

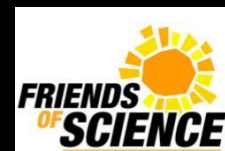
... The IPCC SR15 proposes that industry and taxpayers pay a carbon price of an average of \$880 per tonne on carbon dioxide emissions in 2030, but the actual benefit, in terms of an assumed lower temperature, would only be worth at most \$4. Accounting for natural climate change and benefits of CO2 fertilization, the proposed carbon tax will prevent a benefit of \$8 per tonne CO2, for a total loss of \$888 per tonne CO2 mitigated. ...



# Faulty Premises = Poor Public Policy on Climate

Responding to the Intergovernmental Panel on Climate Change Special  
Report SR15

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*This is a plain language document intended for the public and policymakers.*

# Executive Summary

Climate science is a complex blend of chaotic, dynamic systems. The recent Intergovernmental Panel on Climate Change (IPCC) Summary Report 15 (SR15) attempts to predict the implications of a 1.5°Celsius (C) rise in Global Surface Mean Temperatures (GSMT) over the temperature of the pre-industrial era. The focus of the report is on the influence of human industrial emissions of carbon dioxide as the assumed driver of climate change and recent warming. Despite the number of scientists involved, science can go astray for no other reason than a singular focus through ‘the same lens.’

Friends of Science Society is critical of the IPCC SR15 report, pointing out the following:

1. **We are in the Meghalayan, not the Anthropocene.** The IPCC SR15 report claims to view climate change through “the lens of the Anthropocene.” This term is popularly used to describe a modern geological period wherein humans are assumed to have a larger impact on the world than nature. On July 13, 2018, the International Union of Geological Sciences (IUGS) issued a statement that the earth is now in the Meghalayan, a period that began 4,200 years ago. In response to questions as to why the term “Anthropocene” had not been included, at least for the past 50 years of presumed human influence, the IUGS responded that the term “Anthropocene” has not even been submitted for consideration and that the term has only sociological, not scientific relevance. *The IPCC should not use this ‘lens.’*
2. **All climate models (simulations) used by the IPCC run ‘too hot’ versus observations.** The computer simulations project future warming (thus being the rationale for global warming climate policies) show significantly higher temperatures than what is being observed. Only the Russian climate model and satellite/weather balloon data closely match present temperatures in the lower troposphere. This suggests that most climate models ascribe too great an effect of warming (climate sensitivity) to carbon dioxide. *This means the climate models should not be used to set public policy.*
3. **No temperature can be accurately measured to a precision of less than  $\pm 0.1^\circ\text{C}$ .** global temperature data is a metric of averaged and adjusted data from many sources, suggesting that a  $0.5^\circ\text{C}$  difference in temperature is moot and an arbitrary figure. *It does not reference an actual measurement of earth’s temperature; people are being misled.*
4. **The IPCC claims, in its founding principles, to be policy neutral.** However, the IPCC SR15 makes many recommendations regarding Carbon Dioxide Removal Systems (CDRS), most of which are untested and unvetted and proposed with no cost-benefit analysis. Such recommendations are contrary to the purpose of the IPCC and should be disregarded by policymakers. *The IPCC should simply report on scientific findings.*
5. **Rapid decarbonization is impossible and unrealistic as proposed by the IPCC.** The world runs on more than 80% fossil fuels for energy; all other forms of power generation, including hydro, nuclear, wind and solar are completely reliant on fossil fuels for their creation. **Millions of people would die if rapid decarbonization was implemented.** There is no suitable, equitable alternative to fossil fuel energy for modern society. *Any official, international body of scientists who are recommending a course of action leading to mass deaths should be disbanded.*
6. **There is no clear evidence that the changes or warming since the mid-1800s are caused by human use of fossil fuels – though indeed there has been some warming and various**

- perceptible changes in some natural features.** Indeed, the range of climate change discussed falls well within natural variation since 1850. Likewise, global temperature records are incomplete, inconsistent, methods/placement of monitoring stations have changed, and temperatures are not monitored at equidistant places at the same time. *The validity of the Global Average Surface Temperature is imprecise.*
7. **The proposed remedies of wind and solar increase carbon dioxide and cause warming.** Rather than reduce fossil fuel use or aid in carbon dioxide reduction, wind and solar in fact require vast quantities of fossil fuels for productions, installation, and natural gas back-up – resulting in *an increase* in carbon dioxide. Wind and solar are ineffective, expensive and cause power grids to destabilize, putting society at risk, harming industry, jobs, and consumers through heat-or-eat poverty. The devices are made of bonded materials and are largely unrecyclable. *Wind and solar are contrary to sustainability and environmental goals.*
  8. **Extreme weather events are an integral part of climate.** The IPCC's AR5 report and their SREX special report on extreme weather both make it clear that human effects on climate are not deemed to increase extreme weather events; neither is an increase of carbon dioxide. *The IPCC should clarify this with the media rather than allowing the press to engage in terrifying hyperbole.*
  9. **Extremely disproportionate cost-benefit ratio should dissuade policy makers and citizens from following IPCC SR15 recommendations on carbon pricing.** The cost of emissions reduction in 2030 is about 95 times the benefit assuming the climate sensitivity to CO<sub>2</sub> from the climate models. When using the Lewis and Curry 2015 climate sensitivity estimate determined from measurements, the cost of emissions reduction in 2030 is about 210 times the benefit, however this estimate doesn't account for natural climate change. Using the best economic model that include benefits of warming and CO<sub>2</sub> fertilization of crops, and accounting for the natural warming from 1850, each \$880 spent on mitigating a tonne of CO<sub>2</sub> would prevent a net benefit of \$8, increasing the loss to \$888 per tonne of CO<sub>2</sub> mitigation. Indeed, Dr. Judith Curry notes that *carbon reduction efforts to 'stabilize climate' may be futile in the face of natural climate change.*
  10. **The science is not settled.** Anderegg et al (2010)<sup>1</sup> revealed that 34% of IPCC contributing authors disagreed with the IPCC declaration on human influence on climate. Hundreds of other scientists have disputed IPCC findings on human-causation in peer-reviewed papers, books, blogs and videos. There is inadequate scientific review by the IPCC of the Nongovernmental International Panel Climate Change reports. There is limited review of natural forces of the sun and planetary dynamics, and natural internal variability like ocean currents, volcanic eruptions and tectonic activity and its correlation to earth's magnetism (and thus solar influence). *Reducing carbon dioxide from human industrial activity is a futile response to the continuous climate changes on earth; adaptation and investment in resilient infrastructure and response is a better use of public funds.*

Science is a process of progressive knowledge and insights into how things work. What begins with well-intentioned agreement on aspects of scientific understanding, expands and changes over time with new insights.

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<sup>1</sup> <http://www.pnas.org/content/107/27/12107>

# Faulty Premises = Poor Public Policy on Climate

In a Climate of Conflict of Interest

Responding to the Intergovernmental Panel on Climate Change Special Report SR15

## Uncertainties in Greenhouse Gas Induced Climate Change

*“the first report I wrote was for the Government of Alberta in 2000. And the title of that report was “**Uncertainties in Greenhouse Gas Induced Climate Change**” ...and interestingly, 18 years down the road, I find that the same uncertainties still hold, and there are many more...”*



**Dr. Madhav Khandekar**

*Dr. Khandekar is a former Environment Canada researcher, past IPCC expert reviewer, WMO regional expert, acknowledged expert on monsoon, member of CMOS and the AGU (ret). He has published dozens of papers, is a peer-reviewer of the Journal of Natural Hazards, and editor of the NIPCC’s “Climate Change Reconsidered.” He is scientific adviser to Friends of Science Society.*

The UN Climate Change Panel – known as the Intergovernmental Panel on Climate Change (IPCC) issued a special report for policymakers on Oct. 8, 2018 that was filled with statements of certainty about human-caused global warming.

