Climageddon

Part 1, Chapter 5

Why Aren't We Being Told We Are in a Global Warming *State of Emergency*

Overview:

- Life on Earth has flourished best when carbon levels were in a range of 200-270 ppm (in the pre-industrial age).
- The battle to keep global warming less than 2° Celsius (3.6 degrees Fahrenheit) has already been lost.
- The Intergovernmental Panel on Climate Change (IPCC) has failed to properly educate global leaders and has significantly underestimated timetables, which in turn has dangerously diminished awareness of the emergency we are in.
- It is highly probable carbon parts per million (ppm) in the atmosphere will rise beyond the carbon 550 ppm total, which translates to a 3° to 4°+ Celsius increase (5.4° to 7.2°+ Fahrenheit) in average global temperature—Hell on Earth. A 6° Celsius (10.8° Fahrenheit) increase is also a realistic projection, and it could occur *long before* 2100.
- If we resolve global warming, we also create a green Third Industrial Revolution. This will directly and indirectly create millions of new green energy-related jobs worldwide to replace lost fossil fuel industry jobs.

How bad is global warming right now

In order to see our current global warming condition as an undeclared but real *State of Emergency,* it is essential to explore how bad global warming has become. To put current warming conditions in their proper context, it is wise to compare our current temperatures and conditions with historic temperatures and conditions of the past.

Prepare yourself to be shocked while reading this not-so-happy overview, but do not forget that all temperature projections in this chapter do not include how much higher temperatures will rise, or how quickly, if we cross *any more* of the global warming tipping points (Chapter 4). Numerous graphs and illustrations have been provided to help make the depth of this emergency abundantly clear. (All graphs found below are for carbon dioxide only and do not include *any* of the atmospheric methane pollution, which is also a greenhouse heat-increasing

gas.) This chapter does contain some complex science, but like the previous chapter, you do not have to understand everything perfectly. Just by reading it, you will gather enough essential information for the following chapters. Let's review the facts.

Thirty years of failure

In spite of 30 years of warnings by credible scientists, plus the work of the environmental movement, plus a preponderance of collaborating scientific evidence as well as numerous conferences and previous treaties, the carbon dioxide and methane pollution of the atmosphere has not stopped, slowed, or even leveled off. On the contrary, *it is getting worse faster than ever before!*

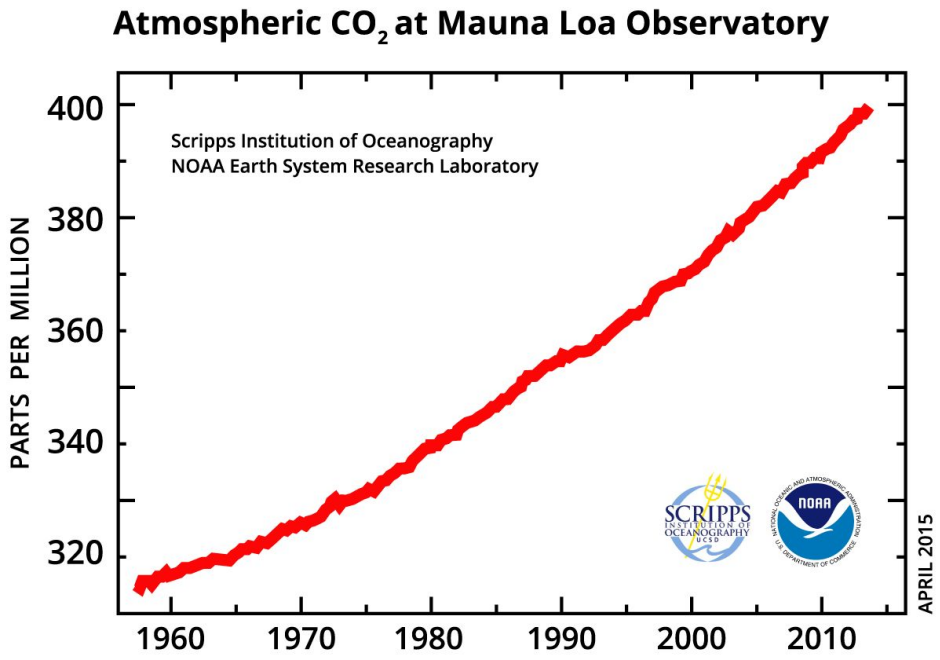

Image provided by NOAA ESRL Global Monitoring Division, Boulder, Colorado, USA (http://esrl.noaa.gov/gmd/)[1]

Leading climate scientists like James Hansen, who originally warned us about the global warming danger 30 years ago, say we would remain safe if carbon in the atmosphere did not go over 350 parts per million (ppm). As of August 2016, carbon was near 407 ppm[2] and increasing at about 3 ppm per year in a near exponential progression.

[1] "Atmospheric CO2 at Mauna Loa Observatory," *Nation Oceanic & Atmospheric Administration*, accessed January 18, 2017, https://www.esrl.noaa.gov/gmd/ccgg/trends/full.html.
[2] Natasha Geiling. "The Earth just passed a major climate milestone." *ThinkProgress*. September 28, 2016. https://thinkprogress.org/world-passes-400-ppm-threshold-fade7f48e025#.30ibi2rvc

When you combine the heating effect of carbon with the other greenhouse gases, it is called the CO2e ppm rating. CO2e, or carbon dioxide equivalent. CO2e is a standard unit for measuring all greenhouse gases in terms of the amount of warming they create compared to CO2.carbon footprints. When you include atmospheric methane and the other greenhouse gas pollutants, our current adjusted CO2e rating has already risen to the shocking level of 430 ppmv of CO2e! Worse yet, we will be at carbon 450 ppm in 10 years or less when we include atmospheric methane in our calculations.

To put this in a time-lapse perspective, from 1850 to about 1950, the increase in carbon pollution was steady at about 1 ppm per year. From 1950 to 2000, the increase rose to 2 ppm per year, and now in its current exponential curve, it is at about 3 ppm per year and rising rapidly toward 3-4 ppm per year. If carbon continues to rise in this exponential, *nonlinear* way, virtually unchecked by our ineffective previous actions, the increase could easily reach a level of 4-5 ppm per year by 2025.

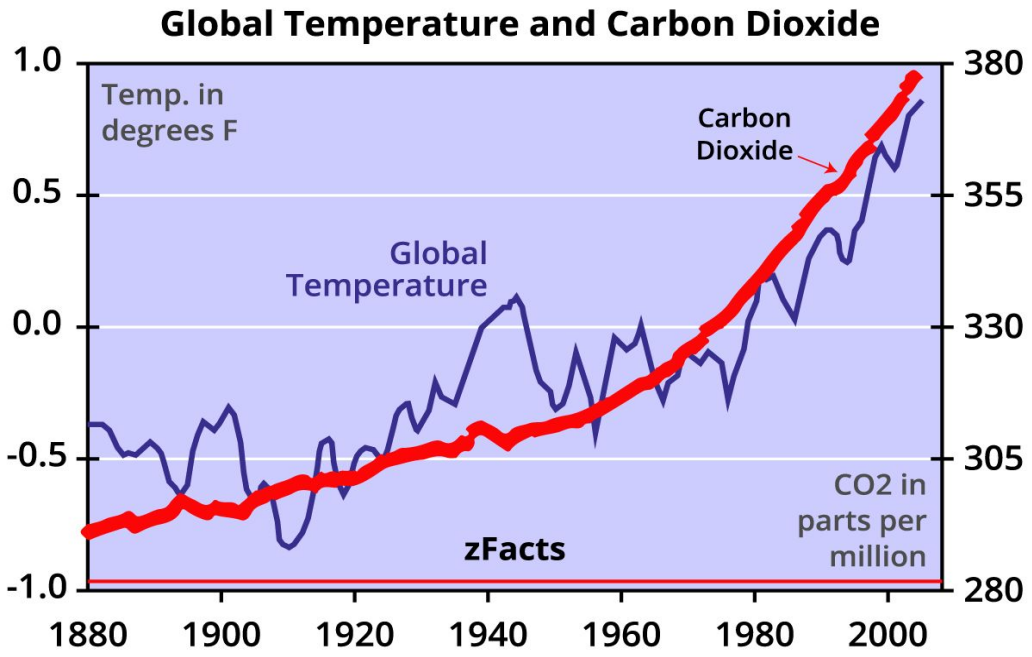

Image via Stephen Stoft at zfacts.com[3]

