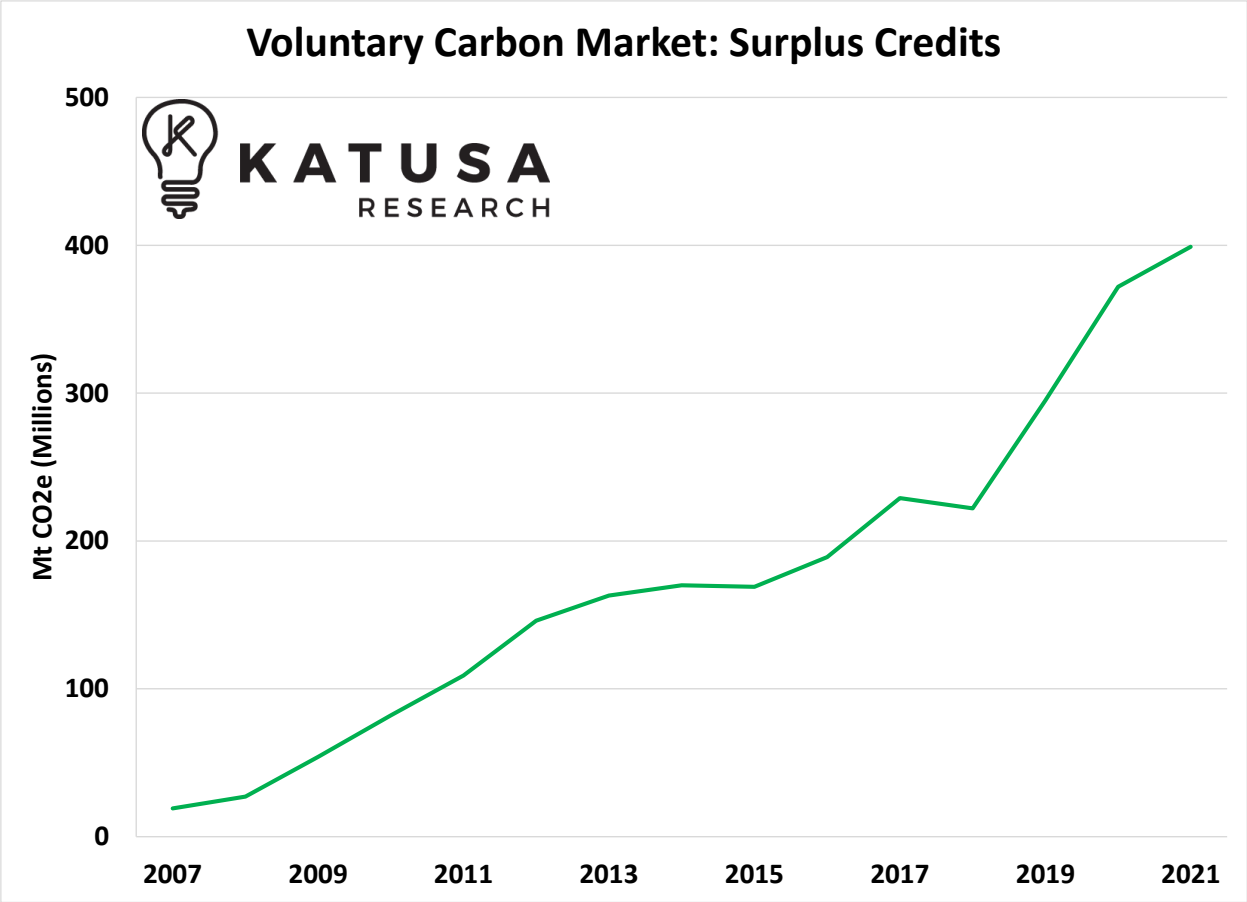
The following graph shows the annual issuances and retirement of VCM credits. Issuances represent the supply side, or "production." These are the credits produced from projects such as reforestation, fuel switching, and renewable power plant

construction. Credit retirements represent demand. Once a credit is retired, it can no longer be used to offset emissions.



Credits do not disappear if not used up within the year. They can be banked and sold or retired in later years.

There has been a preference for credits issued in the past few years due to higher regulatory compliance. But to show the current inventory, we can look back as far as 2007 and build out a picture of what total credit inventory looks like, as shown in the following graph.



