CLIMATE INSURANCE

YOUR GUIDE TO CARBON CREDITS AND INVESTING IN THE NET ZERO GENERATION

CARBON CREDITS .com

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The Future is Green

By the end of this ebook, you will gain insights that only a small fraction of the investment world currently know about.

This report will get you up to speed on:

- Climate change disruptions and opportunities,
- ESG investing, and
- The multi-billion-dollar Carbon Credits ecosystem.

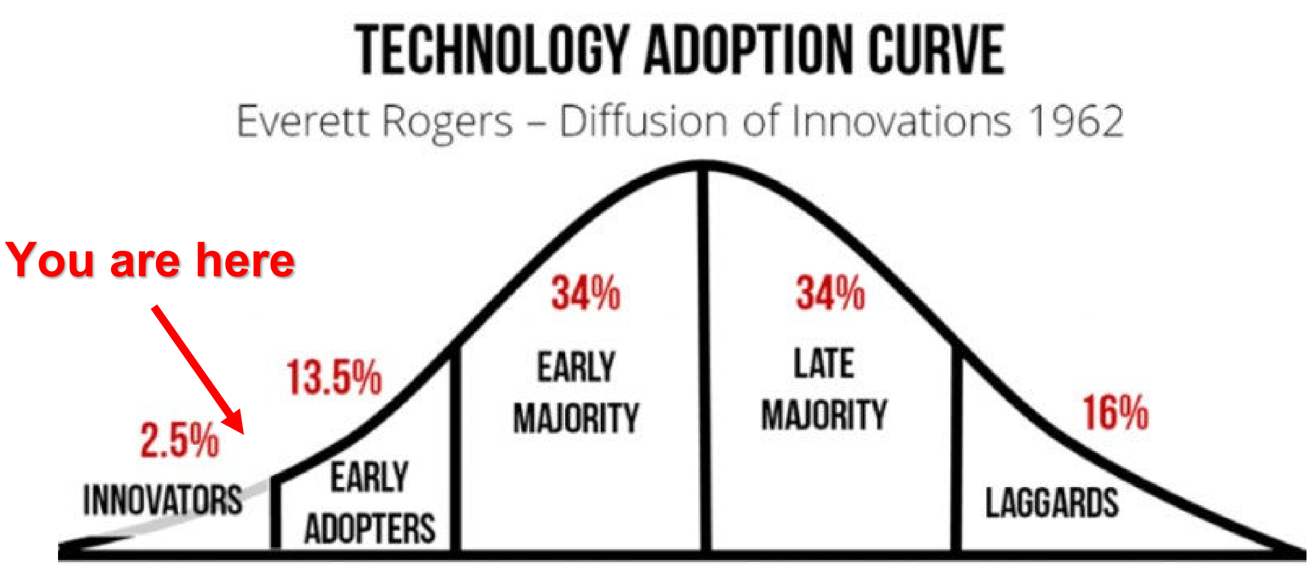
There is an unstoppable tidal wave of government and corporate money flooding into this new sector.

A lot of money stands to be made by going green for those early adopters who position themselves early.

It's a once-in-a-generation market opportunity that will become the focal point of investing for the next several decades going forward.

Think Bitcoin early 2010's, tech stocks in the early 2000's or even oil back in the early 1900's.

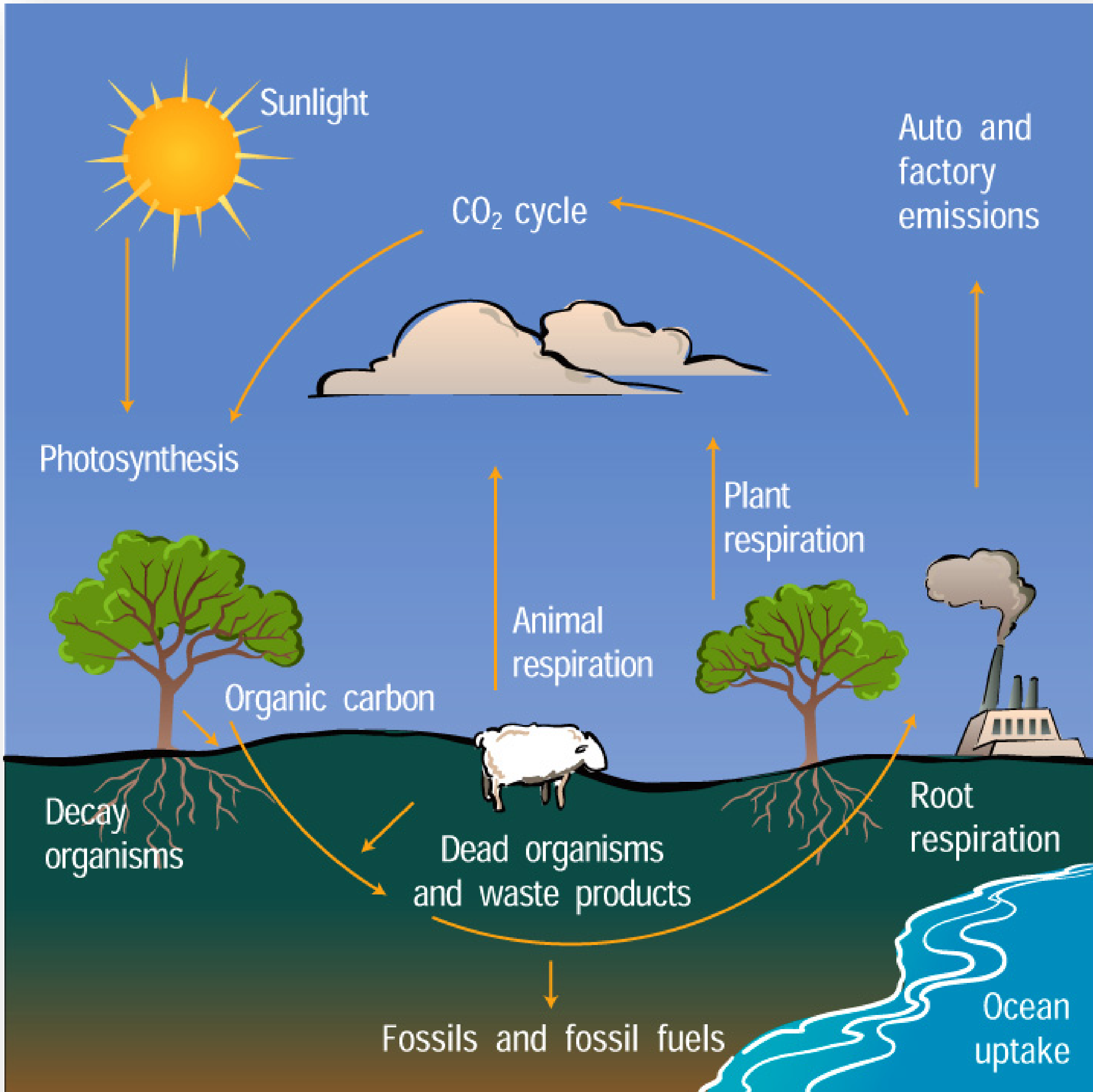
This is still the early innings on the pathway to *Net Zero* (more on this later) and you are among the investors that are first on the scene – those called innovators in Rogers' technology adoption curve…



But first, let's step back and go over some basic elementary school science.

The Carbon Cycle

For millions of years, the global "carbon cycle" was in balance with nature:



Source: National Center for Atmospheric Research

- Animals breathe in oxygen and emit CO_2.
- CO_2 and other Greenhouse Gases (GHGs) are also released over time from decomposing plants and animals, certain types of land, and from the ocean.
- Plants suck up the CO_2 and emit oxygen, and the soil and ocean also reabsorb some of the CO_2. Other GHGs follow their own cycles, such as methane which is slowly destroyed over time in the atmosphere.