According to James Hansen, a carbon 450 ppm level would *eventually* correspond and develop into an average global temperature increase of 6° Celsius (10.8° Fahrenheit) in this century and the end of human civilization as we've come to know it.[4] Based on carbon ppm levels already in the system and reaching the 450 mark, this also means at least another 2.7° Celsius (4.9°

[3] Stephen Stoft. "Evidence that CO2 is the Cause of Global Warming." *zFacts.com*, accessed January 9, 2017, zfacts.com/p/226.html

[4] Hansen, J., et al.. "Ice melt, sea level rise and superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2 °C global warming could be dangerous." *Atmos.Chem.Phys.net*, 16, (2015): doi:10.5194/acp-16-3761-2016, 2016.

Fahrenheit) global temperature increase beyond where we are now is the eventual and inescapable future reality.[5]

This 2.7° Celsius would also be the most realistic *minimal* temperature increase to project as part of any future planning over the next 10-30 years. Bear in mind that even this scenario applies only if everything goes perfectly and we cross no additional global warming tipping points.

Unfortunately, it is highly probable that because of our ongoing denial and delay in addressing escalating global warming, atmospheric carbon parts per million will most likely continue to rapidly rise beyond the carbon 450-550 ppm total, which translates to a 3° to 4° Celsius increase (5.4° to 7.2°+ Fahrenheit) up to as much as a 6° Celsius (10.8° Fahrenheit) increase in average global temperature. (A 4° Celsius increase [7.2° Fahrenheit] in average global temperature would become "Hell on earth" as Mark Lynas, author of *Six Degrees: Our Future on a Hotter Planet*, has stated.)

Hansen's "projections for "ending human civilization as we know it" are *not* the same as *mass human extinction* as we approach the 5° or 6° Celsius (9° to 10.8° Fahrenheit) temperature levels. In Hansen's 6° Celsius rise coming from eventually crossing the carbon 450 ppm mark, what would be considered normal, comfortable, or predictable daily life in developed nations will be severely impaired. In undeveloped nations, there will be a level of chaos and breakdown that will rapidly render most of these nations politically and economically unsustainable. As it is already occurring, the chaos of existing less-developed nations destabilized by factors such as war and the global warming emergency will affect the more developed and stable nations *far beyond* just the current massive migrations of those escaping the suffering.

In spite of all the media PR, 21 UN / IPCC climate conferences, endless warnings from credible scientists over the last 30 years, and national reduction pledges and treaties, things are worsening in a nearly *exponential* progression (2,4,8,16, etc.) There is no way to deny we are not only losing the escalating global warming battle, but losing it at a progressively faster rate!

Instead of enacting the needed changes when they were far easier, more gradual, and far less costly, we must now take radical, painful, and costly *tough medicine* if we are going to save the future. The changes that would have been inconvenient 30 years ago will now become nearly unbearable.

Some of today's most disturbing global warming facts

[5] Climate research and researcher perspectives used within the book may not always precisely agree. Such differences can be accounted for by using different research, different formulas, different time horizons, newer research studies displacing older research, or slightly different interpretations of similar data by different climate researchers.

1. We are not receiving adequate accurate facts about how bad escalating global warming is now, or how bad it will become. The heavily lobbied global media decline alarming us to the real dangers in order to allow the fossil fuel industry to continue business as usual.

2. Current atmospheric fossil fuel burning-related carbon ppm values are now at 407. This is higher than at any other time in the last 1 million years (possibly higher than any time in the last 25 million years). This new carbon pollution record represents an increase of 85 carbon ppm in the 55 years since David Keeling began making his revolutionary atmospheric carbon pollution measurements at Mauna Loa. (See graphs in this and previous chapters).

3. Carbon pollution accumulating in the atmosphere has been increasing even faster over the last few decades. It is now nearly certain that if we refuse to take immediate, effective measures to resolve global warming, future increases will happen *at even faster rates*.

4. Global average temperatures have the potential to rise far faster than what we normally experience. For example, about 9600 BC, in the Boreal climatic phase,[6] global temperatures rose 7° C (12.6° F) in *less than a decade,* pushing the ice sheets into rapid collapse and sending sea levels soaring.[7]

Our 30-year inability to control the global warming emergency is due in part to:

1. The lack of national and international verifiable and enforceable international laws that would make continued large-scale carbon and methane pollution of the atmosphere a strongly punished activity or crime.

2. The physical time lags in developing and deploying the infrastructure needed for the new green energy technologies. As we are progressing now, it will likely take another 30-50 years.

But, if everyone on the planet and every government simultaneously agreed to scale up green energy generation immediately and there were *no budgetary or resource restrictions* in completing this life-critical project, it could take just 10 years to put that infrastructure in place.

If escalating global warming and its consequent climate destabilization proceed to the levels currently being predicted, it will eventually cost the global society hundreds of trillions of dollars in crisis recovery, as well as soaring insurance rates, massive real estate losses and

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[6] Wikipedia. "Boreal (age)." *Wikipedia.org*. Last modified November 6 2016. https://en.wikipedia.org/wiki/Boreal_(age)

[7] Alley, Richard B., *The Two-Mile Time Machine: Ice cores, abrupt climate change, and our future* (Princeton University Press; 2000.)

depreciation, and massive coastal and other infrastructure losses, in addition to the vast amount of human suffering and death.

Right now, most nations are struggling with debt and their economies are in trouble with anemic annual growth. How will many of these nations, particularly the weakest ones, remain politically or financially viable, stable, or even continue to exist if another 5% or more of their total GDP (the Stern Review[8]) is drained off each year into the continually escalating costs of global warming-caused climate destabilization? Current estimates from a book called *Climate Shock*[9] project all global warming consequences will cost 10 percent and maybe far more of the world's total GDP by 2100.

The global warming emergency is already here! Its superstorms, flooding, seasonal disruptions, wildfires, heat waves, migrating insect infestations, and droughts will continue increasing in magnitude and frequency. According to a recent analysis from scientists at the National Center for Atmospheric Research (NCAR), "[t]he worst case projections for global warming may be the most likely."[10]

The next battle now lies in keeping global warming from becoming irreversible or rising to an extinction-level event where human-caused carbon dioxide and methane levels in the atmosphere push the global temperature increases to 4°-6° Celsius (7.2°-10.8° Fahrenheit) above preindustrial levels *and beyond.*

An already "baked-in" future of higher temperatures no matter what we do

A 2° Celsius (3.6° Fahrenheit) increase in global average temperature by year 2100 has been the official estimate of the Intergovernmental Panel On Climate Change (IPCC). But it is low and overly optimistic. This 2° Celsius IPCC estimate is based on the operating premise that everything happening in the very complex and highly interconnected climate system will always work *perfectly* as predicted, *in our favor*, and no more known or unknown climate tipping points will be crossed.