Dissenting scientists like Dr. Khandekar, do not agree with such claims of certainty.<sup>2</sup> Former IPCC Lead Author Prof. Phillip Lloyd of South Africa wrote a detailed critique of the IPCC’s catastrophic claims.<sup>3</sup> Past IPCC expert reviewer, Dr. Fritz Vahrenholt reports in his book “The Neglected Sun” how he became alarmed that the IPCC did not incorporate his changes and corrections to reports, echoing concerns of many expert scientists over the years.<sup>4</sup> Lead author Dr. Richard Tol refused to sign the IPCC AR5 report as he felt it was too alarmist and apocalyptic.<sup>5</sup> Canadian investigative journalist, Donna Laframboise, found that the IPCC incorporated agenda-driven green activists from Greenpeace and WWF as lead report authors.<sup>6</sup> Matthew Nisbet has shown that green billionaire foundations have funded climate change environmental groups like Greenpeace and WWF to demonize fossil fuels, push global cap and trade, and advocate for renewables.<sup>7</sup>

***Science is about inquiry, not compliance.***

<sup>2</sup> <https://archive.org/details/uncertaintiesing00khan>

<sup>3</sup> [https://friendsofscience.org/assets/documents/Impacts\\_of\\_climate\\_change\\_Lloyd.pdf](https://friendsofscience.org/assets/documents/Impacts_of_climate_change_Lloyd.pdf)

<sup>4</sup> <https://www.amazon.ca/Neglected-Sun-Precludes-Climate-Catastrophe/dp/1909022241>

<sup>5</sup> <https://nltimes.nl/2014/04/08/dutch-professor-leaves-un-climate-panel>

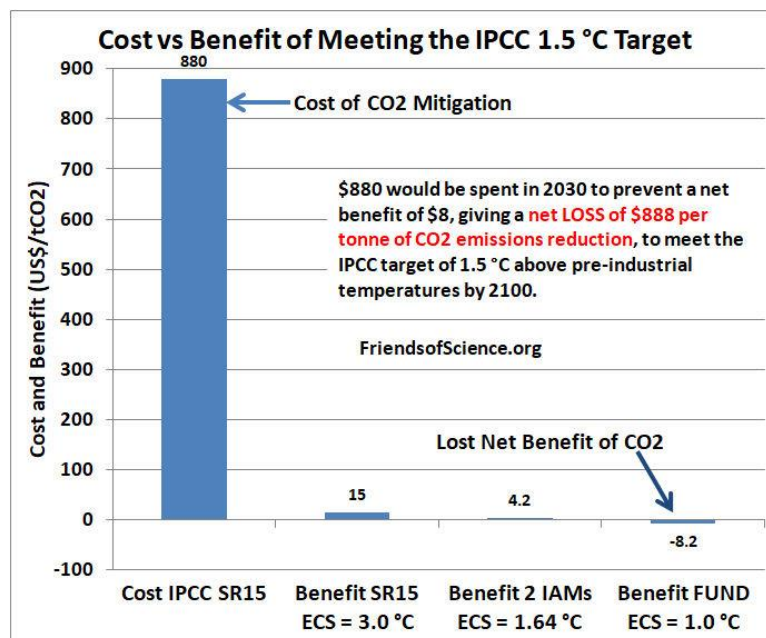
<sup>6</sup> <https://www.friendsofscience.org/index.php?id=603>

<sup>7</sup> <https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.524>

If the IPCC is a scientific body, then it must do the due diligence and examine and report on scientific views that challenge its 'consensus' view, not just the ones that fit the agenda of human-causation.

Despite the large number of scholars and policymakers associated with the IPCC SR15 report, we find there are discrepancies between many claims of what is or will be and the available evidence. Some of the proposals by the IPCC – such as rapid decarbonization – are reckless and dangerous to society. Likewise, despite having reviewed thousands of papers, the IPCC SR15 report does not include reference to avenues that might invalidate the theory. While this may sound absurd to the layman, as the great physicist Richard Feynman explained, the scientific obligation to examine and report on counter theories prevents a 'Cargo Cult' mentality and ensures that critical thinking and scientific integrity are maintained.<sup>8</sup>

## Cost of IPCC SR15 Proposals Greatly Exceeds Benefit



Summarizes the cost of mitigation to limit global warming due to greenhouse gas emissions to 1.5 °C about pre-industrial temperatures, and three estimates of the benefits of those efforts in terms of the social cost of carbon. The Cost is the median of the range of estimates outlined in IPCC SR15 for the year 2030. The "Benefit SR15" is the benefit of emissions reduction reported in SR15 from the DICE IAM. The "Benefit 2 IAMs" (Benefit of Two Integrated Assessment Models) is the benefit as reported by DMK2017 using the DICE and FUND IAMs and the ECS from L&C2015. The "Benefit FUND" is the benefit of emissions reduction from the new Julia version of FUND using the median ECS estimate of ECS L&C2015 adjusted for natural climate change, UHI effects and new aerosol forcing estimates.<sup>9</sup>

In any public policy discussion, a cost-benefit analysis is crucial to sound decision-making. The IPCC SR15 Summary for Policymakers does not present a clear picture of costs versus benefits. Many frightened

<sup>8</sup> <http://calteches.library.caltech.edu/51/2/CargoCult.htm>

<sup>9</sup> [https://friendsofscience.org/assets/documents/Economics\\_IPCC\\_SR15.pdf](https://friendsofscience.org/assets/documents/Economics_IPCC_SR15.pdf) "DICE" is the Dynamic Integrated Climate-Economy; "FUND" is the Framework for Uncertainty, Negotiation and Distribution <http://www.fund-model.org/>; both are economic models

members of the public or climate change/carbon tax/price on carbon advocates claim that ‘any price’ is acceptable to save the planet. There is no evidence that the planet is at risk, though humanity may experience warmer temperatures or other challenges, these are circumstances we have survived and adapted to in the past. Indeed, people live in every kind of climate and condition around the world.

**Rather than instilling fear in the public, this fact should give us hope and optimism that humanity can face dire potential circumstances and adapt.**

Therefore, it is important to take a second sober look at what is being proposed. The following section may be somewhat technical for members of the public. The graph above simplifies what is described below. The graph shows that the IPCC SR15 proposes that industry and taxpayers pay a carbon price of an average of \$880 per tonne on carbon dioxide emissions, but the actual benefit, in terms of an assumed lower temperature,<sup>10</sup> would only be worth \$4.

***Explanation of foregoing graph:*** The IPCC SR15 says the cost to reduce emissions to meet the 1.5 °C target with no temporary overshoot requires an effective carbon tax (with no other emission reduction policies) in 2030 of \$880 per tCO<sub>2</sub> (the median value of the range \$135 to \$1500/tCO<sub>2</sub>). But DICE and FUND shows the social cost of carbon (SCC) in 2030 is \$15.3 and \$3.3/tCO<sub>2</sub>, respectively, using the IPCC distribution of climate sensitivity. The average of these is \$9.3/tCO<sub>2</sub>, being the benefit of the emissions reduction. Therefore, **the cost of the emissions reduction in 2030 is about 95 times the benefit [880/9.3] using the DICE and FUND average SCC.**

However, the IPCC climate sensitivity is not based on empirical estimates. Using the Lewis and Curry 2015 observation-based climate sensitivity distribution, the 2030 SCC from DICE and FUND drops to \$8.7 and \$-0.2/tCO<sub>2</sub>, average \$4.2/tCO<sub>2</sub>. **The cost of the emissions reduction in 2030 is about 210 times the benefit of emissions reduction using the empirical estimates.**

DICE and FUND refer to two Integrated Assessment Models (IAMs) – computer simulations – used to evaluate the economic ‘damages’ from increased carbon dioxide emission.