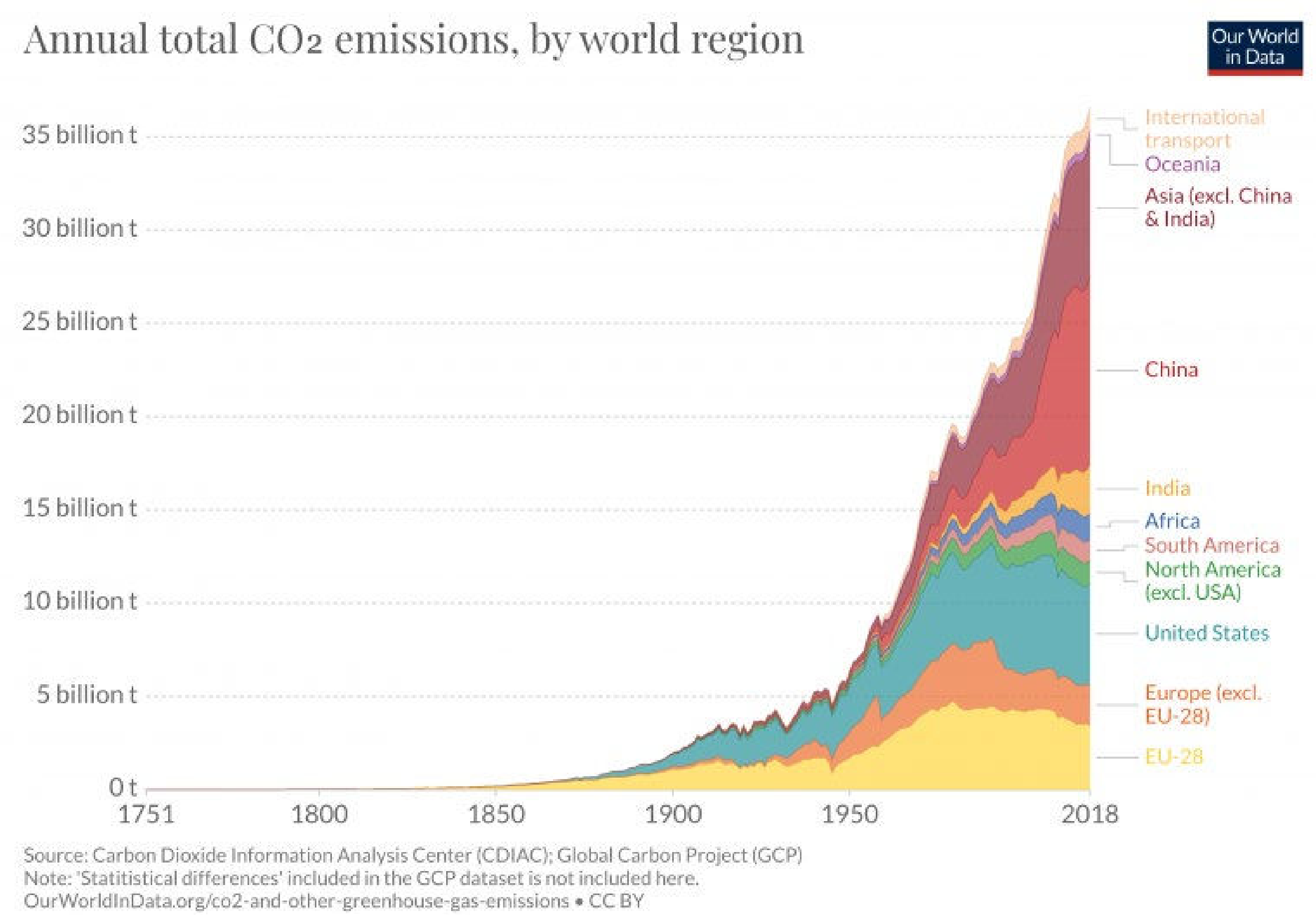
These GHGs are necessary to trap heat, keeping the world warm like a greenhouse.

They take several forms, such as methane and nitrous oxide, but the most well-known greenhouse gas is carbon dioxide or CO_2.

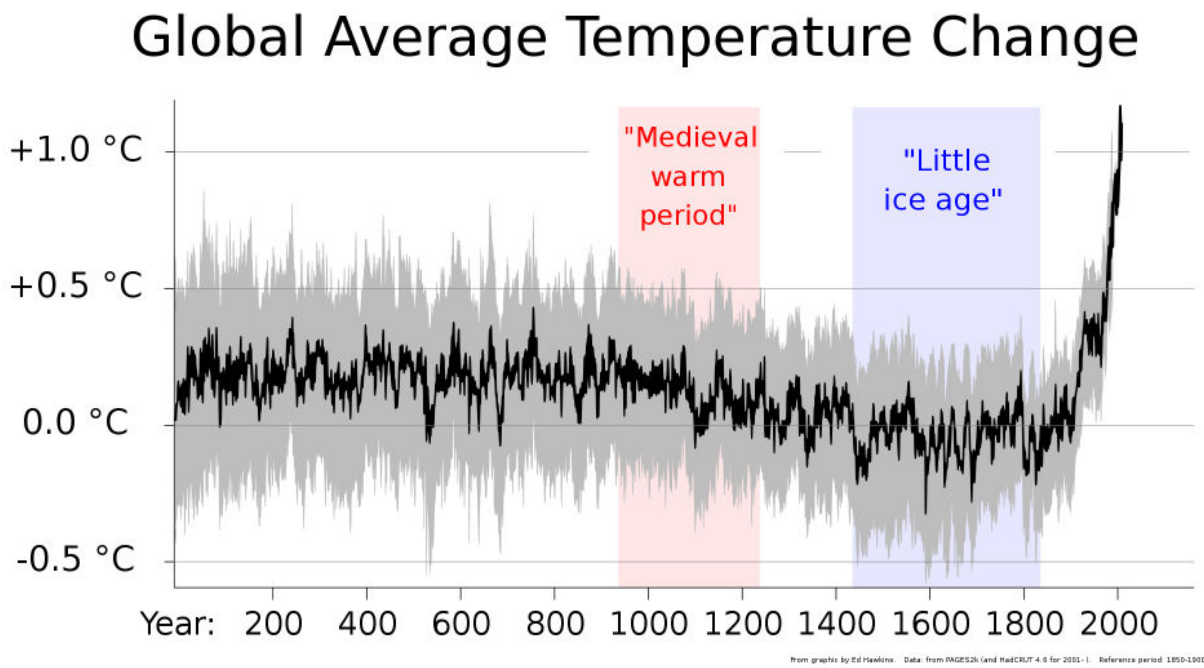
- **KEY POINT: CO_2 accounts for 76% of global greenhouse gas emissions.**

The world was in good balance until the last 150 years as the world industrialized, and economies and populations exploded in size.

Along with that industrialization was also the rapid growth of CO_2 emissions:



These excess CO_2 emissions have increased the global average temperature to a level not seen for thousands of years.



This overall warming has led to large-scale shifts in weather patterns:

- Floods, droughts, wildfires, tropical storms, heatwaves, cold snaps etc. are all now more common, particularly in regions with little prior history of such weather.

This is what you read and hear about on a daily basis now in the news cycle.

- ❖ **KEY POINT: Even if you don't believe in climate change – that's the narrative, and it's here to stay.**

Fighting climate change is a global problem as emissions don't stop at national borders; they migrate around the globe.

Gases emitted in Saudi Arabian oil fields end up in Europe, and Chinese gases end up in Africa.

The world is at a tipping point and even the once heralded Amazon Rainforest, which used to be one the largest "carbon sinks" (taking in more CO_2 than it emits) in the world, now produces more carbon than it absorbs.

The Amazon Rainforest now generates over 1 billion tonnes of carbon dioxide a year due to land clearing, and beef and soy production on former rainforest land.