Planning for everything to go perfectly is the perfect plan for failure, and there's a dangerous global warming shocker hidden within these low temperature estimates. The first wave of escalating global warming superstorms or "millennial storms" (storm severity levels that have not been seen for thousands or tens of thousands of years) will be coming much sooner than

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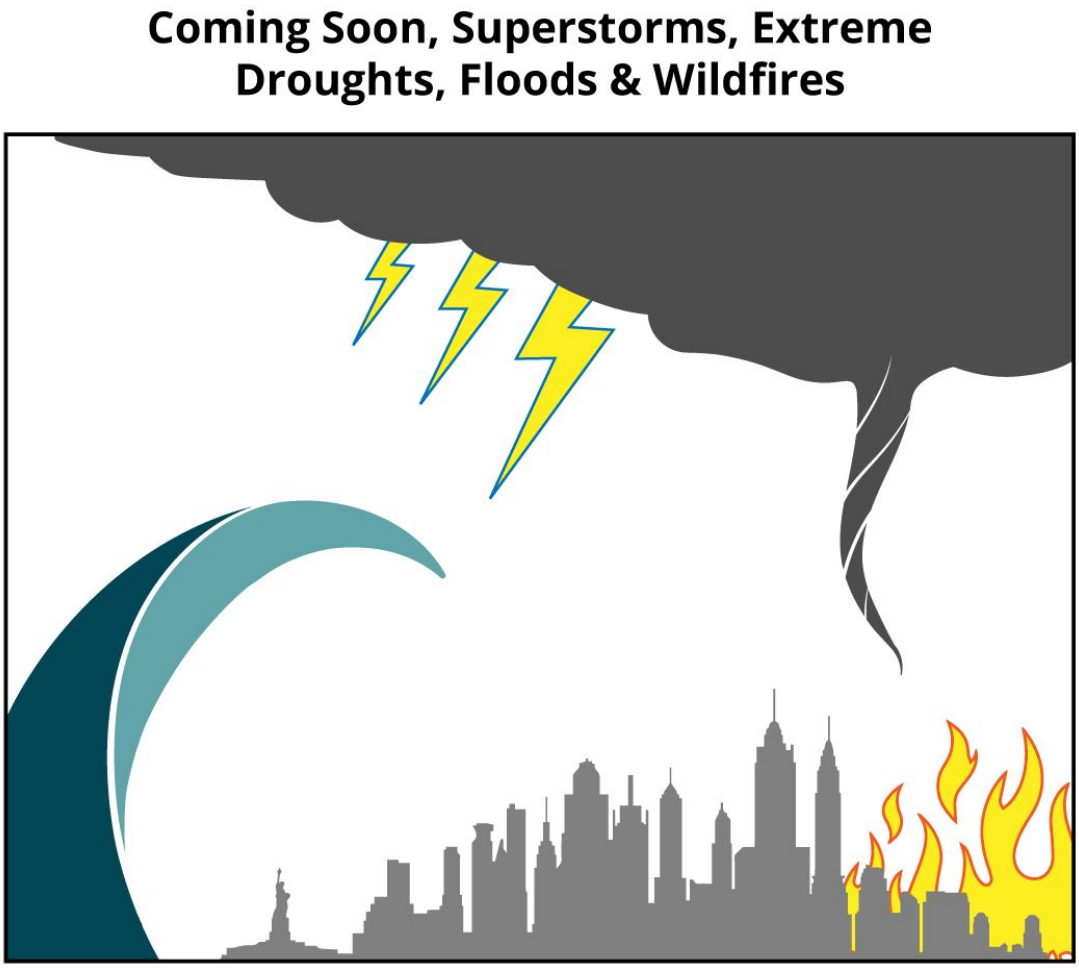
[8] Nicholas Stern. "Stern Review on the Economics of Climate Change." *UK Government Web Archive*. Last modified July 4, 2010. http://webarchive.nationalarchives.gov.uk/20100407172811/http://www.hm-treasury.gov.uk/stern_review_report.htm

[9] Gernot Wagner and Martin Weitzman, *Climate Shock* (Princeton University Press; April 2016).

[10] Common Dreams. "Worst case climate projections likely: Study." *CommonDreams.org*. November 9, 2012. http://www.commondreams.org/news/2012/11/09/worst-case-climate-projections-likely-study

we are planning for. When you include crossing more of the critical global warming tipping points and adjust projections in evaluating the current climate data, it suggests all types of extreme weather such as millennial superstorms, super droughts, super floods, and super wildfires could begin replacing our current waves of extreme weather in as little as 15 to 30 years.



Unfortunately, there's more bad news. Even if we stopped emitting all carbon dioxide and methane greenhouse gases today, we face considerably more global warming than the IPCC has publicly stated. According to Michael Mann, Distinguished Professor of Meteorology at the University of Pennsylvania State, we are already on track for a total rise in temperature of 1.7° Celsius[11] (about 3° Fahrenheit) in the northern hemisphere, *no matter what we now* do to slow

[11]Michael E. Mann. "How close are we to dangerous planetary warming." *The Huffington Post.* December 23, 2015. http://www.huffingtonpost.com/michael-e-mann/how-close-are-we-to-dangerous-planetary-warming_b_8841534.html

or stop global warming. In part, this is because there is future global warming already "baked into" the warming pipeline.

This is what it is called "committed warming." Committed warming is inevitable, delayed only by the lag time for the oceans to heat up, owing to the slow ocean warming response to greenhouse gases.

The temperature increase of 1.7° Celsius (3° Fahrenheit) is already committed. This is baked-in global warming and it is *really bad news.*

Worse yet, the computer modeling used to create the 1.7° Celsius prediction also does not include the possibility that we have unconsciously already crossed or could very soon cross more global warming tipping points. If that has happened or will happen soon, the calculation for already committed global warming could be significantly above 1.7° Celsius. We could rapidly move through an increase of 2° or 3° Celsius (3.6° to 5.4° Fahrenheit) and beyond.

Additionally, after all of the atmospheric fossil fuel-related soot is gone, global temperatures are estimated to go up an additional .2 to .5° Celsius (0.36°-1° Fahrenheit), depending upon the atmospheric soot levels in your area of the world.

This additional calculation for how average global temperature will go up as we rapidly shut down the aerosol soot created by fossil fuel burning *is significant.* This implies that planning your personal or business future using *only* 1.7° Celsius (3° Fahrenheit) of *already committed* and "baked-in" average global warming is also a faulty and dangerous future planning assumption.

It would be far wiser to assume an increase in average global temperature of 1.9° to 2.2° Celsius (about 3.4° to 4° Fahrenheit) as a long-term planning *starting point.* While 1.9° to 2.2° Celsius is more realistic, it is still not as good as the most realistic 2.7° Celsius increase for longer-term planning. This is because the 1.7° to 2.2° Celsius (3° to 4° Fahrenheit) previous temperature planning starting point also *does not* include any calculations regarding crossing more global warming and climate system or subsystem tipping points, which is highly likely to happen.