Recall from earlier that just the 351 companies that declare their emissions emit 1.6 billion tonnes of GHGs. Since the current inventory in the VCM is under 300 million tonnes, demand is poised to easily outstrip current inventories—by far.

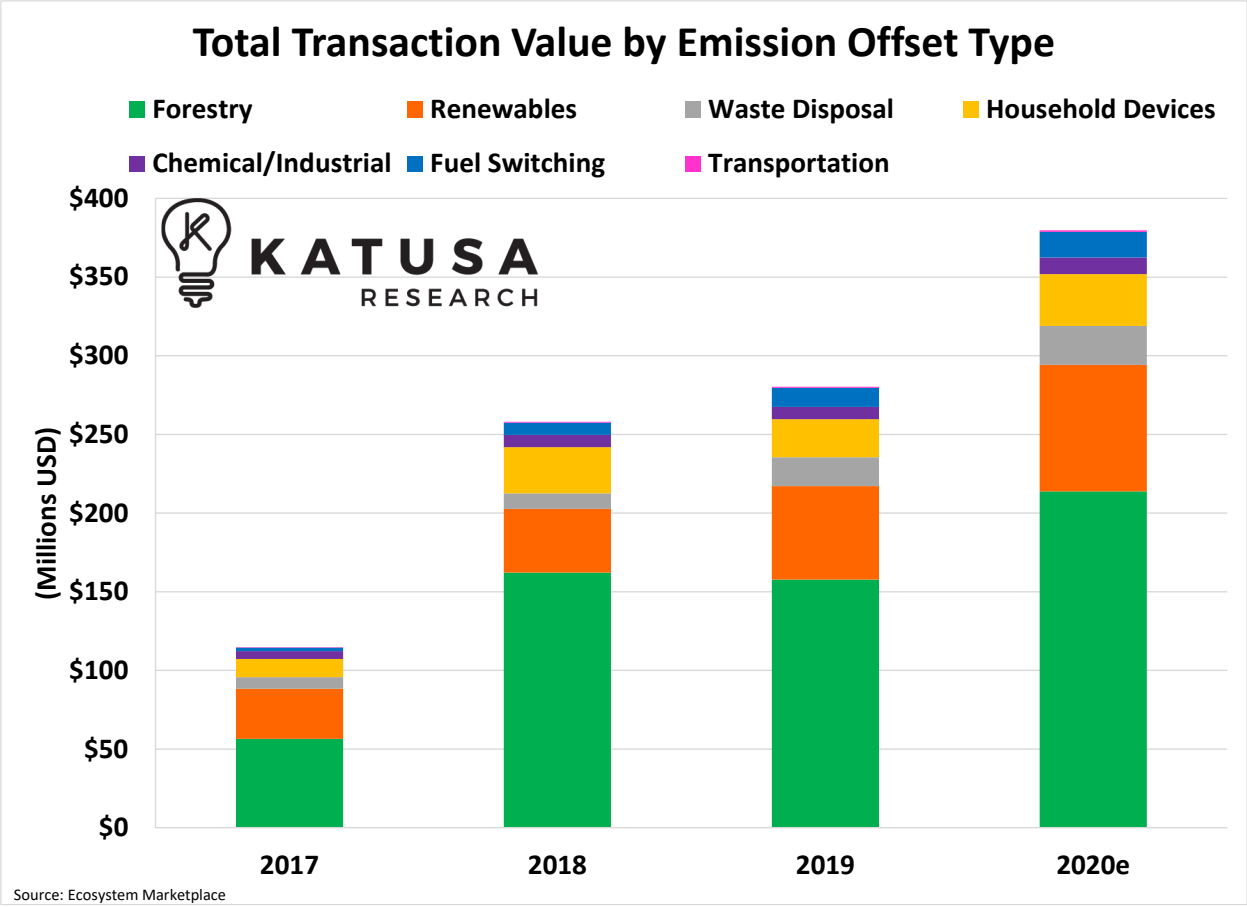
There is the potential to increase the production of carbon credits annually globally to many billions of credits a year. This will take incredible amounts of capital and entrepreneurial ingenuity, but where there is a will there is a way—and it will be very profitable for those that do so.

With demand projected, this means two things:

1. More supply is required.
2. We could see the price per credit rise significantly as companies begin to compete for credits.

Where are these new credits going to be issued?