Climate change is going to get a whole lot worse unless something big is done, and soon. By 2050 there will be an additional 2 billion more people on the planet.

As the population grows, so too will global carbon dioxide emissions.

For example, **the average American's carbon footprint is 16 tons per year**.

To offset that would take a bit over 1,000 trees, as each tree absorbs about 30 lbs. of carbon dioxide each year. And while there's an astounding estimated 228 billion trees in the United States, that's still 100 billion trees short of offsetting the carbon footprint of just U.S. residents alone.

There needs to be a massive pivot in technology and capital to get things back in balance.

If that's not enough incentive, **over 8 million deaths each year are attributed to climate change and pollution.**

And government leaders have suddenly realized that there's a looming catastrophe that will require all hands-on deck and **more than $100 trillion to fix.**

Whether it's environmentalists, politicians, bankers, or billionaires, everyone agrees that greenhouse gases are altering the natural order of nature.

So, what can we do?

The Global Governmental Push

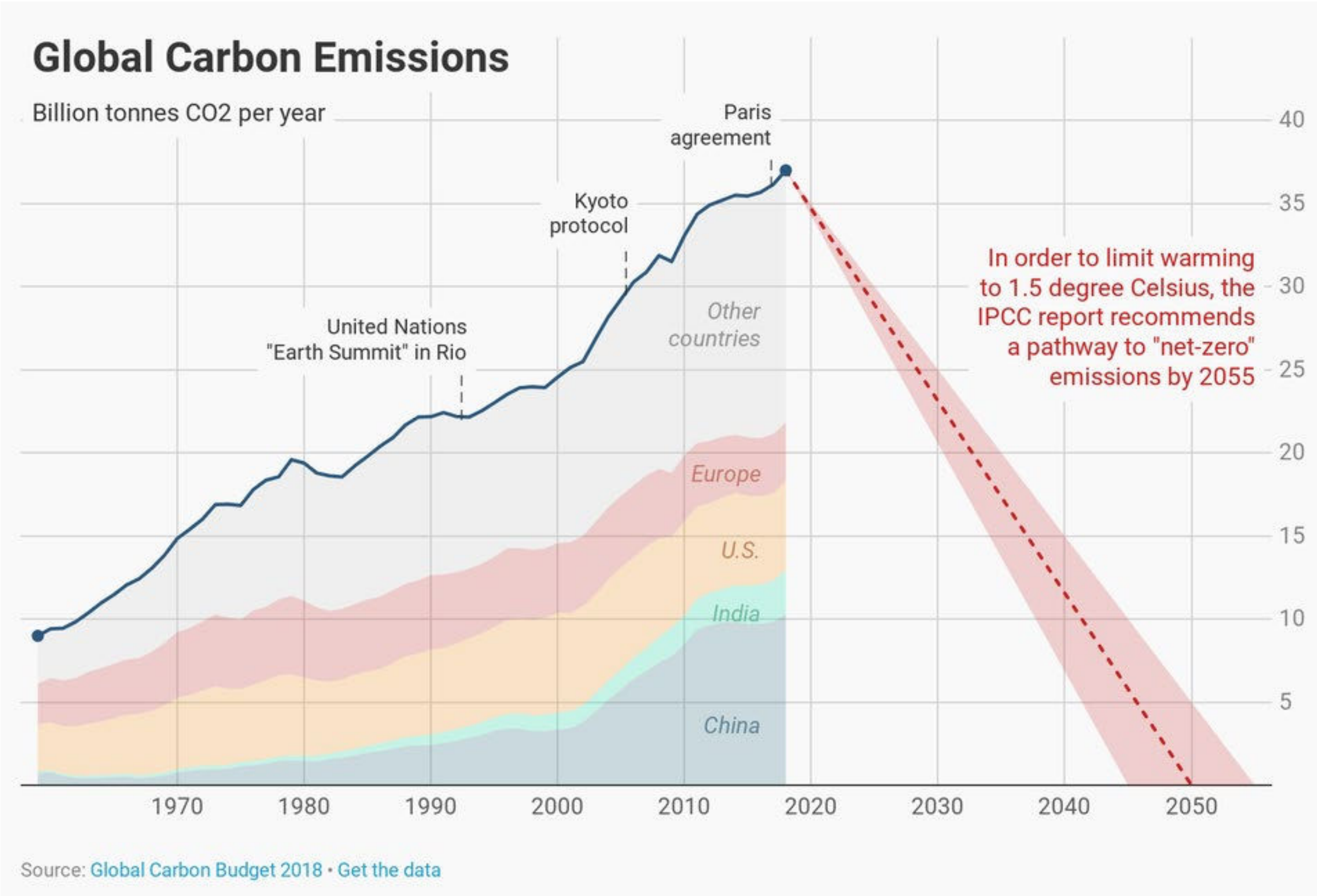
One of the first major drivers for the global pivot was the 2015 Paris Agreement, where hundreds of countries from around the world created a framework focused on fighting climate change.

- ✓ **191 countries have signed the legally-binding 2015 Paris Agreement.**

These countries together represent 97% of global carbon emissions.

This was a good start at organizing a meaningful effort to decrease emissions and keep global warming below 1.5 degrees Celsius, which is the target level needed to prevent climate change from getting out of hand.

Make no mistake – that's still an extremely ambitious target, as the next chart shows the path forward:



On top of this, 44 nations including the European Union have declared that they will go to “Net Zero”, where they will be reducing carbon emissions by the same amount they emit.

Their motivation is two-fold:

1) **Save the world**

2) **Save their economies**

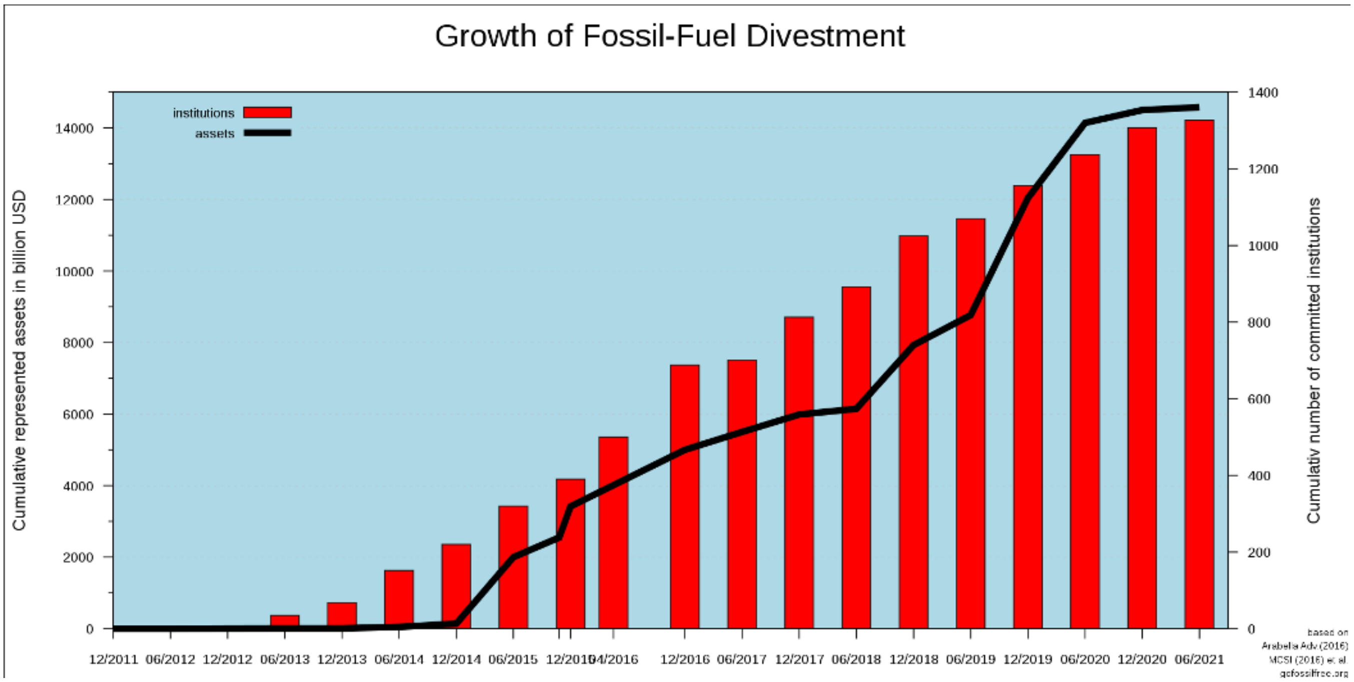
The health of the planet isn’t the only thing at stake here. If we fail to act on climate change, it’s estimated that global GDP could fall by 13% due to the changes in regional weather patterns, effects of pollution and other factors.