## Addressing Specific Areas of Concern in IPCC SR15

The report is filled with statements of ‘certainty,’ often attaching a percent like 90-95% confidence. Disturbingly, Dr. Judith Curry has revealed that these claims of ‘confidence’ are largely subjective<sup>11</sup> - and confidence is no guarantee of accuracy. Investigative journalist Donna Laframboise reveals that the original scientific material in the detailed reports is being adjusted and rewritten to suit the politicized ‘Summary for Policy Makers’ – which is the main document that politicians and bureaucrats rely upon for policy direction.<sup>12</sup>

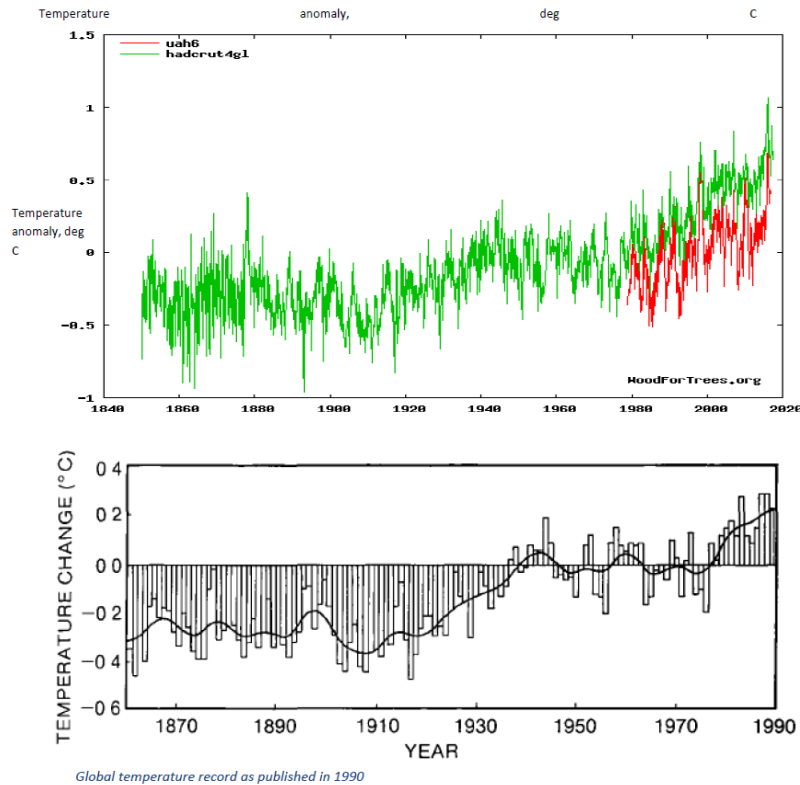
<sup>10</sup> No one can know whether there might be volcanoes or other natural factors that might cool or warm the planet in ways that defeat whatever carbon reduction efforts humans undertake.

<sup>11</sup> <https://nofrackingconsensus.com/2018/10/29/un-climate-panel-meaningless-masturbation/>

<sup>12</sup> <https://nofrackingconsensus.com/2018/10/22/ipcc-redefining-global-warming-at-the-11th-hour/>

## How Warming went from -0.6°C to +0.4°C....to -1.0°C to +1.5°C

Professor Lloyd illustrates that IPCC reports have dramatically changed the historic change in temperature. By “cooling” the past temperatures, today’s temperatures are made to seem much higher.



The top graph is the contemporary reference showing -1.0 to +1.5°C. The bottom graph shows the original global temperature record published in 1990 by the IPCC. The scale is from -0.6 to +0.4°C. Prof. Lloyd suggested “this is probably due to the cumulative effect of the ‘homogenization’ of the raw data, which has consistently cooled the past.”

### Food Security

The IPCC SR15 report claims the warming will reduce food security, but a study shows that warming has contributed 8% to the greening of the planet. CO2 fertilization contributed 70% of the observed greening trend. Crop yields continue to increase. There is no indication of a slowdown in the long-term upward trends in corn yields. U.S. is producing nearly three times as much corn per acre as in 1964.<sup>13</sup>

### Health Benefits of Warmer Temperatures

The IPCC SR15 report ignores almost all benefits of warming. The report falsely claims that warming harms human health, but those with respiratory problems are advised to move to warmer climates. A study published in 2015 examined 74 million deaths worldwide from 1985 to 2012 and found that the ratio of cold-related to heat-related deaths was a whopping 17 to 1. A study of heat-related deaths in the USA shows that as heat waves become more frequent, heat-related deaths decrease because of

<sup>13</sup> <http://www.drroyspencer.com/2018/01/u-s-corn-yield-a-new-record-again/>



adaptation. There were 41 heat-related deaths/year/million population in the 1960s and 1970s dropping to 17 in the 1980s and to only 10 in the 1990s. A 2017 study of temperature-related hospital emergency visits in China over the period 2011–2014 shows that the risk is far greater for cold temperatures than for hot temperatures. When temperatures fall the risk of an emergency visit increased by 80% but when temperature rise the risk increases by only 15%. The length of hospital stays due to cold temperatures are ten times greater than that due to hot temperatures.<sup>14</sup>

As Dr. Khandekar points out in this interview, there were far worse heat waves in the past in Canada, with many more deaths, and people in place like Bahrain have lived and thrived in extremely hot environments for centuries.<sup>15</sup>

### Coral Reefs

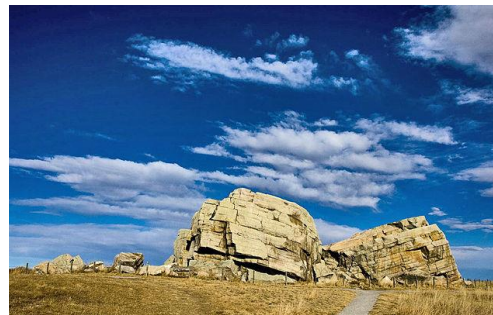
The IPCC SR15 statement that a 0.5 °C increase in temperature will cause coral reefs to decline by 70 - 90% is ludicrous. Geologists know that much of the oil and gas reserves come from coral reefs formed when temperatures were much higher.

### Small Islands and Sea Level Rise

Long-term tide gauge records at key locations in the world show a nominal 1.1-1.8 mm constant sea level rise. As Dr. John Harper explains,<sup>16</sup> many small islands suffer from coastal erosion by the sea, and citizens would *experience* this as sea level rise – but it is not. Numerous studies by Mörner, Wymuller and others show that small islands are not suffering from sea level rise. Recent research shows that some atolls are growing.<sup>17</sup> Apparent sea level rise on coastal plains may be due to land subsidence or tectonic plate movement; these are unrelated to CO2 emissions or human influence on climate. Claims that Florida will be inundated by the sea generally fail to acknowledge the fragile nature of the calcium carbonate platform that underlies Florida – a key reason for the many sinkholes there.<sup>18</sup> Historically, people have moved due to changes in climate or their lands. One example is the Star Carr people of Mesolithic times;<sup>19</sup> another is the occupation of the Canadian plains by aboriginal people as the glacial ice pack receded.

“Big Rock” or “Okotoks” is one of the world’s largest known glacial erratics, pushed some 400km from the region of Jasper, Alberta by a glacier. This is a sacred place for the Blackfoot Nations. It was once under 2 miles of ice.

Credit: By Coaxial at English Wikipedia, CC BY 3.0,  
<https://commons.wikimedia.org/w/index.php?curid=7753012>



<sup>14</sup> <https://www.cato.org/blog/global-science-report-health-effects-global-warming>

<sup>15</sup> <https://youtu.be/OhM5Qid6lh4>

<sup>16</sup> <https://youtu.be/Uf-0q5VSyyY>

<sup>17</sup> <https://onlinelibrary.wiley.com/doi/abs/10.1002/wcc.557>

<sup>18</sup> <https://youtu.be/mZwXX88G7tU>

<sup>19</sup> <https://www.archaeology.co.uk/articles/return-to-star-carr-discovering-the-true-size-of-a-mesolithic-settlement.htm>