Recall that offsets can be generated through various activities (e.g., forestry, renewable power). The following graph shows the different types of credits issued by offset type. You can see that forestry and renewables comprise the largest portion of credits.



Different types of offsets have different values based on the longevity and stability of the offset.

Today, forestry delivers the highest credit value, due to its long life and stable offsetting. You can directly measure the amount of CO_2 a forest can soak up, which provides it with an easily quantifiable value. But new growth sectors, such as “blue carbon” (more on that shortly), will increase carbon credit output in the coming years. I believe blue carbon credits will become one of the most valuable carbon credits the market in the coming years.

Carbon sequestration through direct air capture is realistic but highly uneconomic option and will be for many years. This technology physically removes carbon from the atmosphere. There are two of these facilities operating in North America and one in Iceland. Currently it is very expensive, but I do expect these costs to drop as funding will drive R&D which in turn drives lower costs.

Elon Musk, CEO of Tesla, is offering a $100 million prize for the “best technology for capturing carbon."

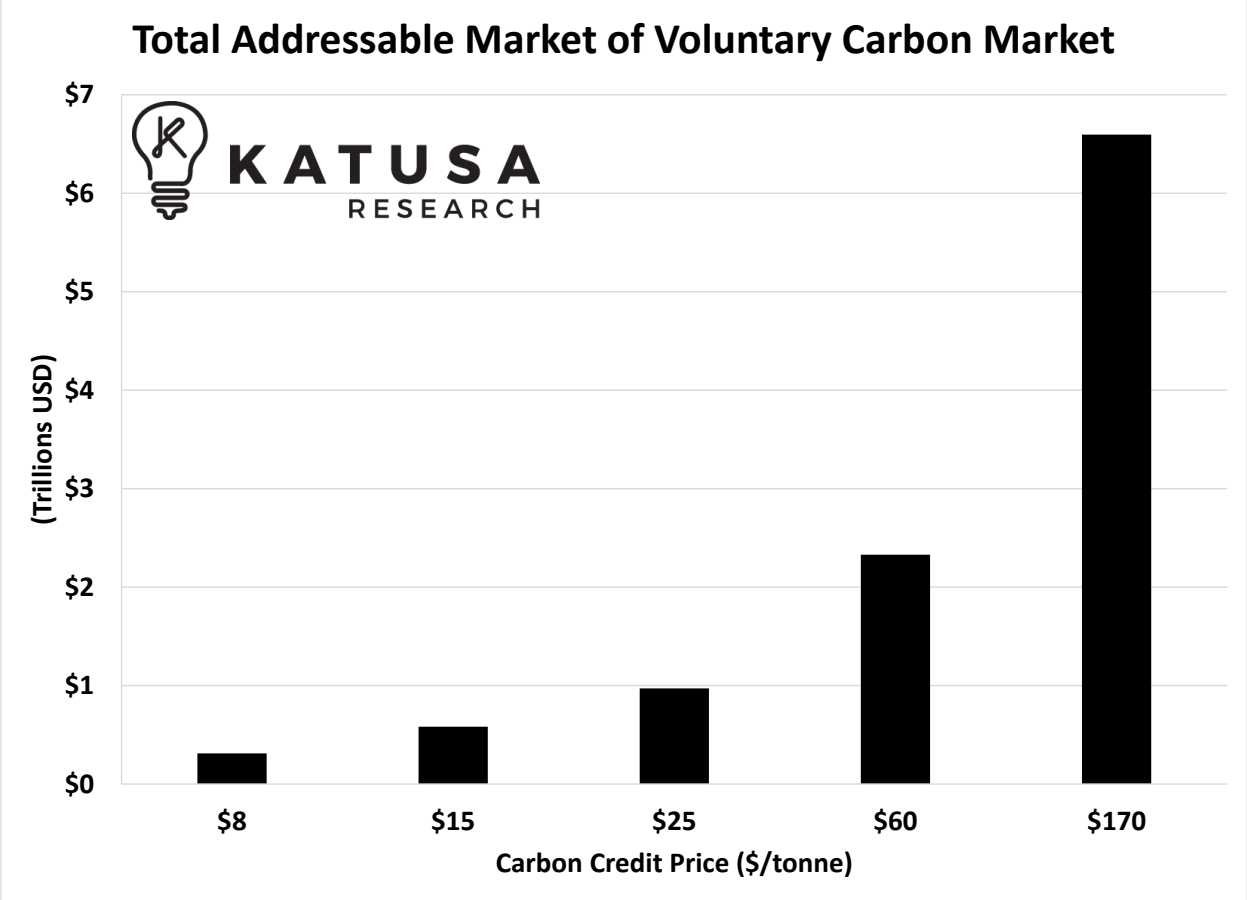
How Big Will the Carbon Credit Market Be?