The "Green" Investor – YOU Have the Power

It's not just governments pushing the green agenda. Corporations are also increasingly finding themselves needing to pivot to greener business models to protect their bottom line.

For an easy example…

The chart below shows the number of investment institutions who have dropped fossil fuels companies from their portfolios.



By DeWikiMan - Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=52889214

In 2011, it was basically zero.

- ✓ **<u>KEY POINT:</u> Ten years later, as of 2021, there are now nearly 1,400 institutions who have stopped investing in oil and gas companies, representing over $14.5 trillion that was divested from the fossil fuel industry.**

That is a massive movement of capital, and more and more large corporations are leaping at the opportunity to go green.

So why would they shift their investments?

They're being heavily incentivized to make big changes if they want to remain profitable.

Even if they weren't…

- ✓ **KEY POINT: Consumers whose pensions are tied into these institutional funds are also looking for environmentally conscious companies to invest in.**

The people have spoken.

A recent example is what happened to Exxon – one of the largest, most powerful companies in the world, worth $260 billion.

A tiny hedge fund named Engine #1 with a 0.02% stake in Exxon Mobil, worth $56 million today, claimed 3 board seats.

Engine #1 is attempting to steer ExxonMobil—*an oil & gas company*—away from fossil fuels entirely.

They're not here to save the world, but to make more money by getting new investors to believe and invest in ExxonMobil going green.

This type of divisive action by activist shareholders and the investment community is leading to dramatic changes in the cost of capital for a business.

The Carbon Cost of Capital

The cost of capital is what drives capital planning and budgeting. It's a vital part of any company's success.

- ❖ **KEY POINT: Companies who have more of a focus on Environmental, Social and Corporate Governance (ESG) standards now receive better terms on debt and equity financing than those who don't.**

Having an ESG component in your corporation can give you a better credit rating, which leads to better pricing.

Bonds with higher ESG ratings pay a lower coupon on average – meaning lower interest payments – than non-ESG debt.

That means a company pays LESS to borrow when it meets ESG standards.

For example…

- In 2021, **MicroStrategy** (the company ran by famous Bitcoin investor Michael Saylor) went to market and raised $500 million in debt. That debt had a coupon rate of 6.5%.

- Now take an ESG company that issued "green debt" in 2021 a few months later. **Fisker Inc**, the long-time electric vehicle company, issued $625 million in debt at a rate of 2.5%. It even published the offering as "green convertible notes".

Get used to cheaper financing (i.e. access to capital) for green companies, and here's why…

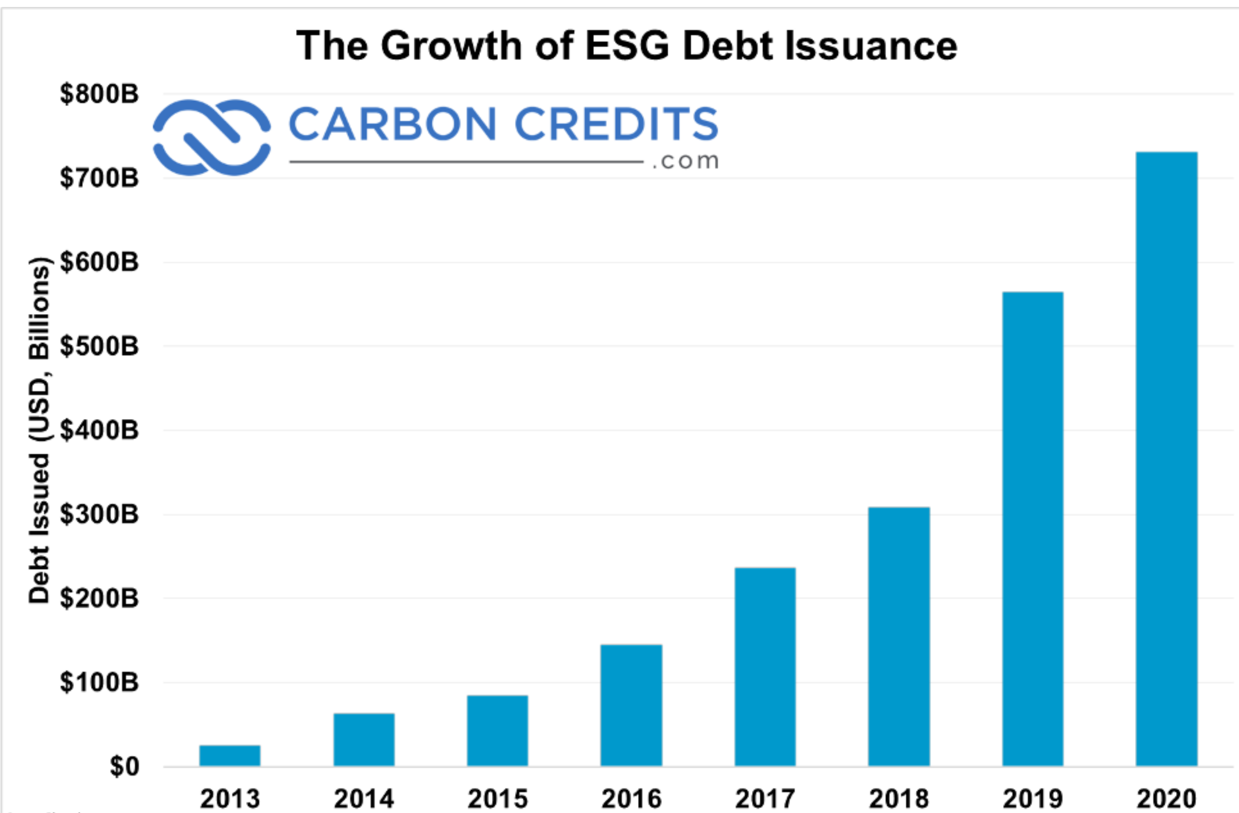
Companies with better financing terms will be more competitive. And that provides them the opportunity to outperform their peer group.

This alone now motivates and incentivizes companies to become more sustainable and responsible.

Also in 2021, **Enbridge**, one of the world's largest oil and gas pipeline companies, issued its first sustainability linked bond – and the coupon came with 0.5% lower interest payments.

Environmentally sustainable debt is the hottest corner of the bond market these days.

Below is a graph showing the tremendous growth of the ESG debt market:



That's a 2,600% increase in just 7 years. And it's only just begun…

It's reasonable to expect the ESG debt market to grow by 2 or 3 times over the next 5-10 years as companies become increasingly focused on ESG.

There are a few key drivers for corporations to become more ESG focused.

One primary catalyst is through new regulatory requirements for transparent accounting methodologies for *Greenhouse Gas Emissions*.

Emissions - The New Financial Buzzword

Many smart financial minds and investors believe that, eventually, greenhouse gas emissions will become line items on financial statements.

Some early adopters have already started making this info public, but we're nowhere near close to where this is going to end up.

Right now, it's still uncommon for companies to report their emissions. But it's coming.