## Threat of Increase in Extreme Weather

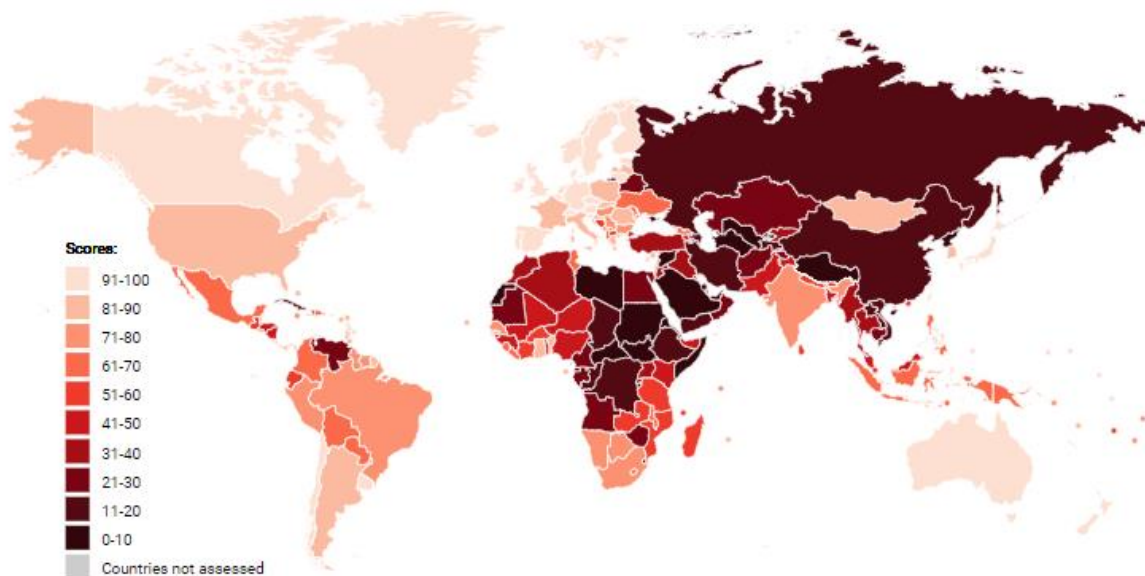
Extreme and erratic weather/climate patterns are generally more common during periods like the Little Ice Age (1300-1850 AD). Europe and the UK saw five years of virtually non-stop rain at the beginning of the 1300's.<sup>20</sup> Weather events were so strange, erratic, and dramatic that people were often burned at the stake as 'witches' for the crime of 'weather cooking with Satan.'<sup>21</sup> Dr. Khandekar has done extensive reviews of present day extreme weather around the world and finds them to be an integral part of life on earth. Neither the IPCC AR5 or their SREX – special report on extreme weather – found any correlation between extreme weather and human influence on climate.<sup>22</sup>

Clearly there is 'no consensus' on many of the claims of the IPCC SR15 report.

## Global Carbon Law? Science is Not a Democracy

### Freedom in the World 2018 by Aggregate Score

[Tweet](#)



Freedom in the World Aggregate Score: 0 = Least Free, 100 = Most Free

*“At the moment, democracy is the biggest danger to expensive climate change regulations. **They** threaten to become a huge danger to democracy.”*

– Matthew Sinclair<sup>23</sup>

<sup>20</sup> <https://www.amazon.ca/Third-Horseman-Weather-Famine-History/dp/0143127144>

<sup>21</sup> <https://youtu.be/wcAy4sOcS5M>

<sup>22</sup> <https://curryja.files.wordpress.com/2014/01/curry-senatetestimony-2014-final.pdf>

<sup>23</sup> Let Them Eat Carbon: The Price of Failing Climate Change Policies, and How Governments and Big Business Profit from Them”

Much of the claimed reason to support the Paris Agreement and IPCC proposed 'solutions' is that there is a scientific consensus, something that we have just shown to be untrue. Another justification is that 'all the countries have signed on.' Most of the countries in the world are not democracies. Many are fossil-fuel poor. Some are anxious to cash in on 'climate damages' via proposed law suits, a global carbon law or the proposed \$100 billion Green Climate Fund. Others are swept along with regional or international association pressure (i.e. La Francophonie, EU, British Commonwealth, or regional trading blocks).

Few will respect the principle of democracy that the rights of a minority must be protected. In Canada's case, ***we are a minority population in a minority geographic situation***. Only Russia faces similar distances, weather and temperature extremes. Russia has almost four times the population of Canada.

Consequently, the claim that all countries have signed on to the Paris Agreement or that there is a scientific consensus on human causes of global warming are strictly political in nature and have nothing to do with the science of climate change or fair implementation of policies worldwide.



Claiming 'consensus' or 'majority' is a social proof – a bandwaggoning technique that is effective with the public because human beings are gregarious 'herd animals.' When we lived a subsistence existence, survival of humans relied on compliance with the tribal chief and community rules. However, this is the opposite of the Scientific Method. The Scientific Method relies on evidence and observations and repeatable experiments. Science thrives on disagreement and exchange of research. Often, those with new discoveries stand alone.

*"On Being a Scientist: Responsible Conduct in Research"* states:<sup>24</sup>

"Science has progressed through a uniquely productive marriage of human creativity and hard-nosed skepticism, of openness to new scientific contributions and persistent questioning of those contributions and the existing scientific consensus."

<sup>24</sup> <https://www.nap.edu/read/4917/chapter/2#2>

**Just as science is not about consensus, a one-size-fits-all global carbon tax is not an appropriate solution.** The simplest example is the claim that Canada is a high per capita emitter. How else would Canadians survive?

Since 1989, the Intergovernmental Panel on Climate Change (IPCC) has been predicting disaster if ‘*global warming not checked*’ – operating on the premise that carbon dioxide from human industrial emissions is the culprit causing global warming/climate change.

Thirty years later, we find that there has been no statistically significant warming since the Kyoto

Accord was ratified in 1997, despite a significant 13% rise in carbon dioxide concentration, a greenhouse gas. This ‘hiatus’ was reported in the IPCC’s AR5 report of 2013.



### Box 9.2 | Climate Models and the Hiatus in Global Mean Surface Warming of the Past 15 Years

The observed global mean surface temperature (GMST) has shown a much smaller increasing linear trend over the past 15 years than over the past 30 to 60 years (Section 2.4.3, Figure 2.20, Table 2.7; Figure 9.8; Box 9.2 Figure 1a, c). Depending on the observational data set, the GMST trend over 1998–2012 is estimated to be around one-third to one-half of the trend over 1951–2012 (Section 2.4.3, Table 2.7; Box 9.2 Figure 1a, c). For example, in HadCRUT4 the trend is 0.04°C per decade over 1998–2012, compared to 0.11°C per decade over 1951–2012. The reduction in observed GMST trend is most marked in Northern Hemisphere winter (Section 2.4.3; Cohen et al., 2012). Even with this “hiatus” in GMST trend, the decade of the 2000s has been the warmest in the instrumental record of GMST (Section 2.4.3, Figure 2.19). Nevertheless, the occurrence of the hiatus in GMST trend during the past 15 years raises the two related questions of what has caused it and whether climate models are able to reproduce it.

So, what is driving persistent claims of a climate crisis?

## A Climate of Conflict of Interest

The original mandate of the United Nations Framework Convention on Climate Change (UNFCCC) which created the IPCC, directed that the UNFCCC was stated in the Article 2 Objective as stated in the 1992 document:

*“The ultimate objective of this Convention ...is to achieve... stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”<sup>25</sup>*

Between 1970 and the early 1990’s, there *had been* an almost lock-step increase in Global Surface Mean Temperature (GSMT) with a coincident rise in carbon dioxide concentration and

<sup>25</sup> <https://unfccc.int/resource/docs/convkp/conveng.pdf>

human industry. Based on early research by Fourier, Tyndall, Arrhenius, and others, many scientists and policy makers saw carbon dioxide from fossil fuel use as the driver of global warming.

In the 1970's, policies had been instituted to reduce sulfur dioxide emissions, allowing companies to enter into emissions trading while mitigation measures were put in place.

Enron, a company that was once lauded as an energy leader, had profited from this type of trading and enthusiastically embraced the idea of doing the same with carbon dioxide. While Enron subsequently imploded in a spectacular fail of scandal, fraud and securities violations in 2001, as a corporate player and Washington lobbyist prior to that, it had been one of the main corporate proponents of the Kyoto Accord. Prior to its collapse, it saw the potential profitable financial opportunities in emissions trading as outlined by Enron employee John Palmisano in a memo he sent from Kyoto:

*““I do not think it is possible to overestimate the importance of this year in shaping every aspect of this agreement,” he wrote, citing three issues of specific importance to Enron which would become, as those following the climate-change debate in detail now know, **the biggest money plays: the rules governing emissions trading, the rules governing transfers of emission reduction rights between countries, and the rules governing a gargantuan clean energy fund.**”<sup>26</sup> (bold and underline emphasis added)*

In our opinion, the scientific process related to climate change and the IPCC have become hopelessly politicized by the ‘ghost of Enron,’ embodied by parties who are pushing the same emissions trading scheme for vested interest commercial benefits. These parties include governments, corporations, institutional investors, clean-tech enterprises, vested interest philanthropic foundations, and carbon market traders. It is our view that these commercial interests have overridden the original objectives of climate science research.

What began as science has descended into public fearmongering, despite the many good and committed scientific experts in the field whose works are often misstated or manipulated by the media or vested interest parties. Those with vested interests are determined to frighten the public into compliance with their unvetted, economically and environmentally disastrous policies.