****The carbon credit market will eventually be larger than the oil market, which is the largest market in the world today.****

Globally, 50 billion tonnes of CO_2e is emitted every year. The 2050 goal is to get 60 percent below 1990 carbon emission levels. This means the goal that 190 nations have signed up for and have committed to spending trillions of dollars on is to reduce global emissions by 38.8 billion tonnes by 2050—to approximately 11 billion tonnes of annual CO_2 emissions.

There are 38.8 billion tonnes of CO_2e that need to be offset or removed. This is the immediate total addressable market (TAM). Recent carbon prices in the VCM are trading anywhere in the $8–$15/t range on average, across all offset types. Just by this measure alone, the value of the market is $310 billion to $582 billion a year. Carbon credit prices will rise significantly to meet the demand.

The graph below shows the total addressable market based on different carbon prices to meet the 2015 Paris Agreement.



Using current carbon credit prices in Europe in the voluntary market, which are currently trading at $60/t, the total addressable market to meet the 2015 Paris Agreement is over $2.3 trillion a year. The current oil market is worth slightly more than $2.1 trillion a year.

Now you know I wasn't kidding that the carbon credit market will be the largest market in the world.

The Ultimate Giffen Good

Think of carbon credits as a the ultimate Giffen Good.

The term "Giffen Good" was named after noted 18th-century Scottish economist and journalist Sir Robert Giffen. Giffen goods are non-luxury products that have very few or no close substitutes, and are characterized by a higher price causing an increase in demand (reversing the usual law of demand).

In my view, carbon credits will become the most valuable Giffen Good of all time.

As corporations make moves to reduce their cost of capital, they will rush into the VCM to secure carbon credits. As more and more companies do this, investors will put pressure on those that don't or those companies will have to pay a higher price of capital. There are no subsitutes for carbon credits.

Carbon credits are the ultimate Giffen Good.

Carbon credits and emission reductions will be a major investment theme over the next thirty years, and with that, carbon credit prices should go much higher. Record amounts of green/sustainability-focused debt and equity were raised in 2020, and the same is expected for 2021.

But for the last word, let me turn to a real expert on the subject.

Louis Redshaw has been actively involved in the European carbon markets since before their inception in 2005. While he was the Managing Director for Environmental Markets at Barclays Capital, he created the largest carbon business by volume on the planet. Louis has been a true first mover in the carbon space, and this is his forecast:

> **"Carbon will be the world's biggest commodity market, and it could become the world's biggest market overall."**

I agree.

Carbon Rangers: Guardians of the Environment

I've already laid out the framework for why carbon credits are such a compelling investment sector. I want to now share an idea that is already underway that will empower all to achieve a higher standard of living and to do well financially, all while doing the right things for the environment and wildlife habitats.

For many years, the indigenous people in the regions of development have been the sole voice for the environmental impacts on the various projects in their ancestral lands. They have put the environment and wildlife habitats before their own financial gain. And in many cases, they have spent their own money to fight the environmental impacts.

This is changing, and for good reason.

In Canada, we call these people the First Nations. In the U.S., they are called Native Americans. They were the first guardians of the environment.

Technology has now enabled a future where the Carbon Rangers, these guardians of the environment, can not only help preserve the environment but also help prevent and mitigate disasters such as large forest fires and soil erosion.

There are two projects in resource development that are now working directly with the Carbon Rangers to advance the standard of living of the First Nations people and to empower them with the knowledge and technology to have safe, high-paying technical jobs that also have a positive impact on the environment and wildlife habitats.

Carbon Rangers are the individuals who will help create the carbon credits on the different projects that will generate considerable income for their people and have positive effects on the environment.

Who can be a Carbon Ranger? Anyone who wants a high-paying, safe career using modern technology that requires no previous technical training and that focuses on wildlife conservation and the environment. The carbon credits generated from this activity will be used to advance other projects and attract more employees to become Carbon Rangers.