And you can see the changes on sites like **Google Flights** or **Galaxus** (Switzerland's equivalent of Amazon) which display the carbon footprint of a particular flight or product at time of purchase.

- ❖ **KEY POINT: Less than 50% of companies with a market capitalization greater than $1 billion report any type of emissions. That will change.**

The reason is likely three-fold:

1) GHG reporting is relatively new at the corporate level.

2) There are no unified standards for emissions reporting yet, like there are for accounting (GAAP, IFRS).

3) Some are worried about backlash from mainstream media and investors.

The Types of Emissions You Must Get Familiar With

There are 3 types of emissions which can (and will be) reported by companies around the world.

Scope 1 Emissions:

- ➢ These emissions are direct greenhouse gas emissions from company operations.

Scope 2 Emissions:

- These emissions are indirect greenhouse gas emissions from energy purchased by the company.

Scope 3 Emissions:

- These 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.

Think of this opportunity…

Today, less than half the companies that are publicly traded in Europe or North America even report their Scope 1 emissions, let alone Scope 2 or 3.

- **KEY POINT: It's highly likely that most, if not all companies will be forced to report their Scope 1 emissions within the next 5-10 years.**

Then Scope 2 and 3 will likely follow suit shortly afterwards.

The Global Pivot from Carbon Intense to Carbon Zero

It will take cooperation on the global level to achieve the monumental task of meeting the target set out by the Paris Agreement.

And here are the two main ways to balance the scales again:

1) Remove emissions already in the atmosphere.

Removing greenhouse gases from the atmosphere can be achieved in several ways:

- Nature based solutions such as reforestation and other methods that act as "carbon sinks" (absorbs greenhouse gases).
- Technological advancements directly capturing carbon from the air.

2) Fix current emissions levels through government incentives.

Through subsidies and taxes, regulators can promote eco-friendly behaviour and punish those who pollute.

An example of this are the various government incentives to convert from gasoline to electric vehicles, which has made Tesla billions over the years and brought its stock price a lot of attention.

These subsidies are funded in part by carbon taxes that polluting companies and consumers pay – the more you pollute, the more you pay.

By incentivising good behaviour (i.e. reducing CO_2 emissions), and punishing bad behavior, companies are forced to follow suit.

Carbon taxes and a floor price for carbon represent the most important incentives for the private sector.

Establishing a floor price (a low baseline) that each emitter must pay provides initial incentive to all polluters to improve their sustainability.

Creating a tradable tax credit for every incremental tonne emitted provides opportunity, incentive and penalty to large and small emitters alike.

- **KEY POINT: "Carbon credits" provide the holder of the credit the right to negate 1 metric tonne of CO_2 equivalent greenhouse gas emissions.**

These carbon credits can be sold and traded on carbon marketplaces or retired against one's own carbon emissions.

This allows the private sector, responsible for nearly 75% of global greenhouse gas emissions since 1988, to effectively set the price on carbon… all while obeying the minimum price floor.

Low-emissions industries will become sellers in the market and will continue to improve their facilities to get more credits.

"Making" Carbon Credits

Credits can be created through government emission programs, or by the actual physical removal of carbon from the atmosphere.

For the former, these carbon credits are created by governments for the purpose of limiting the maximum number of emissions each company in their jurisdiction can produce.

This type of carbon credit often builds into regulatory frameworks known as "**Cap-and-Trade**" programs, where corporate emissions are "capped" to an annual limit.

Companies with surplus credits due to low emissions, or in need of extra credits due to high emissions, can then "trade" these credits among each other.

For example:

- **A company sources electricity from renewables instead of coal-fired electricity like their peers do. With their lower emissions, they come in**

below their regulatory cap, which is based on their industry average. They can then trade the remaining permitted emissions as credits to a company that's not below their own cap. This forms the basis of a cap-and-trade program.

The second kind of carbon credit, created by actually independently reducing the amount of carbon in the atmosphere, is known as a "carbon offset" and comes from technology-based solutions such as Carbon Capture & Sequestration (CCS) or from nature-based ones such as reforestation projects. These carbon offsets are often created by private companies instead of government initiatives.

Among the examples are renewable energy initiatives that replace polluting energy use, or carbon removal programs like reforestation.

Let's take an energy company for example:

- ❖ **Big Energy Co. can generate carbon offsets by converting a coal energy plant to a renewable power plant instead, or by buying the rights to a reforestation project.**

Both of these choices can:

1. Reduce their CO_2 emissions,
2. Are measurable, and
3. Can be verified by a 3rd party auditor such as **Verra** or through a recognized government body.

Afterwards the company can either use the credit themselves to offset other emissions or sell it on the marketplace.

The finest carbon offset initiatives will also provide extra advantages that increase living standards or have other externally beneficial effects on local wildlife and vegetation.

The Carbon Credit Marketplace

Perhaps the single best thing about the carbon market is that it's still in its infancy.

Without an already developed marketplace, it levels the playing field for everyone.

There aren't any high frequency traders, hedge funds, or banking powerhouses dictating pricing just yet.

Of course, this will change, and eventually there will be fully integrated exchanges for carbon credits – just like how there are for other commodities like oil & gold.

At the moment, there are 2 different markets for carbon credits:

#1 Compliance markets (Government mandated & controlled)

This is the starting point for emissions reductions through international agendas such as the Paris Climate Agreement.

#2 Voluntary markets (Primarily for private companies)

Voluntary Carbon Markets (sometimes called VCM) provide corporations or municipalities the opportunity to go beyond what's set out in the Paris Climate Agreement. This market primarily consists of carbon offsets and is literally being created as you're reading this. Companies like Amazon, Microsoft, Shell and Delta Airlines are all already buying carbon offset credits in the voluntary carbon market.

Carbon credits granted in one market cannot be applied in the other market. In some instances, entire projects can be moved from one market to the other, but it's not common.

They can't be reused and are said to be "retired" once they've been used once. It's important to note that in the long run, carbon credits do not provide a long-term solution to emissions abatement.

As governments compel individuals and businesses alike to become more environmentally friendly, fewer and fewer carbon credits will be distributed each year through the governmental cap-and-trade programs, reducing the number of credits available in the compliance markets.

With this diminishing supply, there will also be an incentive to invest in alternative initiatives focusing on carbon reduction and removal – carbon offsets.

The Green Giant - How Big Can the Carbon Market Get?

That's the trillion-dollar question.

And we won't know the true size for certain for many years to come. However…

- **KEY POINT: We *can* expect massive growth in both the compliance and voluntary carbon markets.**

You can bet that over the next 10 years, every nation which signed on to the Paris Agreement will likely enact some form of carbon taxation.

Today, in many places around the world, carbon prices are currently too low to incentivize polluters to change.