## ClimateWorks Foundation – Global Cap and Trade Plan

According to Matthew Nisbet, since 1991, the billionaire philanthropists funded the Energy Foundation which “has been the main instrument that a network of influential U.S. philanthropists has used to define a portfolio of policy options, political strategies, and energy technologies to address climate change.”<sup>27</sup> ...the principal function of the Energy Foundation has been to leverage money in a highly concentrated pattern on behalf of policies that shift markets, industry, and consumers in the direction of renewable energy technologies and energy efficiency practices (Dowie, 2002; Morena, 2016).

<sup>26</sup> <https://ep.probeinternational.org/2009/05/30/enrons-other-secret/>

<sup>27</sup> <https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.524>

In 2005, some 13 billionaire philanthropies, interested in cap and trade, renewables and climate change, formed the ClimateWorks Foundation and developed a plan called “Design to Win.” Nisbet’s work of 2014 noted that the

ClimateWorks Foundations were planning a ‘sea change in the global economy’ through their cap and trade plan, and that their “Design to Win” report is “notable for the absence of any meaningful discussion of social, political or cultural dimensions of the challenge.”<sup>28</sup>

*These grantmakers are also among the major patrons for academics and their work and are the main supporters of the rapidly growing non-profit journalism sector. Many scholars and journalists therefore have reason to be cautious in their assessment (Reckhow, [2013](#)).<sup>1</sup>*

Beginning in 2005, the ClimateWorks Foundation partners happily split the world into five regions and began pushing cap and trade policy and renewables through their funded ENGOs, the main thing missing was/is a **global** price on carbon. A global price on carbon means that vast forests could be ‘traded’ as carbon sinks, that emissions could be cap and traded for billions – meaning that it would be necessary to maintain emissions in some part of the world and not reduce them – as in China, India and Brazil.

But what *is* a carbon market?<sup>29</sup>

*...unlike traditional commodities, which sometimes during the course of their market exchange must be delivered to someone in physical form, **the carbon market is based on the lack of delivery of an invisible substance to no one.***

– Mark Schapiro,  
Conning the Climate,  
Harper’s Magazine Feb. 2010

Those who trade in this invisible substance and who understand the complex ins and outs of the UN Clean Device Mechanism (and other carbon markets) have made billions, according to an example reference from a 2007 Baker McKenzie (NZ) power point reference. A Private Fund and the World Bank raised \$1.2 billion in 23 minutes.

But ordinary citizens do not have this luxury. For the #PriceOnCarbon – they only pay. To be poor.

## Carbon Serfdom

*“Then use the cap to set a personal carbon ration. **Every citizen is given a free annual quota of carbon dioxide.** He spends it by buying gas and electricity, petrol and train and plane tickets. **If he runs out, he must buy the rest from someone [who] has used less than his quota (2).** This accounts for about 40% of the carbon dioxide we produce. The rest is*

<sup>28</sup> <http://climateshiftproject.org/nisbet-m-c-2014-engaging-in-science-policy-controversies-insights-from-the-u-s-debate-over-climate-change-handbook-of-the-public-communication-of-science-and-technology-2nd-edition-london-r/>

<sup>29</sup> <http://citizensclimatelobby.org/files/Conning-the-Climate.pdf>

*auctioned off to companies. It's a simpler and fairer approach than either green taxation or the Emissions Trading Scheme, and it also provides people with a powerful incentive to demand low-carbon technologies. Timescale: a full scheme in place by January 2009."*

- George Monbiot, "Here's the Plan"<sup>30</sup>

Carbon dioxide and fossil fuels run through every aspect of life, energy systems, and even our own bodies and breathing. Consequently, many commentators are concerned that carbon policies may be detrimental to democracy and sovereign rule of nations. While the UN Charter claims in Article 2.1 and 2.7 to have been instituted to maintain sovereignty:

*2.1 The Organization is based on the principle of the sovereign equality of all its Members.*<sup>31</sup>

*2.7 Nothing contained in the present Charter shall authorize the United Nations to intervene in matters which are essentially within the domestic jurisdiction of any state...*

And in Article 55.a:<sup>32</sup>

#### **Article 55**

*With a view to the creation of conditions of stability and well-being which are necessary for peaceful and friendly relations among nations based on respect for the principle of equal rights and self-determination of peoples, the United Nations shall promote:*

*a. higher standards of living, full employment, and conditions of economic and social progress and development;*

In fact, carbon market and climate change policies have been shown to achieve the opposite.

Since carbon policies – carbon taxes, renewables and carbon markets - were introduced in the UK, Europe and Ontario, ordinary citizens have been pushed into 'heat-or-eat poverty' by the millions. Considering that, how likely is it, if one were granted a '*free annual quota*' of carbon dioxide, that one could '*buy the rest*' if you run out? And with most of the world's government's not operating in a democratic context, how likely is it that they could resist imposing a 'global carbon law' upon citizens at a personal level? It is noteworthy that George Monbiot is calling for a personal carbon ration while living in Britain where the Magna Carta and the institution of many constitutional and charter freedoms were developed to *liberate* ordinary citizens from feudal overlords. Why would we go backward into carbon serfdom? What are the implications?

Al Gore, who has acquired 'stupendous wealth'<sup>33</sup> from *#ClimateChangeAction*, would never run out of cash for personal carbon credits. You and pensioner Bill Smith or Margaret Jones, or single Mom Janice,

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<sup>30</sup> <https://www.monbiot.com/2006/10/31/heres-the-plan/> (underline and bold emphasis added to quote)

<sup>31</sup> <http://www.un.org/en/sections/un-charter/chapter-i/index.html>

<sup>32</sup> <http://www.un.org/en/sections/un-charter/chapter-ix/index.html>

<sup>33</sup> [https://www.huffingtonpost.ca/entry/al-gore-wealth\\_us\\_599709f2e4b0e8cc855d5c09](https://www.huffingtonpost.ca/entry/al-gore-wealth_us_599709f2e4b0e8cc855d5c09)

divorced Dad Jack paying child support, or student Almedira, or immigrant family Mendoza? All would be 'carbon bankrupt' in short order.

Then what? **Carbon Serfdom?**

As noted by Interpol's "Guide to Carbon Trading Fraud"<sup>34</sup> and Deloitte's "Carbon Credit Fraud: White Collar Crime of the Future"<sup>35</sup> the elusive nature of the material being traded makes it ideal for fraudulent trades, upping emissions to make more money (thus defeating any semblance of 'saving the planet').

*"...it is easy to see how the revenues from carbon taxes could easily become one of the largest sources of revenues to the government, making it even less likely that politicians would forego the opportunity to make use of this revenue windfall to spend on favoured causes and constituencies. **Carbon taxes will almost certainly become a large and harmful burden on the Canadian economy.**"*

– Robert Lyman,  
Ottawa Energy Policy Consultant,  
Former public servant and diplomat

At this point, a 'personal carbon budget' is not part of the IPCC proposal. Present carbon prices range from about \$8 to \$30/t, but what is one to make of the **proposed \$135 to \$5,500/t carbon price by 2030** which comes out of the IPCC SR15 as reported by the New York Times<sup>36</sup>? Or \$27,000/t as reported by Bloomberg?<sup>37</sup>

Today, the whole exercise appears to be set up to support commercial interests,<sup>38</sup> not to save the planet and not to further climate science research or practical mitigation techniques (which we address further on). The extraordinary heightened 'price on carbon' – proposals from \$135-\$5,500/t<sup>39</sup> to the absurd \$27,000/t suggest an effort to make up for substantial losses – either those in anticipated carbon trades, devalued investments in renewables, or prior losses through carbon market fraud.<sup>40</sup>

*Environmentalism and its most extreme version, global warming alarmism, asks for an almost unprecedented expansion of government intrusion and intervention into our lives and of government control over us.*

The totalitarian push by Rockstrom et al (2017)<sup>41</sup> for a \$400/t price *and global carbon law* which are proposed by parties with associations to commercial entities<sup>42</sup> like the World Business Council for Sustainable Development, supports the view that climate policies put democracy at risk.