Let me use my home—British Columbia, Canada—as an example.

In the past, the many different First Nations people have found themselves at odds with certain corporations trying to develop projects on their ancestral lands.

Now the framework is in place for the First Nations people to be equipped with modern technology that can empower them to protect and advance the purity of the environment while regulating the projects in a sustainable manner and generating valuable carbon credits in the process for considerable additional income.

Let me give a very specific example.

In British Columbia, millions of acres of forest have been devastated by the pine beetle insect, which is killing pine trees. Once these trees are infected, there is no saving them.

Think of these infected dead trees as zombie trees. They are the equivalent of giant matchsticks waiting to be set on fire. It is no coincidence that the intensity, size, and

frequency of forest fires in British Columbia is in direct correlation with the growth of the pine beetle infestation and the destruction of forests.

This little insect has caused carnage on millions of acres of British Columbia forests, which in turn has caused incredible erosion damage to the soil.

But there is a solution.

With technology now available, and funding which is also available (provided by investments Katusa subscribers make into corporations we fund) the land of the First Nations can be reforested with the same trees as before. Carbon credits will be vital to the economics of such a venture. Rather than logging those planted trees for lumber, carbon credits can be used to fund the project development and sustainability in the future.

The First Nations members who choose to work in this sector will be Carbon Rangers, and the technology at hand will help regulate deforestation, prevent the spread of future pine beetle insect infestation, and moderate and predict future areas of forest fire risks. Carbon Ranger training and employment will be made available to all in the First Nations and across Canada and the U.S.

In twenty-five years, there will be more Carbon Rangers than park rangers in North America.

Not only will this help rebuild the forests, but the soil and natural inhabitants such as caribou and other wildlife that have been pushed out by the deforestation by pine beetles will return.

Carbon Rangers will be key to this regulation and implementation, and the cash flow from carbon credits will make it a high-paying job that will enable net benefits to all stakeholders. A Carbon Ranger will make more money from a salary than the same individual would from logging the forests and have a much more impactful career to advance the interests of the environment and a much safer job at the same time. In addition, the First Nations landowners and the British Columbia government will make more from the carbon credits than they would from logging. Again, it's a much better route for the environment and all stakeholders. It's a win across the board.

Who will buy these carbon credits? The companies that want to be net neutral and that benefit from low-cost capital and green bonds and an increase in shareholder investment demand. Again, there aren't enough certified carbon credits to meet market demand. This will be a growing sector.

Blue Carbon Credits

Another example of Carbon Rangers will be the growth of the generation of blue carbon credits. Blue carbon credits are the carbon credits created by the growth and

conservation of carbon-absorbing plants, such as mangrove forests and their associated marine habitat.

A blue carbon conservation project will have its carbon credits trade at a premium because of the large positive second-order effects such as the positive effects on corals, algae, and marine biodeviersity (e.g., sharks, whales, sea turtles) that have been so negatively impacted by activities such as over-fishing and farming.

Yes, forests can grow in the ocean. Examples include the mangrove forests in sea bays, such as Magadalena Bay in Baja, Mexico.

Mangroves are trees (about 70 percent underwater, 30 percent above water) that have evolved to be able to survive in flooded coastal environments where sea water meets fresh water and the resulting lack of oxygen makes life impossible for other plants. Mangrove trees create shelter and food for numerous species such as sharks, whales, and sea turtles. Mangrove forests are a valuable marine ecosytem.

Carbon Rangers will be the guardians of marine habitats just like their terrestrial peers are in the pine tree forest example above. The Carbon Rangers will limit and eventually stop the deforestation of the mangrove forests and conserve and advance the marine bidoversity in the aqua forests. In return for sustainably managing the mangrove forests, the Carbon Rangers will generate blue carbon credits, which can then be sold to coporations and individuals who need those carbon credits to offset their own emissions. The blue carbon credit framework was developed by United Nations Framework Convention on Climate Change (UNFCCC), and blue carbon credits are independently verified by third-party insitutions who specialize in carbon credit standards.

Other positive second-order effects of mangrove forests include their importance as a pollution filter and the protection the forest provides coastal regions from hurricanes. All this can be calcuated into insurance premiums, and lower-cost premiums are good for business and residents. These are all free second-order effects.