Across 64 different carbon pricing initiatives:

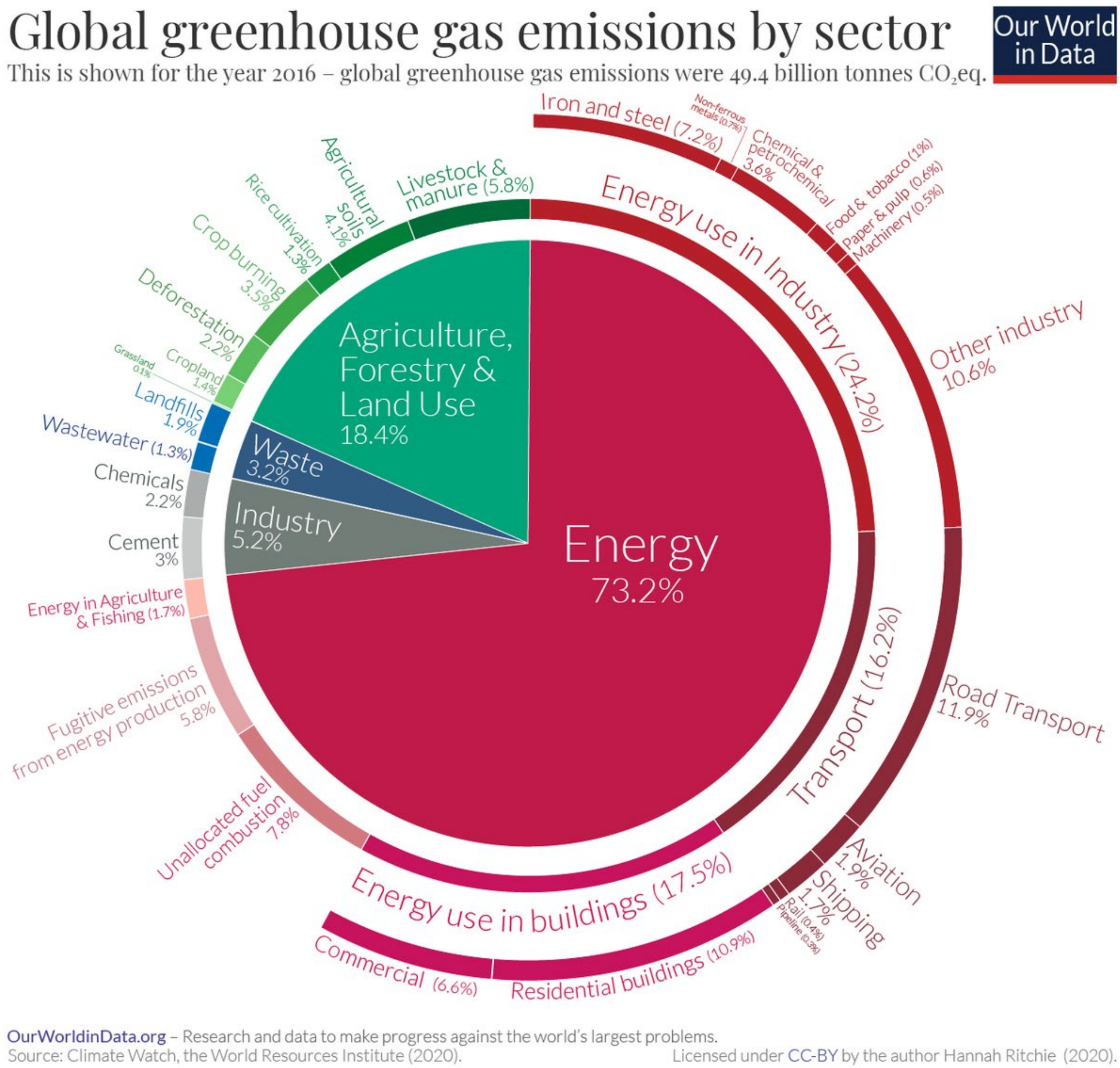
- 21.5% of global emissions are covered under some form of taxation scheme, but
- the emission weighted average is only $16 per tonne.

The CDP Group surveyed 800 companies around the world, and according to their data the average reported corporate internal carbon price is around $25 per tonne.

The International Monetary Fund (IMF) has stated that for most nations to achieve their Paris Agreement commitments, a $75 per tonne minimum price needs to be in place.

But these are the floor prices for carbon credits. How high can they possibly go?

Let’s look at the BIG emitters first:



The dirtiest individual segments are road transportation, residential and commercial energy providers and the steel industry. Combined, they account for 36.6% of the world's greenhouse gas emissions.

These businesses – trucking companies and non-electric-car companies, energy companies, and steelmakers – **will be the largest buyers of carbon credits in the compliance market as reducing operational emissions is expensive and challenging.**

For instance, the steel industry alone accounts for 7.2% of global GHG emissions as over 80% of production involves the use of a blast oxygen furnace.

These blast furnaces need the “dirty” energy to melt the coking coal and iron ore. Switching to cleaner “electric arc” facilities would cost billions of dollars.

- **This makeover of the global steel business may cost more than $100 billion.**

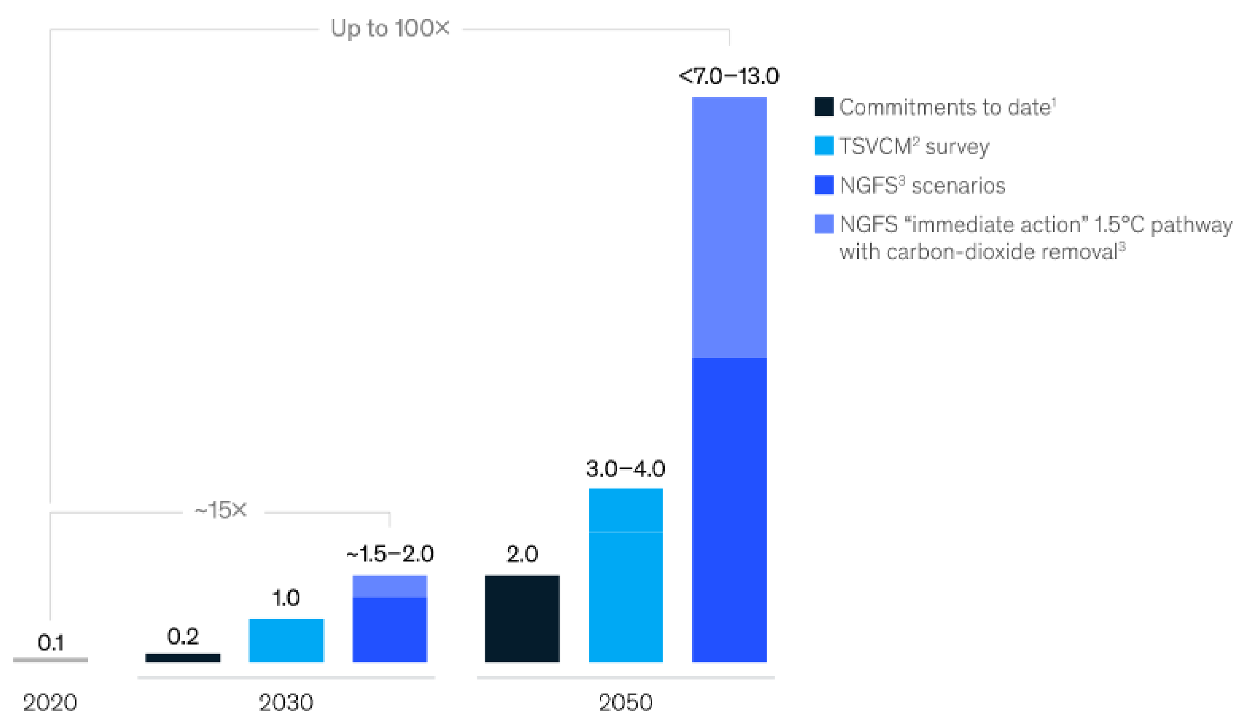
Companies that don’t adapt or innovate will be forced to pass the extra costs of polluting onto their consumers. Those that do, however, will instead be able to sell their "excess" emissions credits to others – and they’ll be able to charge an arm and a leg for them.

According to leading consulting firm McKinsey…

❖ **KEY POINT: The global market for these carbon credits is set to skyrocket in the future – and carbon credit prices with it.**

Global demand for voluntary carbon credits could increase by a factor of 15 by 2030 and a factor of 100 by 2050.

Voluntary demand scenarios for carbon credits, gigatons per year



The Carbon Market is Set to Go Ballistic in Size

Compared to typical asset classes like stocks, bonds, or commodities the carbon market is significantly less developed and much smaller.

1. The global carbon compliance market, which is mandated by governments, represents a $100+ billion market today.

2. The global voluntary carbon market on the other hand is worth between $750 million and $1.5 billion. The voluntary market has enormous growth potential.

To better grasp how big the market could be…

Let's use the Paris Climate Agreement as a base case for emission reduction trajectory.