-Václav Klaus

What objective, untainted body could administer such a tax? Who is to say the potential for a global slush fund and the bankrupting of nations and citizens might not be too tempting? After all, on a simply national level, carbon taxes have become far too tantalizing to remain 'carbon neutral' despite

<sup>34</sup> <http://blog.friendsofscience.org/wp-content/uploads/2016/11/guide-to-carbon-trading-crime.pdf>

<sup>35</sup> [https://tomaswell.files.wordpress.com/2015/02/carbon\\_credit\\_fraud.pdf](https://tomaswell.files.wordpress.com/2015/02/carbon_credit_fraud.pdf)

<sup>36</sup> <https://www.nytimes.com/2018/10/08/climate/carbon-tax-united-nations-report-nordhaus.html>

<sup>37</sup> <https://www.bloomberg.com/news/articles/2018-10-10/how-much-does-carbon-need-to-cost-somewhere-from-20-to-27-000>

<sup>38</sup> <https://foreignpolicy.com/2015/01/30/climate-change-hack-carbon-credit-black-dragon/>

<sup>39</sup> US \$1.20 to \$49 per gallon <https://wattsupwiththat.com/2018/10/17/have-we-reached-peak-alarmism-on-climate-change/>

<sup>40</sup> <https://foreignpolicy.com/2015/01/30/climate-change-hack-carbon-credit-black-dragon/>

<sup>41</sup> <http://www.rescuethatfrog.com/wp-content/uploads/2017/03/Rockstrom-et-al-2017.pdf>

<sup>42</sup> <https://www.stockholmresilience.org/education/independent-courses/2015-08-26-planetary-boundaries-and-human-opportunities-open-for-enrollment.html>



government promises, as reported by Robert Lyman, Ottawa energy policy consultant, former public servant and diplomat.<sup>43</sup>

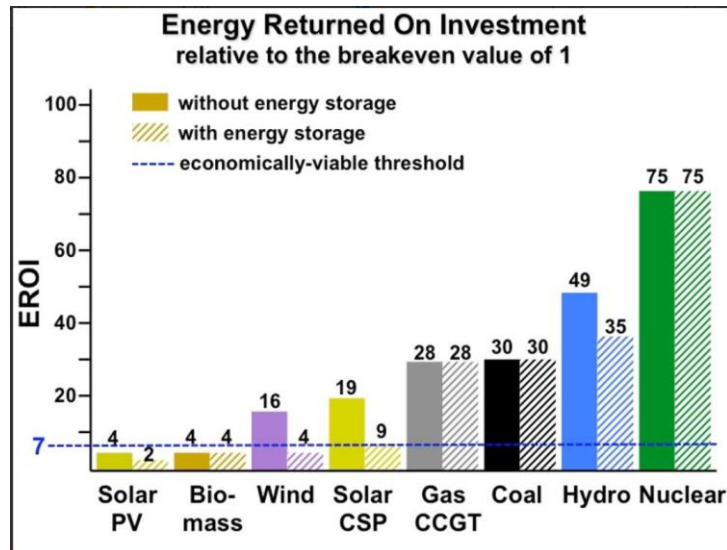
## Conflicts of Interest, Climate “Risk” and Catastrophe Claims

What began as a scientific endeavor, decades ago, now appears to be fraught with conflicts of interests, and driven by the social media networks of ENGOs funded by billionaire foundations with vested interests in carbon markets and pushing renewables.

Though the claim is often made that those advocating for the use of fossil fuels who dispute catastrophic human influence on climate are just **‘Merchants of doubt,’** it is easy to see that those who advocate for 100% renewables and proclaim imminent climate catastrophe are **‘Merchants of Consensus’**– even drawing oil companies into the fold.

How does one explain that key climate scientists in the ClimateGate emails reveal that they are in talks with Shell Oil, hoping for financial funding for a new building?<sup>44</sup> Or that major oil and gas companies are suddenly investing in wind and solar farms, despite the Professional Engineers employed by oil and gas companies knowing very well that these wind and solar farms are unable to deliver any reasonable amount of power generation on any reliable basis – unless they are all backed up 24/7 by conventional fossil fuels – typically natural gas?

Throughout the IPCC reports, wind and solar are touted as a ‘solution’ – but Prof. Michael J. Kelly of Cambridge calls it ‘total madness’ to put up more wind and solar farms because they cannot support their own fabrication and the societal needs of basic society.<sup>45</sup> As well, wind and solar rely on taxpayer subsidies – have done so for the past 40 years.



The problem is analysed in an important paper by Weißbach *et al.*<sup>1</sup> in terms of energy returned on energy invested, or EROEI – the ratio of the energy produced over the life of a power plant to the energy that was required to build it. It takes energy to make a power plant – to manufacture its components, mine the fuel, and so on. The power plant needs to make at least this much energy to break even. A break-even powerplant has an EROEI of 1. But such a plant would be pointless, as there is no energy surplus to do the useful things we use energy for. .... The EROEI values for various electrical power plants are summarized in the figure. The fossil fuel power sources we’re most accustomed to have a high EROEI of about 30, well above the minimum requirement. Wind power at 16, and concentrating solar power (CSP, or solar thermal power) at 19, are lower, but the energy surplus is still sufficient, in principle, to sustain a developed industrial society. Biomass, and solar photovoltaic (at least in Germany), however, cannot. With an EROEI of only 3.9 and 3.5 respectively, these power sources cannot support with their energy alone both their own fabrication and the societal services we use energy for in a first world country. <https://www.energycentral.com/ec/catch-22-energy-storage>

<sup>43</sup> <https://blog.friendsofscience.org/2018/09/29/the-alarming-scope-of-future-of-carbon-taxes-in-canada/>

<sup>44</sup> <https://www.lavoisier.com.au/articles/greenhouse-science/climate-change/climategate-emails.pdf>

<sup>45</sup> <https://www.rbkc.gov.uk/pdf/Prof%20Mike%20Kelly%20-%20FENand%20ER.pdf>

Kelly states:

*“90% of energy used in the world since 1800 is fossil fuel based. • Today biomass, hydro-, geothermal and nuclear produce 15% of energy • First generation renewables produce less than 1% of world energy • **I assert: decarbonising by 80% by 2050 is impossible without mass deaths.**”*

– Prof. Michael J. Kelly, 2010 “Future Energy Needs and Engineering Reality”<sup>46</sup>

When Friends of Science Society asked the IPCC for peer-reviewed papers supporting their claims about cost-effectiveness of wide-scale deployment of wind and solar replacing conventional (especially coal) power, as touted in the IPCC AR5 Summary for Policymakers, the IPCC responded, saying they did not have any.<sup>47</sup> Yet every policymaker in the world is busy instituting policies to incorporate wind and solar on the grid to #SaveThePlanet – based on their understanding of the IPCC Summary for Policymakers, which they take as vetted recommendations.

All this would suggest that there are extremely influential parties attached to the notion that carbon dioxide presents an imminent risk, that carbon taxes are the solution. This appears to be a financial opportunity for those who have the power and who understand the complex markets to become stupendously wealthy.

But at what cost to citizens? And at what cost to science? And all on faulty premises?

## Faulty Premise #1:

### The Anthropocene

The “Holocene” is the geological term applied to the warmer period of the past 11,700 years of earth’s history since the last period of glaciation; thus, proponents of human-caused (Anthropogenic) Global Warming coined the term the “Anthropocene” to name this recent period as one of ‘unprecedented’ climate change due to human influence. The IPCC report refers to its conclusions and perspective through “the Anthropocene lens” – meaning an assumed new geologic era wherein humans have more impact than nature.

