

OBSERVATIONS AND RECOMMENDATIONS PRESENTED IN *CLIMATE DEADLINE 2035: 2020 EDITION*

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Barring intervention from extraterrestrial neighbors, a rogue asteroid, or heavenly angels, the pathway which will need to be followed to resolve our current Climate Emergency is well-defined-but-hidden in confusing and conflicting information for most of us. What follows are the main *observations and recommendations* from **Climate Deadline 2035: 2020 Edition**. These observations and recommendations are based on research from and observational studies conducted by a wide variety of scientific organizations including the American Association for the Advancement of Science, the American Geophysical Union, Oak Ridge National Laboratories, the American Meteorological Society, the American Physical Society, The Geological Society of America, the NASA Goddard Institute, the NOAA Climatic Data Center, the U.S. National Academy of Sciences, the U.S. Global Change Research Program and Environmental Protection Agency, the Intergovernmental Panel on Climate Change and many others. **Climate Deadline 2035: 2020 Edition** concludes:

(1) That, since the industrial revolution, human activity has released about 375 billion tons of carbon dioxide (CO₂) as well as staggering amounts of other **greenhouse gasses** (GHG) including: methane (CH₄), a precursor to the GHG Ozone (O₃), Nitrous Oxide (N₂O), and the various Fluorocarbons (CFCs). As of 2019 the accumulated CO₂ concentration has passed of 415 parts per million (ppm). The most prolific of these “legacy emissions”, **carbon dioxide** remains in the atmosphere for thousands of years. While governments and corporations have been aware for decades of the potential of GHG accumulations to end most life on Earth, with the exception of Ozone, these **emissions remain largely uncontrolled**.

(2) That **indisputable geologic records** show that each time (due to asteroid strikes or small changes in the Earth’s orbit) our planet has reached *450 ppm atmospheric carbon* (on our current trajectory this will occur in the mid-2030’s) interactive feed-back loops in the environment have locked into a “new normal”. This **new global ecology will be inconsistent with the continuation of most species living today**. Additionally, beyond this transition in the mid-2030’s the speed and magnitude of this planetary shift will **be beyond the scope of human intervention**.

(3) That these changes in our terrestrial habitat will cause massive short and long-term suffering and death. Therefore, Global Warming presents a **Clear and Present Danger** as designated in late 2019 by the United Nations. That the Life and Liberty of **future generations have essentially already been exterminated** unless our environmental systems are restored by emergency measures.

(4) That, since the 1970’s, the accumulation of legacy greenhouse gases has been too large for Earth’s rehabilitative systems to process in a timeframe needed to avert this shift to a **extinction-level new normal**. That even if we were to halt all GHG emissions **immediately**, our warming trajectory would still push our planetary ecology beyond the **Anthropocene Catastrophic Extinction Boundary** in the mid-2030s. Indicators of this shift to a “new normal” are numerous and already occurring including:

- The slowing and redirection of ocean currents which distribute heat around the planet.
- The melting of ice and permafrost at both poles.
- The release of vast stores of methane from beneath melting permafrost and ice.
- Vastly worsening insect borne disease vectors and increasing prevalence and intensity of viral and other diseases.
- Reduced or destroyed animal species and habitats.
- Emergence of new soil microbes which have begun to release increasing amounts of stored carbon from the ground.
- A fatal breach between plants and pollinators.
- Altered weather patterns leading to loss of life and costly infrastructure damage.

(5) That, in addition to the **Anthropocene Catastrophic Extinction Boundary**, due to the interconnectedness of our natural world, the changes affected by Global Warming are shifting from a linear progression to **exponentially expanding feedback loops**. For example: Unable to escape Earth’s greenhouse-gas-saturated atmosphere, radiative heat is warming our oceans → leading to the melting of precious polar ice and permafrost → causing the release of massive stores of methane → leading to ocean current disruption and acidification → causing altered weather patterns → leading to enduring droughts → triggering wildfires (and flooding) → leading to crop failures → triggering the birth of novel carbon-releasing soil microbes → causing the release of further massive carbon stores from soil → leading to mass human and animal migrations → which in turn overwhelm the ability of governments to respond → causing social unrest, territorial wars, aberrant human behavior and on and on.

(6) While we do not fully understand these feedback loops, we know they are **increasingly foreshortening** the time available to resolve this Climate Emergency. This is probably why scientists have consistently underestimated the magnitude and speed of global warming induced climate disruption. As nature cannot be viewed as isolated parts, **linear projections of the progression of Climate Change are and will be inaccurate.**

(7) **We can no longer survive by reducing emissions.** That accidental and deliberate delay in taking action on Global Warming has combined with this exponential foreshortening leaving us with even less time to manage this emergency. In the 1970's we could have discontinued greenhouse gas emissions, transitioned to alternative energy sources, and waited for the Earth to cycle greenhouse gasses out of the atmosphere. As things stand now, **we must support nature in recovering from the damages we have artificially inflicted using artificially-derived methodology.** We must actively remove emissions, or perish within this century

(8) Hopes that shifting to renewable energy and sustainability practices combined with mitigation and adaptation climate disruption are not only fruitless but, more critically, are **creating a lethal distraction and wasting resources and time** we urgently require for making repairs to our atmosphere.

(9) Similarly, **“adaptation” to Climate Change is possible only on a very short-term basis and is a losing scenario.** Funding and decision making currently directed toward adaptation and mitigation must therefore necessarily and rapidly be refocused on developing the **Climate Engineering technologies of Direct Atmospheric Removal of Carbon and, or Solar Radiation Management.**

(10) That, as noted in the first conclusion above, there is **already too much carbon in the atmosphere which will take thousands of years for the Earth to process** on its own and these emissions are continuing to increase.