To put this *already committed,* non tipping point inclusive temperature range increase of 1.7° to 2.2° Celsius into another comparative perspective, the IPCC at the last Paris conference in December 2015 still pushed hard promoting that global warming should not not rise above 1.5° Celsius (2.7° Fahrenheit). This is because they already know a 1.5° Celsius increase heralds an unending chain of horrific disasters for many of the world's poorest countries. Why the IPPC promoted a global temperature target that was below the already known baked-in increase is hard to comprehend, and it will be indirectly addressed in chapter 7.

According to Professor Mann, when we hit 405 parts per million (ppm) of carbon in the atmosphere, we have now committed ourselves to a 2° Celsius (3.6° Fahrenheit) increase in global temperature. Now add in the fact that none of the above *already committed* global warming calculations except the 2.7°C (4.9° Fahrenheit) projection include any possibility that we have already unknowingly crossed or will cross more global warming tipping points. We are in deep trouble already!

From the preceding, it would be unrealistic to keep promoting that we can realistically keep the average global temperature increase below 2° Celsius. Yet, that is exactly what the IPCC promoted to world's nations at its 2015 Paris conference in addition to promoting its lower 1.5° Celsius (2.7° Fahrenheit) target.

It is time to face bitter facts. The battle to keep warming from rising less than 2° Celsius (3.6° Fahrenheit) has been lost!

In reality, if we include crossing more tipping points we face a baked-in 2.7° degrees Celsius (4.9° Fahrenheit) average global temperature rise as we approach carbon 425 to 450 ppm. We need to immediately begin preparing for these severe temperature increases while we still have time!

It is also important to be aware that even though the 2.7° degrees Celsius temperature is already baked in and committed also because of previously mentioned momentum and inertia issues, it does not mean these higher temperatures will occur immediately. It could take a decade or more for these baked-in temperature rises to be fully realized.

Additionally, when we extrapolate from the IPCC's own current worst case projections using what you have learned so far, a 6° Celsius (10.8° Fahrenheit) increase occurring *much sooner* than 2100 becomes a real probability. This eventual 6° Celsius temperature increase prediction is based on these highly probable assumptions:

1. We continue business as usual, increasing the carbon pollution of the atmosphere at our current exponentially rising levels of carbon 3-4+ ppm per year,

2. Methane continues rising as it has over the last several decades because of the fracking boom, big agribusiness and other factors, and

3. We have unknowingly already crossed or will soon cross more known or unknown global warming tipping points within any of the critical systems or subsystems of the climate system. For example, in May of 2014, we crossed another dangerous climate tipping point when scientists discovered that the West Antarctic Ice Shelf has gone into an *irreversible* and escalating melt.

According to the climate author Mark Lynas, if we let our planet's temperature increase by 6° Celsius (10.8° Fahrenheit), "it would cause a mass extinction of almost all life and probably reduce humanity to a few struggling groups of embattled survivors clinging to life near the poles."[12]

In order for humanity to endure, we now have no other prudent choice but to do whatever we can to try to lessen and slow the long-term pain of this emergency so that global warming does not become irreversible. We may still have enough time to prepare families, businesses, nations, and ourselves for the tremendous stress that escalating global warming will cause—but only if we begin preparing for it now!

Putting only a 2° Celsius temperature rise in perspective using carbon levels and temperature fluctuations from Earth's past

Seeing the global warming emergency from as many perspectives as possible will help you better grasp the depth and seriousness of the crisis we are in. For example, the Earth's geologic past not only verifies that specific outcomes of *global warming* have occurred, but also gives us vital information about what similar consequences *will likely occur* as we duplicate the carbon dioxide levels, atmospheric temperatures, and other conditions of our distant and not-so-distant past.

According to a 2015 paper in *Science*, about three million years ago:

1. The average global temperature was about 1.7°-2.7° Celsius (3°-5° Fahrenheit) warmer than today.

2. The Arctic regions of the planet were about 7° Celsius (12.6° Fahrenheit) warmer.

3. Carbon dioxide levels were about as high as today.

4. Sea levels stood *at least* 20 feet (6-7 meters) above today's level.[13]

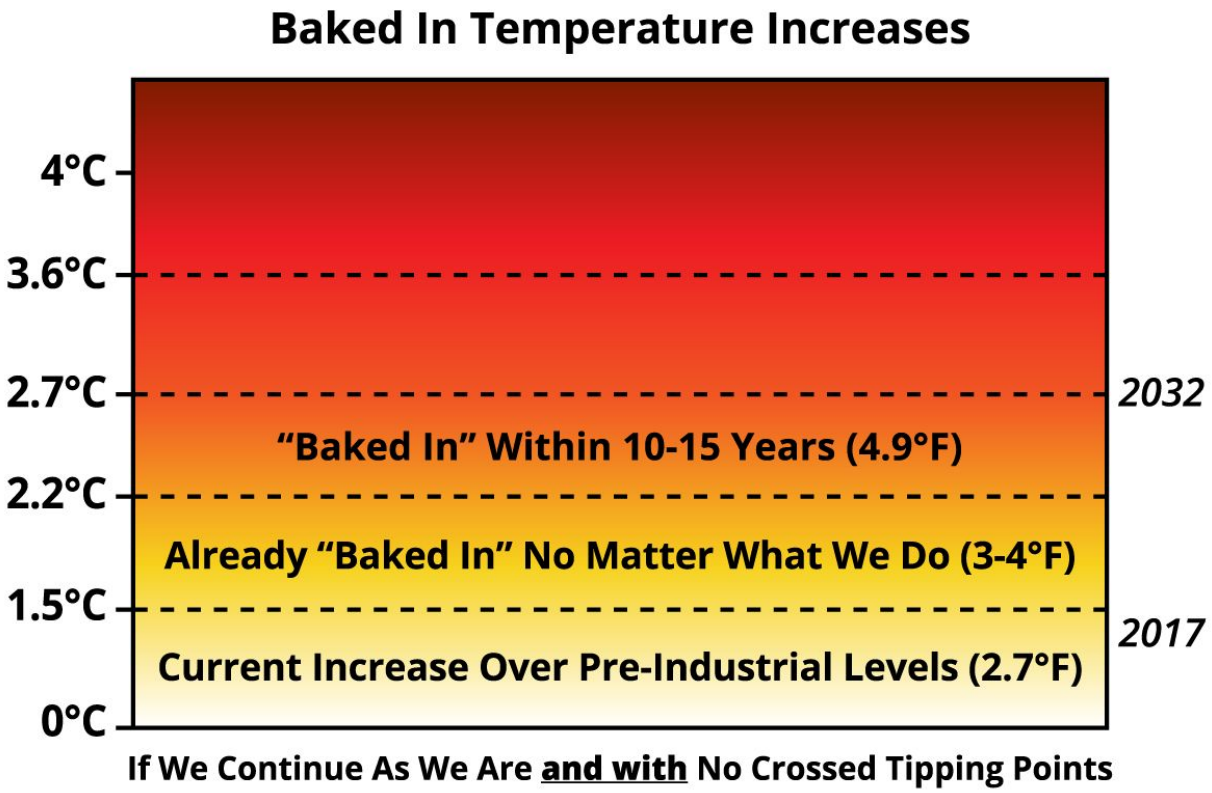
In our more recent geological past, around 400,000 and 125,000 years ago, average global temperatures were respectively about 2° Celsius (3.6° Fahrenheit) and about 1° Celsius (1.8° Fahrenheit) above pre-Industrial times. During those two separate time periods, the upper bounds for sea level rise were estimated to be up to 42 feet higher (13 meters) than present. As you can imagine, at those temperatures—close to the temperature increases currently

[12] Mark Lynas, *Six Degrees*. (National Geographic; January, 2008.)
[13] A. Dutton, A. E. Carlson, A. J. Long, G. A. Milne, P. U. Clark, R. Deconto, B. P. Horton, S. Rahmstorf, M. E. Raymo, "Sea-level rise due to polar ice-sheet mass loss during past warm periods." *Science*, July 10, 2015. http://science.sciencemag.org/content/349/6244/aaa4019

predicted—either of the sea level rises (20-foot or 42-foot) would be a nightmare for world shorelines and their populations if they were to occur today.