However, on July 13, 2018, the International Union of Geological Sciences (IUGS), after years of deliberation, released the news that:

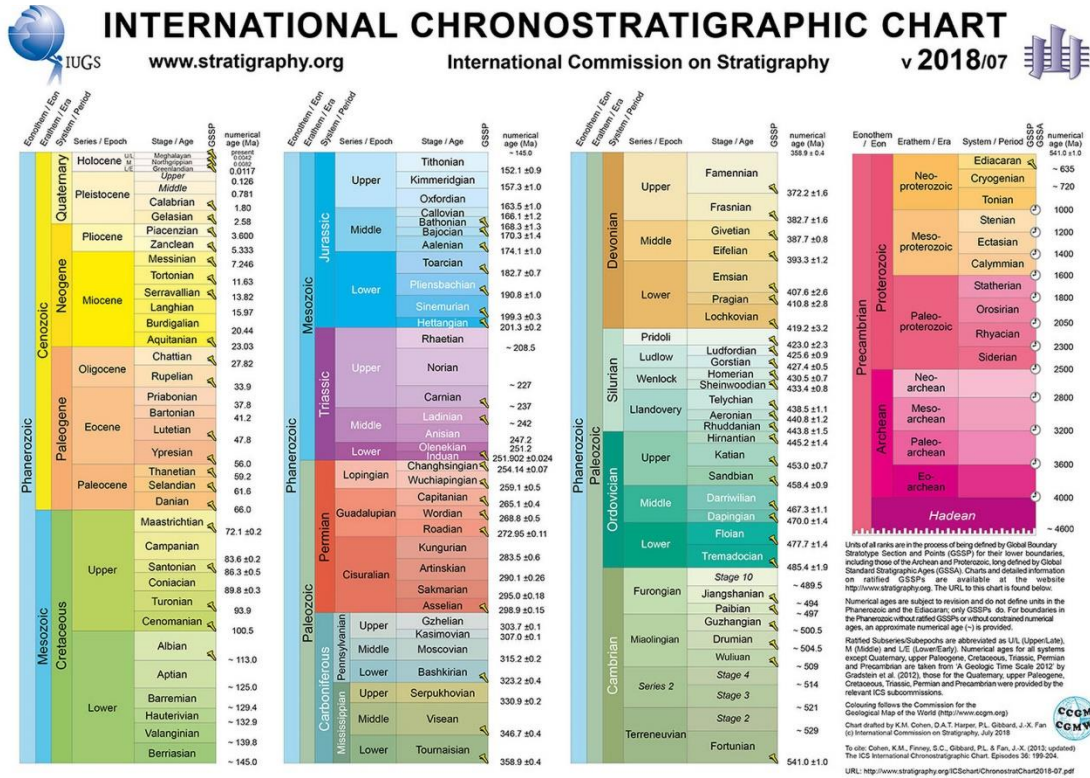
*“The Meghalayan is just one of three newly named ages, the IUGS said in an announcement released July 13. The other two ages are the Greenlandian (11,700 years to 8,326 years ago) and the Northgrippian (8,326 years to 4,250 years ago), the IUGS said.”<sup>48</sup>*

<sup>46</sup> <https://www.rbkc.gov.uk/pdf/Prof%20Mike%20Kelly%20-%20FENand%20ER.pdf>

<sup>47</sup> <http://blog.friendsofscience.org/2015/11/05/a-matter-of-public-interest-on-the-ipcc-does-it-recommend-or-not-recommend-that-is-the-question/>

<sup>48</sup> <https://www.livescience.com/63103-meghalayan-age-within-holocene-named.html>

In response to public questions about why there was no division to establish the Anthropocene within the past 50 years, the IUGS, on Twitter, stated that no one had even submitted such a name for consideration, and that the Anthropocene was a term that had more sociological than scientific significance.



In other words, the global authority which evaluates far-reaching changes to the dynamics of earth’s geological and climatic change does not recognize the “Anthropocene.”

It is a faulty premise to call the present time “the Anthropocene.”

## Faulty Premise #2:

## Carbon Dioxide is Not Sulfur Dioxide

As Matthew Sinclair explains in “*Let Them Eat Carbon*,” it is folly to try and enact a similar emissions trading platform for carbon dioxide as was done for sulfur dioxide. For the most part, reducing sulfur dioxide was relatively easy for industrial facilities to do without shutting down or reducing output.

In the case of coal plants, which were large sulfur dioxide emitters, the plants could upgrade the quality of coal used (switching to a low sulfur coal supply), and industrial ‘scrubbers’ that extract sulfur from the stack turned out to be cheaper than expected and relatively easy to retrofit on older plants. Sinclair reports that in the US, in the sulfur-dioxide emissions trading program only 110 facilities were involved initially, and this expanded to 445 plants.

By contrast, **carbon dioxide is emitted by all fossil fuel operations – driving a car, heating your house, turning on a light (unless you live in Norway-mostly hydro), or powering industry.**

*“Emissions trading makes everything more expensive. If it isn’t a tax on everything, it is a tax on everything it touches, particularly electricity.”*

At the time of writing his book (2011), Sinclair reported that the European Union’s Emissions Trading System covered 11,000 plants and that **emissions trading allowed companies to profit from citizens.**

Today, Dutch filmmaker Marijn Poels reports that he has interviewed German families who spent Christmas Day huddled around a single candle, because their power has been cut off for non-payment of bills.<sup>49</sup> Dr. Benny Peiser reported that UK Pensioners spend Christmas in bed – no money for heating; nothing spare for a festive meal. Thousands of pensioners die prematurely from ‘heat-or-eat’ poverty there, while wind farm investors are guaranteed decades of 10% return on investment.<sup>50</sup> Clearly, they earn more if they also play the carbon markets or have investments in the multi-billion-dollar natural gas infrastructure and transmission line companies that back-up the ‘free’ wind farm.

## Faulty Premise #3:

### Human Industrial Carbon Dioxide Drives Climate Change

*“...based on Earth’s history, the one thing that we cannot change, is climate change.... **carbon dioxide concentration is a consequence of climate change...**”*

*Politicians can’t stop climate change.”*

-Dr. John D. Harper, FGSA, FGAC, PGeol., former director of the Geological Survey of Canada



The notion that climate change is driven by carbon dioxide emissions from human industry dates back to the work of Joseph Fourier, Svante Arrhenius, Guy Callendar and more recently, James Hansen. Science is a process of continuous discovery. Indeed, Svante Arrhenius amended his catastrophic view of ‘carbonic acid’ (as he called carbon dioxide then) in 1906<sup>51</sup> by reviewing the science. He decided, upon thorough review of additional findings, **that a doubling of carbon dioxide would lead to nominal warming, perhaps an increase of 1.5 degree Celsius, and that this warming would be beneficial.**

<sup>49</sup> <https://youtu.be/RfzJjwwvwxE>

<sup>50</sup> <https://friendsofscience.org/index.php?id=653>

<sup>51</sup> <https://www.friendsofscience.org/assets/documents/Arrhenius%201906,%20final.pdf>

Following James Hansen’s dramatic testimony to the US Senate in 1988,<sup>52</sup> global attention began to focus on the potential global warming hazard from fossil fuel use. As previously noted, Enron saw great commercial opportunities in carbon dioxide in the 1990’s. In 1995, after the Rio Earth Summit (1992) the World Council for Sustainable Development was formed by leading businesses. In the year 2000, the CDP Worldwide was formed by Rockefeller Philanthropic Advisors, a UK based charity to gather voluntary reporting of greenhouse gas emissions from corporations and cities. Another organization for institutional investors known as the UNPRI (UN Principles for Responsible Investment) was formed in 2005. All three are dedicated to directing ‘sustainable’ investments. “Climate” is their business. As of 2014 with the “Montreal Pledge,” many UNPRI signatories became activist investors, lobbying governments and corporations to take “Climate Action.” In Canada, in 2015, institutional investors were told that ‘*climate denial is not an option*’ – by lawyers, not scientists.<sup>53</sup>

However, while business and investment decided to try and stop climate change through commercial means via decarbonization and a low-carbon transition, by 2003<sup>54</sup> and 2005<sup>55</sup> the scientific community was questioning the divergence between the rising carbon dioxide and flat-lining temperatures. Temperatures stopped rising about 1998 (an El Nino year) and have remained flat in terms of statistical significance ever since. But in 2006, Al Gore’s “An Inconvenient Truth” captured the imagination of the average citizen. He and the IPCC won a Nobel Peace Prize in 2007. All this was also coincident to the operations of ClimateWorks, which began to flow money in the scale of some \$600 million a year for over a decade to a myriad of ENGOs around the world, promoting the climate ‘crisis,’ renewables, price on carbon, and cap and trade.

As well, the ClimateWorks “Design to Win” case study reveals that McKinsey and Co., the most influential management firm in the world, was a consultant to ClimateWorks for some \$42.4 million. This suggests that the thinking associated with the “Design to Win” global cap and trade and renewables deployment plan may have become institutionalized within the larger realm of McKinsey’s corporate client list and their recommendations.

Where once science was about debate and discussion, it has become the ‘norm’ to dismiss anyone – even an outstanding scientist - as a ‘denier’<sup>56</sup> if the person dared to question carbon dioxide from human industrial emissions as the main driver of climate change. However, there continues to be a collection of persistent scientists who reject groupthink and who look at the evidence and challenge the ‘consensus.’<sup>57</sup>

They do not like what they see.