(11) For these reasons, to withhold or delay the use of technology to assist and support our atmospheric and ecological systems in recovering to a level which will again sustain human, plant and animal life is the **equivalent of the taking of human life.**

(12) That fortunately **appropriate and safe technology for removing excess carbon from the atmosphere in the form of Climate Engineering now exists** and must be used without further delay. Direct Atmospheric Removal of Excess-Carbon methodology is currently available to resolve our Global Emergency in the form of – specifically Land-Based Carbon Removal (LBCR), Ocean-Based Carbon Removal (OBCR) and Solar Radiation Management (SRM). The safest and most effective methodology appears to be that developed by David Keith, Ph.D. (Direct Air Capture) and Robert R. Fry, Ph.D. (Ocean Assisted Carbon Capture and Reflection).

(13) That regardless of whether the timeline for addressing this Climate Emergency is seen as realistic by humans it is **no longer dictated by us but by nature and so is the only possible timeline.** Nature is wonderful...and absolutely ruthless. This necessary timeline looks roughly like this: 2020-2025: United Nations systems, government and industry organized toward **Climate Engineering.** Selection of methodology and mobilizing of resources. • Years 2025-2030: Emergency Climate Engineering underway. • Years 2030-2035: Global temperatures returned to less than 350 ppm.

(9) That, informed by this awareness of the **Clear and Present Danger** of Global Warming, we must find the strength and determination to **shift from our current “business as usual” approach to human endeavors and adopt a “war footing”.** We must quickly build the **severe and unrelenting resolve** needed to act affirmatively to remediate Global Warming – whatever the costs.

(10) Thousands of deaths each day are directly attributable to Global Warming. Profiting from Climate Change is therefore unethical and akin to “war profiteering”. While all people have a right to earn a median standard of living, work on **Climate Engineering must be carried out without expectation of profit.** If a question arises regarding ownership of intellectual or real property necessary to the climate repair “war effort”, those who would attempt to patent or possess such technology should expect to yield to the common welfare. **Resolution of the current Climate Emergency is a duty born by all human beings, whether or not they realize or acknowledge this duty.**

(15) That, while private funding is free to explore other avenues, due to the emergency nature of the current **crisis we must now limit public efforts to refining and deploying these existing Climate Engineering technologies** on a global scale in a safe, economical, energy-efficient manner.

(16) **That the United Nations was established and is funded ultimately by the people through their various governments to manage global emergencies and should be expected to use these technologies to resolve Global Warming.** To not do so demonstrates extreme negligence. In the decades the UN has been aware of the greenhouse gas accumulation problem and holding various levels of discussions on the subject (e.g., the 1992 Rio Summit, the 1997 Kyoto Protocol, and the 2015 Paris Agreement as well as scores of other global assemblies), greenhouse gas concentrations have continued rapidly rising, with increasingly damaging effects on the Earth's climate. A "business as usual" attitude and overlooking the big picture for immediate gratification (e.g., clearing plastic straws from the oceans) will fail. Bold measures must be taken as they were in our last World War - that led to the formation of the United Nations.

(17) That in order to make the work of the United Nations effective in addressing Climate Change, **elements of the United Nations - including the UN Environmental Assembly (UNEA) and the United Nations Environmental Program (UNEP) -may need to be modified** so that they have the **necessary representation, primacy, administration, enforcement, regulatory capacity and sense of urgency** to complete this work.

(18) That there are many **social organizations** like Climate Mobilization, Climate Strike, the Sunrise Movement, and Extinction Rebellion that have grasped the urgency of the Climate Emergency. Their demands, however are currently unfocused. The optimal contribution for these organizations is to press, through whatever means they have available, for the necessary motivation and changes in UN structures and operations leading to the effective use of Climate Engineering and for the rapid initiation of such a program.

(19) **If the United Nations is unable to take the lead** in Climate Engineering by the end of 2025 it will be necessary to redirect efforts for atmospheric repair into the commercial sector. While it is difficult to be more specific at this time, Carbon Engineering in Alberta, Canada is far and away the most reputable, experienced and advanced source of Direct Air Carbon Capture technology and equipment while Ocean Assisted Carbon Capture & Reflection is the most efficient, safe and Earth-friendly.

(20) That once the current Climate Emergency is resolved (e.g. legacy carbon emissions returned to below 350 ppm), we must then have the resolve to judiciously **withhold additional use of Climate Engineering technology until, operating through the United Nations, new ethics and agreements between governments for working with our planet's systems (rather than abusing, degrading and damaging them), and for establishing carbon neutral, equitable and sustainable practices can be put in place.** This will necessarily include adoption of alternative sources of energy, and population and resource management. We will essentially need to learn to regulate ourselves within the ecological limits of our planet as well as we have learned to develop our freedom, independence, and ambition. **It is extremely dangerous, however, to delay Climate Engineering while hoping for such political and social changes to take effect.**

(21) As many leaders have pointed out, we stand at a crucial decision point for humanity. Climate Change resulting from Global Warming has crystalized our human situation. **There are two clear roads diverging before us. Down the other road lies is fighting, fear, and nationalism. Down the other road lies confidence, compassion, and international cooperation.** Currently most of our world leadership is on the former road. Unless we change paths to the latter, we will be unable to work together sufficiently to achieve atmospheric carbon reduction through Climate Engineering and will most likely self-destruct - making way for future civilizations who will eventually be faced with the same choice.

At Climate Deadline 2035 we are confident that, looking back from some 50 years distance, while there may be variations in these conclusions and recommended actions, **research indicates there 21 points will describe our pathway for finding our way successfully through the present Climate Emergency.** All the pieces of the puzzle are here right now, and a 15-year time clock is already ticking. It will be your choice and mine if we will succeed. You already know where I stand.

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