Unfortunately, that is exactly what we are racing toward—*and beyond*. According to the same *Science* article, even if we managed to limit average global warming to just 2° Celsius (3.6° Fahrenheit), sea levels may still eventually rise at least 20 feet (6 meters) above their current levels.

The illustration below will be useful for mid range planning (the next 10-15 years) for any industry, individual, or nation whose future plans will be affected by the previously discussed consequences of escalating global warming. Keep in mind, this illustration with its estimated time frames does not include crossing *any* additional tipping points.



Why the global warming State of Emergency isn't being discussed by our political leaders

To help you see where and why we are currently in a losing battle to end global warming, we have provided the following Keeling-styled graphs for the atmospheric carbon level data in different parts of this chapter.

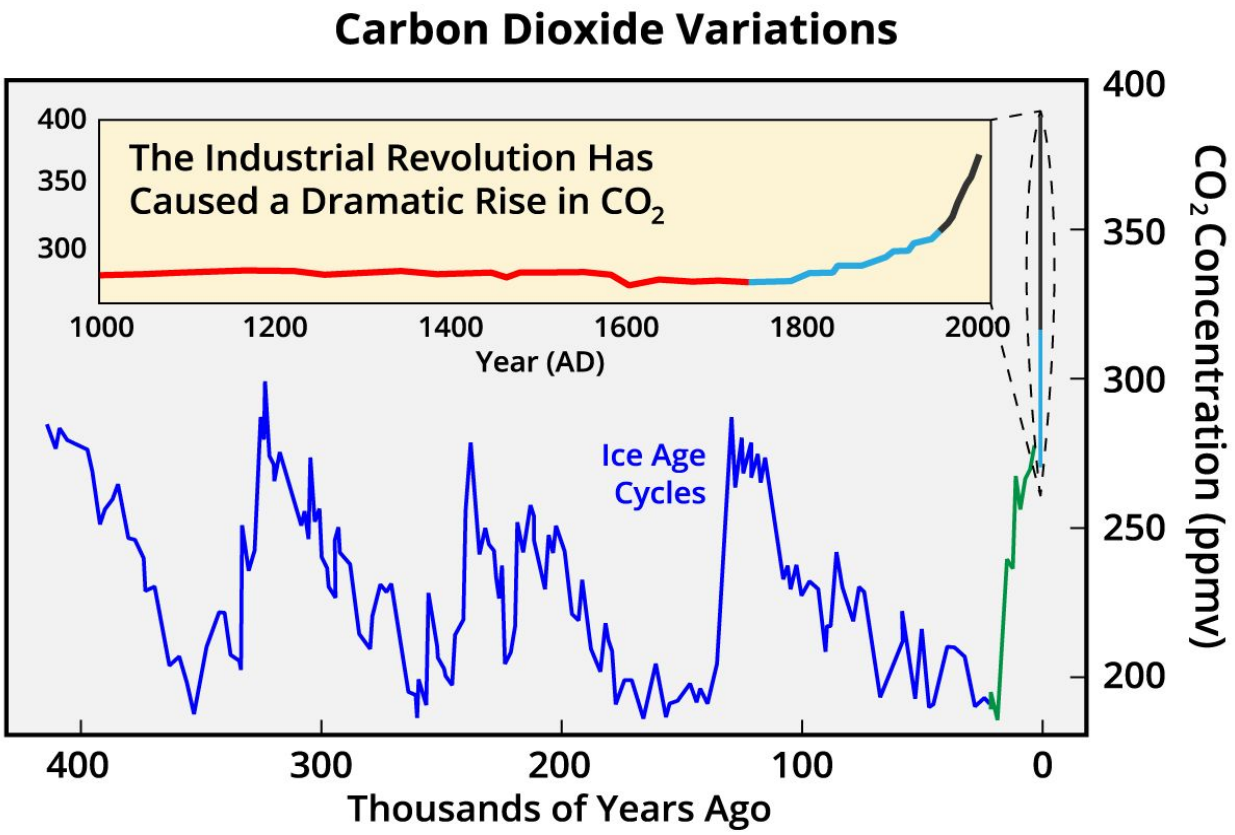


Image via Robert A. Rohdes, Wikimedia commons.[14]

The above graph shows variations in concentration of carbon dioxide in the atmosphere during the last 400 thousand years. It also helps to illustrate the carbon pollution data progressing from the Industrial Revolution of the 1880s to the present day. Other data also show the carbon ppm levels for the last several hundred thousand to millions of years. This way, you can see the modern spike in today's carbon pollution emergency in a historical, and especially post-Industrial, context.

More carbon in the atmosphere equals more heat

It is important to notice in the graph above that the *long-term average* carbon parts per million (ppm) never rose much above 270 ppm until the Industrial Revolution. For hundreds of thousands of years, carbon ppm stayed in a general range significantly below where it is today. Only hundreds of millions of years ago were carbon ppm levels much higher, during Earth's turbulent developmental and volcanic periods.

[14] Rohdes, Robert A. "Variations in concentration of carbon dioxide in the atmosphere during the last 400 thousand years." Digital image. Wikimedia Commons. December 21, 2009. Accessed January 11, 2017. https://commons.wikimedia.org/wiki/File:Carbon_Dioxide_400kyr.png.

Something has radically changed in carbon ppm atmospheric levels since the beginning of the fossil fuel-powered Industrial Revolution of the 1880s. For the first time in hundreds of thousands of years, we have now crossed the unprecedented carbon 400 ppm level. Today's carbon ppm 407+ level is now nearly double the carbon 200-270 ppm range it held consistently for hundreds of thousands of years. This radical change in such a short period of geological time can and will have serious consequences!

Even if we do not cross any other global warming tipping points, which avoidance is *highly unlikely,* just by extrapolation using the current exponential rise per year and cumulative carbon levels, we could be at carbon 550 ppm in 30-40 years...*or sooner.* If we hit carbon 550 ppm, which translates to a temperature increase range of about 3° to 4°+ Celsius increase (5.4° to 7.2°+ Fahrenheit), as it appears we will, this "seals the deal" on destructive changes for most life on Earth (as described in Phase 3 of the Climageddon Scenario in the next chapter).

Extrapolating from the carbon ppm and average global temperature graph shown below, it appears that in spite of everything that we are doing now to slow escalating global warming, the current global average temperature is increasing by approximately 1/2 degree for about every 25 additional parts per million of carbon going into the atmosphere.