- **In order to prevent the planet from warming by more than 1.5°C-2°C, annual emissions must be reduced by 7.6% each year before 2030 to stay on track.**

Are we there yet?

Not even close…

When it comes to climate change, most companies around the world are just getting their feet wet.

Few have taken the plunge to commit to radical change.

Back of the Envelope: Modeling the Voluntary Carbon Market

Let's use the 1.5°C goal to build a scenario.

Worldwide CO_2e emissions are estimated to be approximately 51 billion tonnes in 2021.

- Government and public sectors account for 16% of global emissions, or **8.2 billion tonnes of CO_2e**.

- The private sector accounts for the remaining 84%, **42.8 billion tonnes of CO_2e**.

If you only take the private sector emissions of 42.8 billion tonnes into account and subtract the nation-level required reductions of 34.3 billion tonnes that will be addressed via the compliance markets…

That leaves 8.6 billion tonnes that would need to be offset in the voluntary carbon market for the private sector as a whole to achieve "net zero".

Globally, only 1/5th of the world's 2,000 largest companies have committed to achieving "net zero" by the year 2050. Each of those firms is aiming to reduce its direct greenhouse gas emissions to zero.

Matching the locale of each of the companies to each nation's Paris climate agreement targets eliminates 2.4 billion tonnes of greenhouse gas emissions.

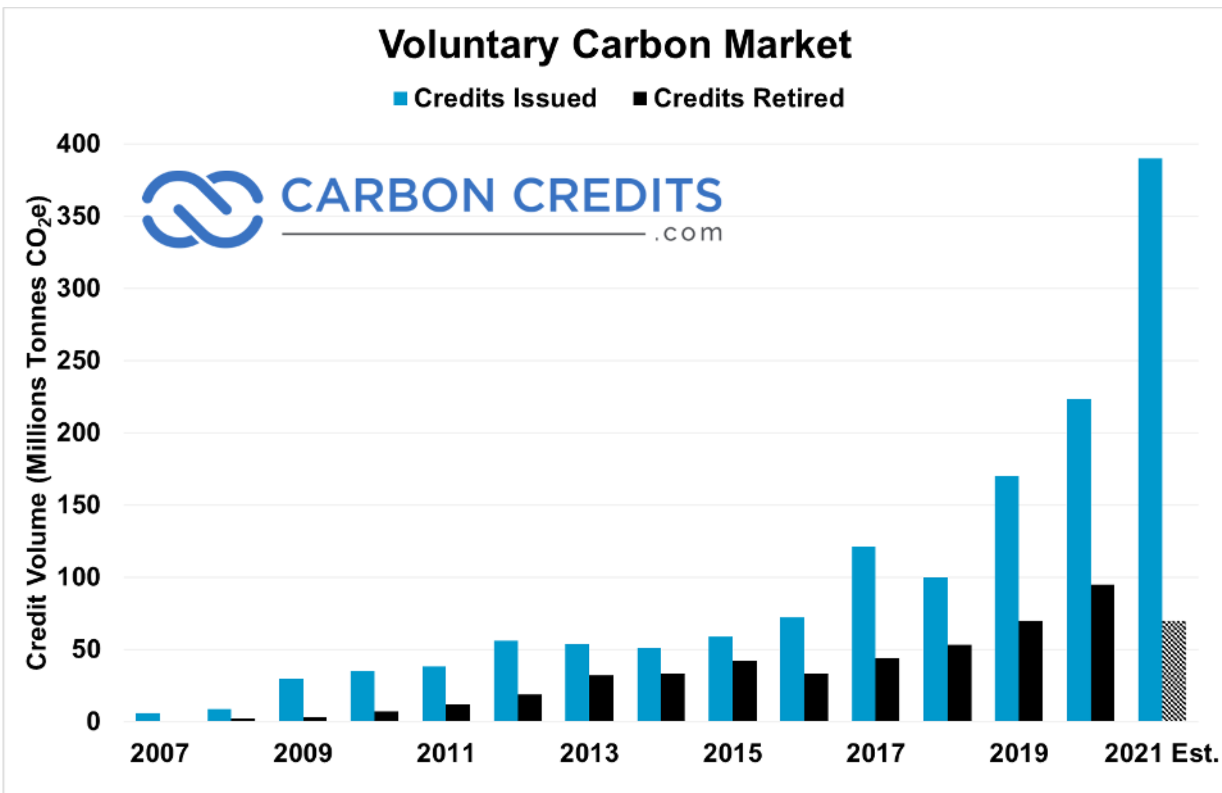
- **Bottom Line: This leaves a requirement of 1.6 billion tonnes worth of carbon credits in the voluntary carbon market for just this one part of the private sector to achieve "net zero".**

Can the voluntary market handle that kind of volume?

Not yet.

Below you'll see a chart which shows the annual credit generation from carbon offset projects in the voluntary carbon market.

In 2020, annual credit production in the voluntary carbon market was a record 223 million tonnes.



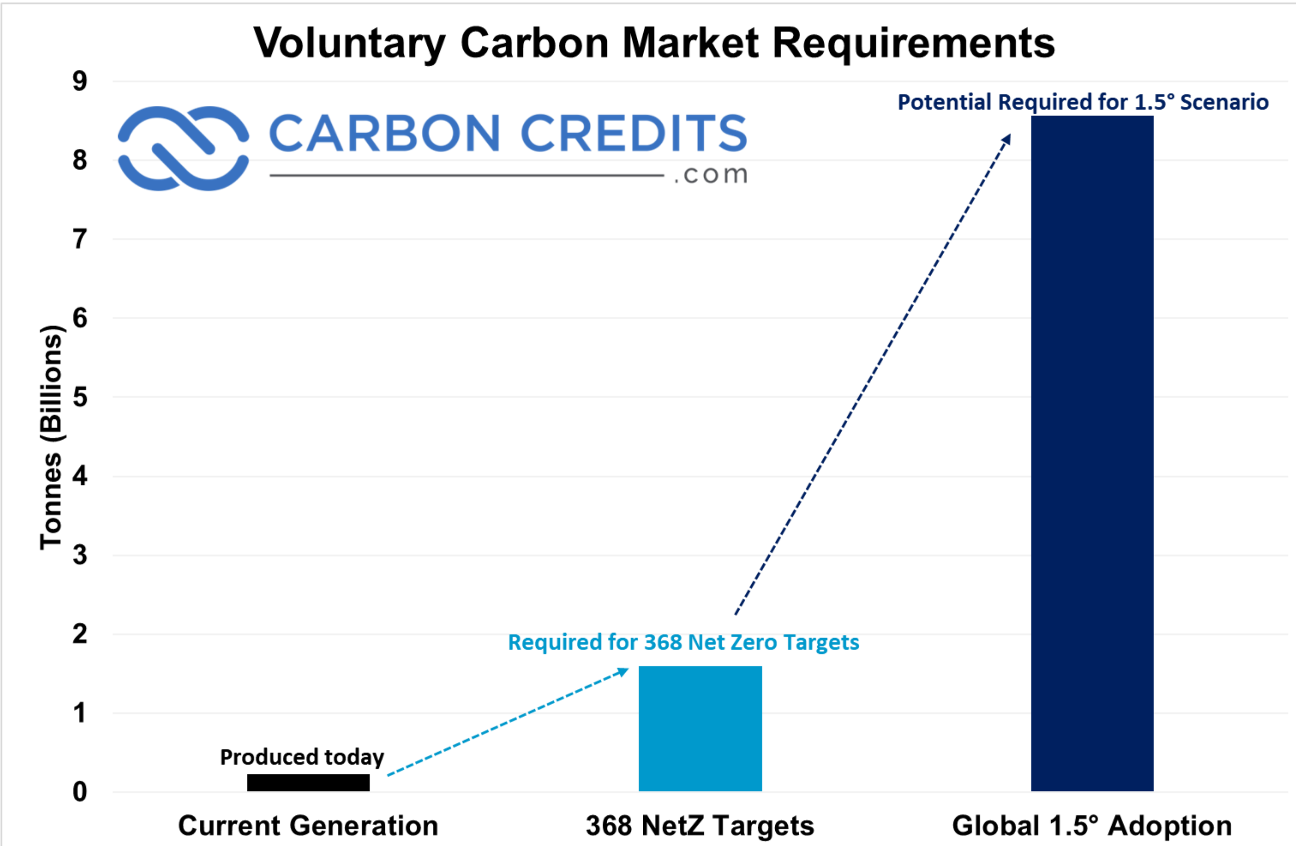
Comparing these 223 million credits generated last year…

To the 1.6 *billion* tonnes in demand demonstrates the optionality and growth potential of this market. As you can see from the chart, explosive growth is already projected for

2021, with an estimated 390 million credits to be generated – that's **75% year-on-year growth**.