Coastal wetlands and mangrove forests will become an ever-increasing sector for carbon credit generation. That is because mangrove forests and coastal wetlands sequester carbon at a rate that is up to ten times greater than mature tropical forests. And because the carbon is sequestered and stored below water in aqua forests and wetlands, it is stored for more than ten times longer than in tropical forests. The significant positive second-order effects attributed to each blue carbon credit are why they will trade at a premium to other carbon credits.

There are fourteen million hectares of mangrove aqua forests on earth today and they are under attack by the deforestation practices caused by intense shrimp farming. Are the shrimp you eat part of the problem? Soon, these shrimp will be labelled, and consumers will know and be required to cover the offset costs for the environmental damage.

With the economic value of blue carbon credits and the technology that will enable Carbon Rangers to preserve forests and wildlife, expect entrepreneurs to expand the Carbon Ranger program to mangrove forests across the globe. This will be critical in solving the climate emergency.

These are just a few of the examples of how carbon credits will be created to enhance stakeholder capitalism.

For all those who believe crypto is the future of money, one thing I can confidently say is that carbon credits are the future of *humanity*.

With the growth of green bonds, which will provide low-cost capital for low-to-no-carbon footprint manufacturing, and with corporations moving forward with the plan to reduce their GHG emissions, carbon credits are going to be a growing sector and an incredible opportunity.

Carbon Rangers will have a career in a safe industry that enables the training of indieginous people around the world using modern technology not only to conserve the enviroment and wildlife, but also to monitor potential forest fire hazard areas, soil erosion issues, and the migration of many species both on land and in the ocean.

The Ultimate Carbon Trojan Horse

I mentioned earlier how mothers can do more for the economy than any stimulus program can by selecting carbon-neutral products in their Amazon.com profile. By doing just that, American mothers can have a bigger impact on global freedom than any miltary, including the U.S. military complex.

Let me explain.

China’s largest export markets are the U.S., then the EU.

What would happen to the Chinese economy if the full-cycle carbon cost were collected for the carbon footprint? For example, I mentioned earlier in this chapter about empowering the customer to make the carbon choice. But the full cost of carbon would be collected by Amazon, which would then send that tax/cost to the government to go into the green bond funds to provide low-cost capital to prevent inflationary costs on production.

Chinese goods will be nowhere near as low cost as they are now, and equal-costing goods made from high-quality, American-sourced materials, using American intellectual property. with a low-carbon footprint, financed by green funds, and shipped with low-to-no-carbon transportation with a lower shipping time, will become available.

Yes, eventually, and with the proper investment, America can make the same goods cheaper in America while paying higher salaries to Americans with nowhere near the

carbon footprint which will have to be paid by future generations because of the negative impacts to the environment.

The cost advantage China has over the U.S. and EU would be negated and their economy would suffer. Two things would then happen:

1. Some Chinese manufacturers would attempt to retool and go carbon neutral.
2. Eventually, the people under the Communist regime will revolt. Revolts don't happen during economic booms. They happen during busts.

And Taiwan should be paying close attention, as their fate depends on it. China pushed its will onto Hong Kong with very little global resistance.

Taiwan is next.

Taiwan geographically is critical to China's One Belt, One Road initiative, and Taiwan does not stand a chance militarily against China.

America will not get involved in a military confrontation over Taiwan.

Taiwan's ultimate Trojan horse is to push the carbon initive globally, which has the potential to take down the China's Communist regime from an economic perspective.

The Soviet Union was defeated in the Cold War and collapsed because of the economic advantage the U.S. had over it. Eventually, tumbling oil prices crippled the U.S.S.R. and the once-mighty empire fell.

The economic impact of the full-cycle carbon costs created by the pollution China is emitting is the Trojan horse that can cripple the communist regime.

Taiwan is the global leader in semiconductors, which are in a major shortage and major demand globally today. Taiwan has incredible leverage over the U.S. and the EU markets to impliment carbon-emissions strategies that would ultimately weaken China. But if Taiwan doesn't do this while they are the world leader in semiconductors, their fate is sealed like that of Hong Kong.

The future is bright. Humanity will rise to the occasion and solve the climate crisis at hand, and fortunes will be made in the process.

For further information on the carbon credit market, please go to www.carboncredits.com.

Marin Katusa

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