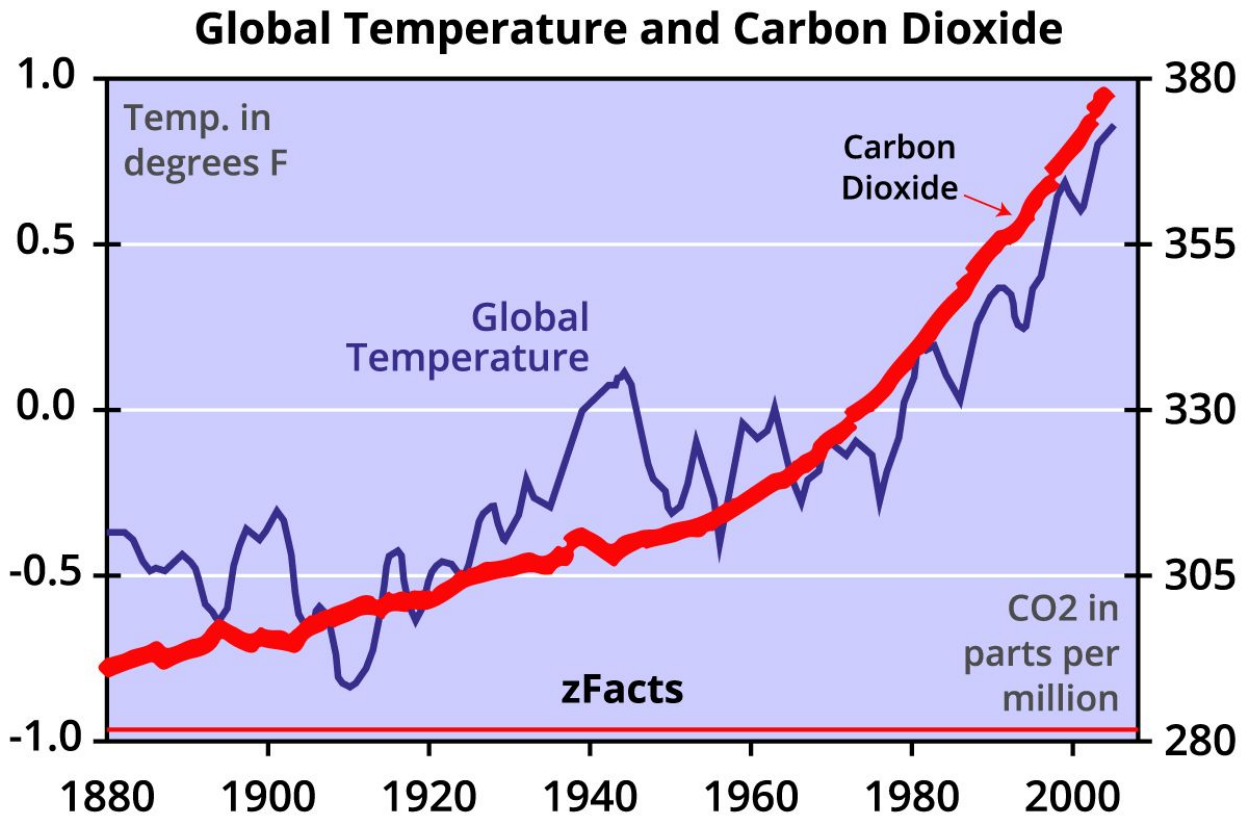


Image via Stephen Stoft at zfacts.com[15]

The above graph provides evidence that CO2 is a contributing cause of global warming. This ongoing or increasing fossil fuel use will increase carbon ppm, which then increases average global temperature. This increased or decreased carbon ppm in the atmosphere appears to have a direct or near direct relationship to rising and falling temperature all the way back to Earth's earliest times.

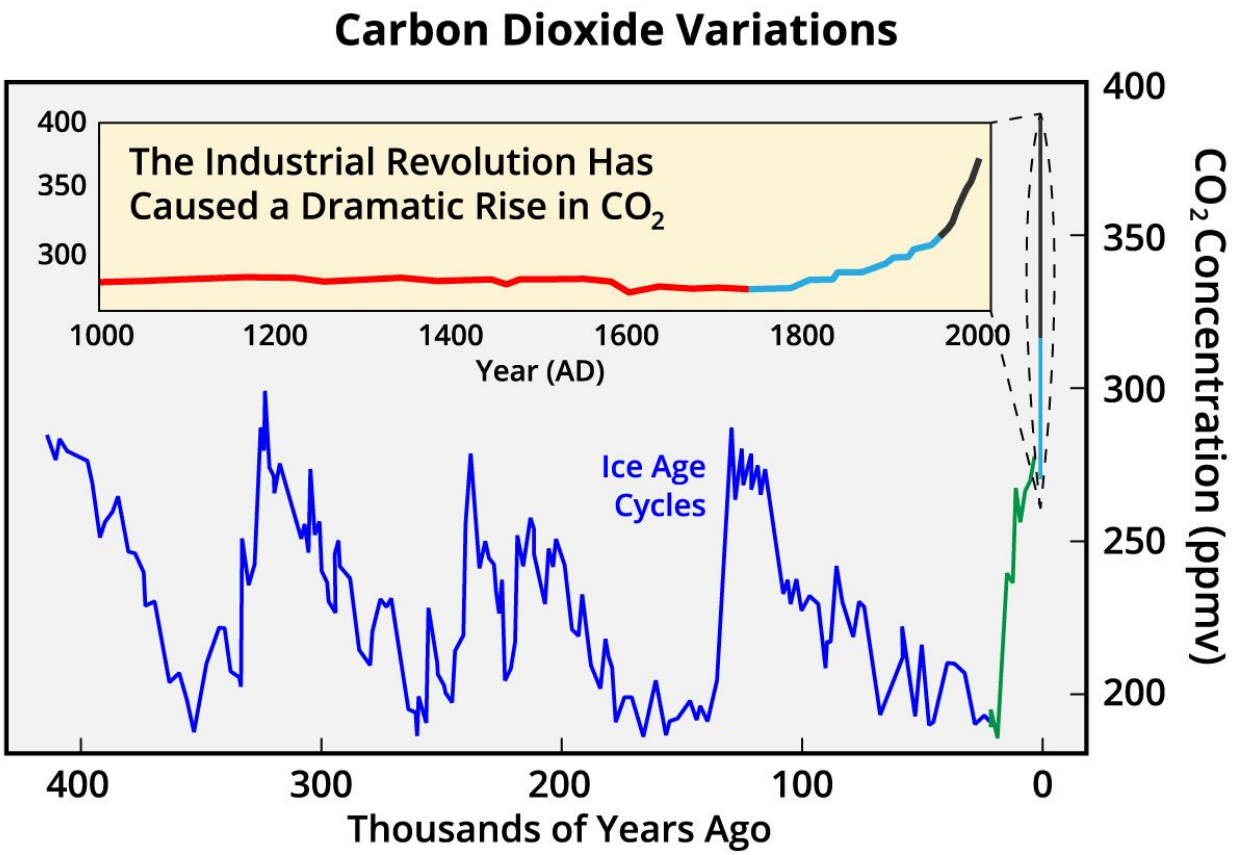


Image via Robert A. Rhodes, Wikimedia Commons.[16]

In the next graph below, one can see carbon pollution levels hundreds of millions of years into our past. As you can extrapolate from the carbon ppm range disclosed near the bottom of the far lower left of the graph, modern life forms as we know them today appear to exist and function best when atmospheric carbon levels are quite low in about the 200-270 ppm range. Life on Earth was much different with the higher carbon levels seen hundreds of millions of years ago.