And remember, that 1.6 billion tonnes of demand only accounts for those 368 companies which have currently pledged net zero.

- **KEY POINT: At a minimum, the voluntary carbon credit market needs to grow 700% just to provide carbon credits for these 368 companies.**



- **Corporate demand in the voluntary carbon market has the potential to grow by an order of 700% on the low side, and 3,800% on the high side, over the coming decades.**

Carbon Credits are an International Marketplace

The beauty of the voluntary carbon market is that it's global.

Greenhouse gases aren't limited to their country of origin, and emissions from one nation end up in the skies of another.

That's why solving the climate change problem will require global acceptance and adoption.

In compliance markets, credits issued by regulators can generally only be applied in one jurisdiction.

You wouldn't be able to buy a credit from California's cap-and-trade program and use it in Germany, for instance.

But in the voluntary carbon credit market, a credit produced in one country can be applied against emissions of a company located anywhere else in the world.

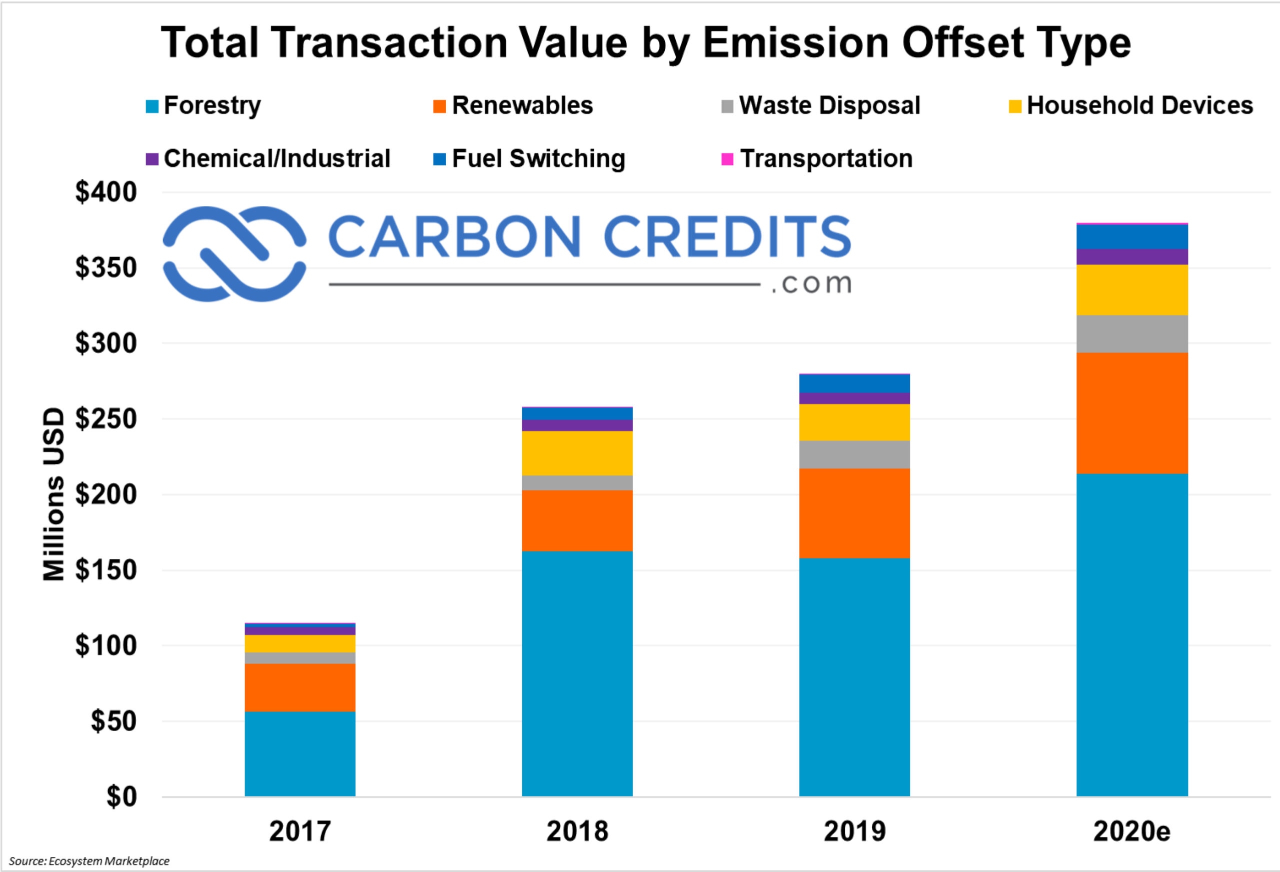
For example, the **Bonobo Peace Forest** in the Democratic Republic of Congo is one of the largest reforestation projects in the world.

Credits earned from this project in Africa can be applied against emissions of a company domiciled in Europe or North America.

- **This creates an incredible opportunity for an international marketplace for carbon credits.**

Below is a table which shows the total value of transactions by offset type in the voluntary market for the past 4 years.

Total transaction volume of offsets in 2020 is estimated to have been over 3 times the volume it was in 2017:



Catalysts & Opportunities in the Carbon Markets

The key catalysts for the carbon market are:

1) **Continued growth of corporate net neutral and net zero pledges**

2) **Government-led initiatives to foster the carbon marketplace**
    a. Establishment of a global carbon price floor
    b. Each nation with a nationally determined contribution must begin to enforce emissions within their countries
    c. Encouraging investment in carbon removal technology

3) **The evolution of compliance and trading hubs**
    a. Accounting requirements for Scope 1, 2 and 3 emissions

b. Liquid, deep and transparent exchanges for compliance and voluntary carbon credit markets are required to facilitate multi-million- or billion-dollar transactions

The growth potential of the carbon market is like no other market in existence today.

As shown by the few companies which have already pledged to go net zero, the voluntary carbon market has the potential to expand 7x solely based on what companies are currently pledging.

If the number of companies pledging net zero doubles or triples over the next 5 years, keeping in line with the goals of the Paris Agreement… that would mean enormous growth in demand for carbon credits.

Early adopters, project generators and holders of carbon credits have the opportunity to earn substantial returns over the coming years.

As the prices and demand for carbon credits go up, carbon emitters are going to face incrementally higher costs across their businesses.

Rising costs will incentivize those large emitters to physically reduce emissions, which is costly and slow, thus forcing them to rely on offsets to help manage net emittance while they achieve the former.

This is bullish for the voluntary carbon market, whose prices at the end of the day are a function of these rising costs.

The carbon market today represents a huge opportunity.

There's so much upside with very little downside - as climate change isn't going anywhere.

Green technology companies, offset projects, and those that hold carbon credits and offsets will be looking at incredible returns over the coming years.

Now, you're up to speed on a brand-new commodity sector that not even 1 in 1,000 investors know about yet.

And the best part is – we're still only in the beginnings of this market!

Regards,

-CarbonCredits.com

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