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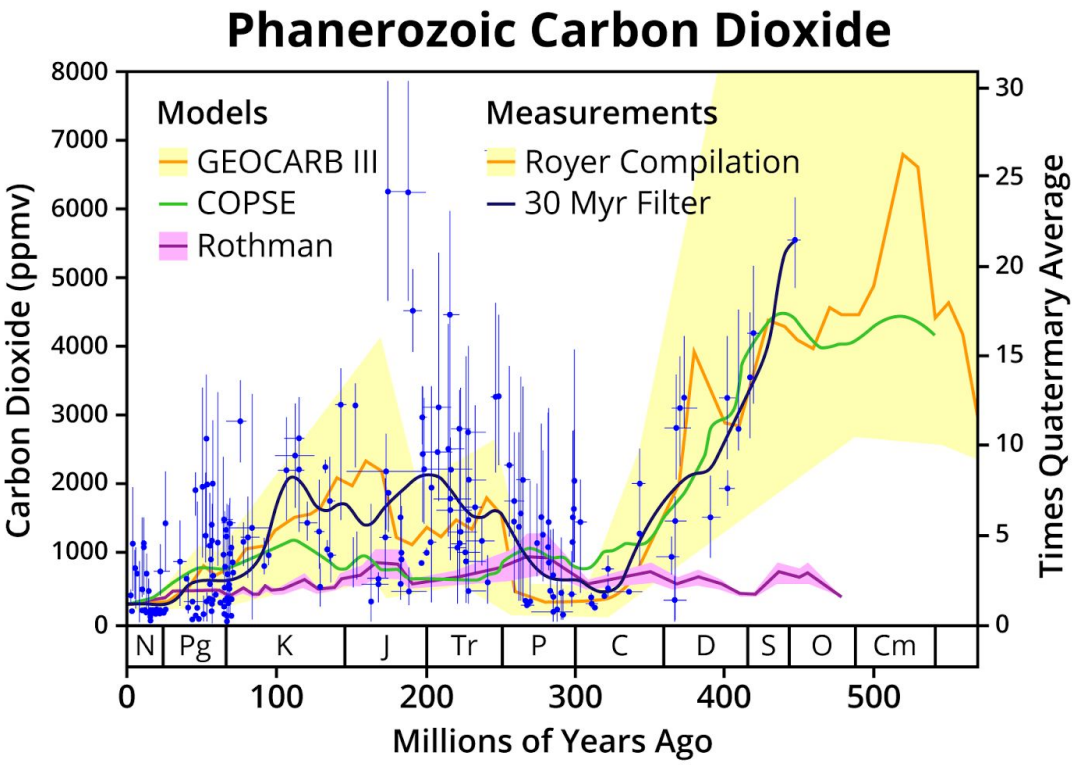
[15] Stephen Stoft. "Evidence that CO2 is the Cause of Global Warming." zFacts.com, accessed January 9, 2017, http://zfacts.com/p/226.html

[16] Robert A. Rohdes. "Carbon Dioxide Variations." Digital image. Global Warming Art Project (defunct), archived at Wikimedia Commons. Accessed January 11, 2017. https://commons.wikimedia.org/wiki/File:Carbon_Dioxide_400kyr.png



(Here, COPSE, GEOCARB III, and Rothman illustrate the findings from geochemical models for tracking CO2 levels in the past. Abbreviations at the bottom stand for the Neogene, Paleogene, Cretaceous, Jurassic, Triassic, Permian, Carboniferous, Devonian, Silurian, Ordovician, and Cambrian periods in geologic history. Image via Robert A. Rohdes, Wikimedia Commons.[17])

How human systems contribute to the global warming State of Emergency

It would not be fair to discuss over 30 years of continuous global warming warnings without also describing some of the problems of inertia within our human systems. Inertia is defined as the resistance of any physical object to any change in its current state of motion (including changes to its speed, direction or state of rest or motion).

[17] Robert A. Rohdes, "Phanerozoic_Carbon_Dioxide.png." Digital image. *Global Warming Art Project* (defunct). February 25, 2006. Accessed January 2017. https://commons.wikimedia.org/wiki/File:Phanerozoic_Carbon_Dioxide.png

Our current global society is locked into the grip of almost a century and a half of change resistance (inertia) that favors using more and more fossil fuel. Part of the reason for this resistance is that fossil fuel use directly or indirectly is also responsible for about one-third of the world's gross domestic product (GDP).

The fossil fuel industry engenders a powerful human system resistance to change that we will have to overcome in order to successfully change over to green energy generation systems. The fossil fuel industry is constantly fighting the needed evolution of our energy generation systems. But even if we ended all fossil fuel use today, it is estimated that it would take 30 to 50 years to replace all of the current fossil fuel generation and distribution infrastructure.

Unfortunately, there is nothing close to unanimous agreement to act now, and we don't have another 30 to 50 years to fight the resistance of various fossil-fueled nations and fossil fuel-related corporations. Therefore, it is completely fair to say that the fossil fuel industry resistance and inertia are significant factors explaining why after 30 years of warnings, global warming is actually getting worse and not better!

In addition to the inertia and resistance of the fossil fuel industry working against efforts to end the use of polluting fossil fuels, here are other significant human system resistance (inertia) factors for why global warming is escalating faster than ever before in spite of all previous warnings:

1) *Human evolutionary psychology:* We are designed to react to immediate and obvious threats with the flight or fight response. Escalating global warming is slow, almost invisible, and it is generally believed to be far off in the future. Also, for many individuals, it is so complex that it can't be comprehended as the single most serious international security threat of the 21st century.

2) *Human political evolution:* Human society has not yet evolved a global government with transnational enforcement and verification powers over all the member nations of our world. Global warming is a *transnational problem* that *has to have* a *transnational solution*.

3) *Human legal evolution:* Humanity has not evolved viable global courts to work out the inherent international justice issues relating to the developed countries that caused the pollution and will likely benefit from it in the short term. We really have no international justice process for dealing with the fact that *undeveloped* countries that didn't cause the pollution are expected to suffer nearly equally in the costs and efforts of resolving it.

4) *Global political evolution:* The designated world authority, the UN's Intergovernmental Panel on Climate Change (the IPCC), failing to properly educate global leaders on all critical global warming risks, along with providing significantly underestimated timetables, has dangerously diminished a global sense of collective urgency and public awareness.

This has significantly reduced the demand for change even though strong warnings were initiated over 30 years ago.

There are other reasons why we have failed for 30 years and still face a daunting challenge to end the global warming emergency, which will be covered in Chapters 7 and 8.

A difficult truth

Before facing a difficult truth, it is important to review the definitions of climate and weather. Climate is the statistics of weather, usually *over a 30-year interval*. It is measured by assessing the patterns of variation in temperature, humidity, atmospheric pressure, wind, precipitation, atmospheric particle count and other meteorological variables in a given region over long periods of time. Climate differs from weather, in that weather only describes the short-term conditions of these variables in a given region. (From Wikipedia.[18])

Fossil fuel lobbyists like to intentionally confuse us by directing our attention to the far shorter time cycles of climate and weather, whereas global warming cycles occur over far longer time cycles (as seen in the graphs depicting hundreds, thousands, and millions of years.) When we compare the current global warming cycle and temperature range to past global warming cycles and temperature ranges rather than tiny 30 year climate cycles, we can see what's really happening and how dangerous global warming is to our future.

From the preceding, it is not difficult for any rational person to see that we are dealing with far more than garden-variety seasonal changes in the weather or the the normal 30-year climate cycle. We are dealing with a full blown and yet undeclared global warming emergency.

In truth, we have wasted over 30 years of valid warnings, and now there is no time left to make the gradual changes that we should have begun over 30 years ago. Immediate, radical, and painful change must happen now. Our global warming emergency is not off in the future 25, 50 or 100 years from now as you have been deceived into believing. Our global warming emergency is now.

A deeper dive into the science

This is optional reading.

1. In order to help you better visualize the global warming tipping point risks, as well as why we are not effectively acting to end the extreme risks of the global warming State of

[18] Wikipedia contributors, "Climate," *Wikipedia, The Free Encyclopedia*, https://en.wikipedia.org/w/index.php?title=Climate&oldid=764370642 (accessed February 14, 2017).

Emergency, we strongly recommend you view *The Most Terrifying Video You'll Ever See 2.* It has been watched almost 7 million times. Click here[19] to watch that video now.

2. If you are still not yet convinced we are really in a global warming state of emergency, or you want to see more detailed science on this issue, please click here.[20]

Your next vaccination

In the process of resolving global warming, we also can create the foundation for a long-term *sustainable prosperity*

It's not all bad news now that we know exactly where we are in the global warming emergency. This accurate knowledge will motivate rational and mature individuals to make the needed changes toward a more sustainable future.

By being forced toward a sustainable future, we will create tens of millions of new great paying jobs as we act to end the carbon and methane fossil fuel-related pollution that has been steadily added to the atmosphere since the beginning of the Industrial Revolution of the 1880s.

For added motivation, consider that by 2050 sea levels may rise 6-10 feet (1.8-3 meters) or more, depending on how many tipping points we cross. This sea level rise will, of itself, help generate the greatest single construction project in human history. We will soon need to begin to move *all* coastal homes and businesses, as well as all essential water, electrical, transportation, and waste and sewage infrastructure at least 13-20 feet (3.9-6 meters) above the current sea level. This estimation is necessary after adding global warming sea level rise to the sometimes coincident storm and superstorm surges occurring at the same time as "king" high tide peaks. It also factors in an additional safety margin for crossing more known or unknown global warming tipping points.

> "If there's a sustainable job that will create sustainable value, people will hire for it."
> — David Cunliffe, New Zealand Member of Parliament

There is also much new construction and reconstruction work that we will have to do for wildfire, drought, and inland lake and river flooding mitigation. For example, the superstorms that will be coming in nontraditional locations and at nontraditional times will require new infrastructure, water storage, and management facilities all over the world.

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[19] "The Most Terrifying Video You'll Ever See." YouTube video. 9:33, posted by "wonderingmind42," June 8, 2007. https://www.youtube.com/watch?v=zORv8wwiadQ

[20] David Spratt. "Climate Reality Check." Breakthrough - National Centre for Climate Restoration. March 2016. http://media.wix.com/ugd/148cb0_4868352168ba49d89358a8a01bc5f80f.pdf

We will need to create a green *Third Industrial Revolution*[21] that could directly and indirectly create millions more new green energy-related jobs worldwide. This green energy generation revolution will replace the preceding Second Industrial Revolution and the polluting fossil fuel energy generation that has powered it.

Going to green energy generation as rapidly as possible also has an important additional sustainability and resilience-building effect for surviving the growing consequences of escalating global warming. Solar and wind energy generation is often *decentralized,* which allows for it to be put on local homes and businesses. When climate catastrophes occur, power will come back up much faster because of this decentralization, with energy generation located right where the power is most needed and used.

In finally resolving escalating global warming, we will also be forced to create new, better, and more sustainable lifestyles, livelihoods, and community models. They will demonstrate the validity of sustainability principles to further guide us once we end the escalating global warming emergency and then need proven strategies to maintain our success.

> "Sustainable development is the pathway to the future we want for all. It offers a framework to generate economic growth, achieve social justice, exercise environmental stewardship and strengthen governance."
>
> — Ban Ki-moon, Secretary-General of the United Nations

Working together in these new *sustainable prosperity* lifestyles, livelihoods, and communities, we can also make our lives as good as possible. It is not difficult to envision how these new lifestyles, livelihoods, and communities will play an essential climate restabilization role. They will be a new sustainable prosperity model for the world in that they will also help create a long-term evolutionary future for today's population and for generations to come.

> "In the 21st century, I think the heroes will be the people who will improve the quality of life, fight poverty and introduce more sustainability."
>
> — Bertrand Piccard, Swiss psychiatrist; pioneering trans-global balloonist

What's next

At this point, it is fair to say that you now know more about the global warming emergency than most any politician or bureaucrat in the world. The next chapter will present the six phases of the Climageddon Scenario model for how escalating global warming will unfold and proceed. In it, you will find a detailed list of *must-know* warning signals for how and when we will enter its

[21] This refers to Jeremy Rifkin's concept of a Third Industrial Revolution. Like the mechanization of the textile industry in the First Industrial Revolution of the 1800s and mass production via assembly lines in the Second Industrial Revolution of the 1900s, a Third Industrial Revolution is occurring as manufacturing goes digital. Paraphrased from Paul Markillie, "A third industrial revolution." The Economist. April 21st, 2012. http://www.economist.com/node/21552901

endgame phases. And finally, if all of the preceding tough news is getting to you, keep in mind that in Part 2 you will find effective actions to make a difference and help solve this emergency.

Summary

- In the above graphs of this chapter, the predictions for increased carbon ppm levels and temperature unfortunately *does not also include:* the continued likelihood that more carbon ppm will enter the atmosphere each year due to increasing population and fossil fuel use, causing an ever-faster rate of average global temperature increase, or the effects of the additional methane going into the atmosphere because of existing and new natural gas fracking, all of the existing leaks in methane storage and transportation systems, and big agribusiness, or calculations for more climate tipping points that will be crossed as the atmosphere heats up in a vicious self-reinforcing cycle and a positive feedback loop.

- Despite 30 years of warnings from credible scientists and compelling scientific evidence, atmospheric carbon dioxide and methane pollution have only worsened.

- We are already in an unacknowledged global warming State of Emergency.

- Do not be fooled by what you read about global warming reduction progress or fossil fuel reduction commitments in fossil fuel-lobbied and influenced mainstream media. The fossil fuel industry wants to keep making money and polluting our atmosphere without charge.

- In a nutshell, the global warming emergency is due to:

    - today's carbon ppm level of 407 ppm doubling from the carbon 200-270 range it held consistently for hundreds of thousands of years,
    - carbon ppm levels rising exponentially at the greatest levels since the Industrial Revolution, and
    - we are poised to cross more global warming tipping points, moving us ever closer to the extinction phases of the Climageddon Scenario.

- According to James Hansen, even a carbon 450 ppm level (which will occur in about 10-15 years at present carbon pollution rates) would eventually correspond to an average global temperature increase of 6° Celsius (10.8° Fahrenheit) in this century and the end of human civilization as we've come to know it.[22]

[22] Hansen, James, et al. "Target atmospheric CO2: Where should humanity aim?" *The Open Atmospheric Science Journal* 2, no. 1 (2008): 217-231. DOI: 10.2174/1874282300802010217

- The current global warming emergency marks the end of the climate stability that has allowed humanity and humanity's near ancestors to flourish for hundreds of thousands of years.