<sup>52</sup> <https://www.pbs.org/wgbh/pages/frontline/hotpolitics/interviews/wirth.html>

<sup>53</sup> [https://share.ca/documents/educational.../Fiduciary\\_duty\\_and\\_climate\\_change.pdf](https://share.ca/documents/educational.../Fiduciary_duty_and_climate_change.pdf)

<sup>54</sup> <https://www.springer.com/us/book/9783642623738>

<sup>55</sup> <https://www.nap.edu/catalog/11175/radiative-forcing-of-climate-change-expanding-the-concept-and-addressing>

<sup>56</sup> <https://www.spectator.co.uk/2017/08/question-al-gore-on-climate-change-and-hell-call-you-a-denier/>

<sup>57</sup> <http://climatechangereconsidered.org/> NIPCC is one group; many individuals started blogs to share scientific information and establish an informal ‘peer-review process.

# The Climate Model Crystal Ball

*“climate forecasting is not an empirical problem. If one had a computer large enough it is easy to estimate how long a typical modern computer would take to do one 10-year forecast without some of this fake (empirical) physics. With a Kolmogorov microscale of about a millimeter for air, one gets numbers like 100,000,000,000,000,000,000 years. \* That is longer than it took for Douglas Adams’s famous fictional computer, Deep Thought, to answer the cosmic question. \*Or...the age of the Universe, squared.*

– Christopher Essex, Co-author of “Taken by Storm”  
Professor of Applied Mathematics  
The University of Western Ontario

In trying to determine whether there has been global warming (as opposed to regional), where, and to what extent, scientists providing information to the IPCC should be scrupulous in their detail and quality of data. If there are areas of uncertainty (which are typical in science) or where special short-cuts or processes might have been used, these should be clearly pointed out and the implications explained to policy-makers. This has not been the case to date.

## 1. Climate Models (Computer Simulations of future climate/warming)

Projections of future warming rely on climate models – simulations. As noted above to do a reasonably accurate 10-year modelled forecast, ***it would take the age of the universe – squared – to compute***. Yet pundits and politicians confidently rely on models that are hopelessly inadequate to make any reliable long-term hundred-year predictions.

If that weren’t concerning enough, during the American Physical Society workshop on Climate Change, Jan 8, 2014, through dialogue it was disclosed that climate models show future temperatures as far too hot because the computer modellers have not adjusted a known error.<sup>58</sup>

Dr. John Christy of the University of Alabama in Huntsville showed that the tropical air temperatures measured by satellite and weather balloon have been increasing from 1979 at only 41% of the climate model simulations, which is a huge discrepancy.<sup>59</sup> Climate models that can’t correctly simulate air temperatures are not useful for making forecasts.

Climate modelers are unable to model clouds or unexpected natural events like volcanic eruptions. Complex solar and planetary cycles and orbital dynamics are not part of models, but the sun affects all of earth’s climate systems. Human industrial emissions only affect atmospheric concentrations of gases – while this may be consequential, it is not at the scale of the influence of solar activity and related cycles.

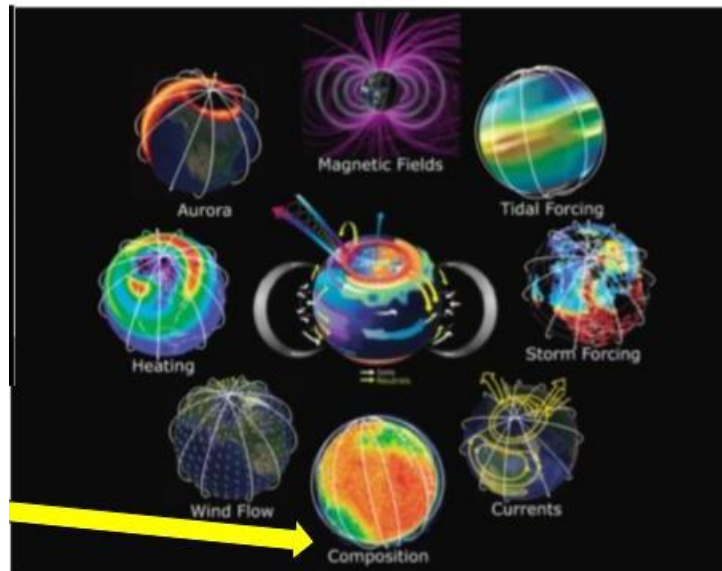
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<sup>58</sup> <https://www.aps.org/policy/statements/upload/climate-seminar-transcript.pdf> pg. 263 line 10; pg. 269 line 7; pg. 273 line 11

<sup>59</sup> <https://science.house.gov/sites/republicans.science.house.gov/files/documents/HHRG-115-SY-WState-JChristy-20170329.pdf>

## 2. Data Quantity and Quality

**Climategate:** The leaked Climategate emails revealed an unpleasant insight on how key climate science groups were ‘managing the message’ while massaging the data to suit – and some appalling lapses of scientific integrity. In one case it was revealed that due to a lack of historical ship temperature records much of the historical temperature data was made up for a vast area of ocean – *“For much of the SH between 40 and 60S the normals are mostly made up as there is very little ship data there.”*<sup>60</sup>



The Sun affects all these aspects of Earth's climate; humans only affect atmospheric concentration.

**Datagate:** Just as the IPCC SR15 was going to press, the Maclean audit of the Hadley Climate Research Unit Temperature (HadCRUT) dataset came out. The audit shows there has been sloppy work and absurd data points in a number of places in the world's most important temperature dataset. This is the reference point used to determine whether the earth is ‘warming’ or ‘cooling’ – and what were the historic temperatures. If this record is not accurate, how can anyone claim ‘unprecedented’ warming?

Science writer Joanne Nova expresses her dismay:

*“There are cases of tropical islands recording a monthly average of zero degrees — this is the mean of the daily highs and lows for the month. A spot in Romania spent one whole month averaging minus 45 degrees. **One site in Colombia recorded three months of over 80 degrees C. That is so incredibly hot that even the minimums there were probably hotter than the hottest day on Earth.** In some cases, boats on dry land seemingly recorded ocean temperatures from as far as 100km inland. The only explanation that could make sense is that Fahrenheit temperatures were mistaken for Celsius, and for the next seventy years at the CRU no one noticed.”*<sup>61</sup>

<sup>60</sup> <http://tomnelson.blogspot.com/2011/12/phil-jones-much-of-sh-between-40-and.html>

<sup>61</sup> <http://joannenova.com.au/2018/10/first-audit-of-global-temperature-data-finds-freezing-tropical-islands-boiling-towns-boats-on-land/> (bold emphasis and underline added)

Temperature monitoring stations prior to 1860 were sparse.



The earth's surface is 71% ocean, but Argo ocean temperature monitoring drones have only been deployed since 2000 at about 800 a year (about 3000 operate today).<sup>62</sup> Thus, it is difficult to say with any accuracy what global average temperatures were in the past. Some scientists reject the very notion or relevance of a global average temperature as climate patterns are regional and constantly in flux. Temperature measurements are not taken at the same time globally – and even if so, would not be meaningful as an 'average' of anything.<sup>63</sup>

*“Physical, mathematical and observational grounds are employed to show that there is no physically meaningful global temperature for the Earth in the context of the issue of global warming....A given temperature field can be interpreted as both “warming” and “cooling” simultaneously, making the concept of warming in the context of the issue of global warming physically ill-posed....**The temperature field of the Earth as a whole is not thermodynamically representable by a single temperature....There is no global temperature.”***

### 3. Selective or Limited Science – Unresponsive to Expert Reviewer Comments

Many scientists are critical of the IPCC's process for being unresponsive to expert reviewer comments and criticisms (German industrialist and scientist Dr. Fritz Vahrenholt describes how this experience turned him to a skeptic in the introduction of “The Neglected Sun.” This is just one example).

Friends of Science Society and many solar scientists see the IPCC as limiting its review of the sun's role in climate change. On the one hand, the IPCC's mandate is to report on human causation; but if natural factors are not well established and reviewed, how can one make conclusive statements about humanity's role in climate change? In 2010 it was discovered that the IPCC relied on a single solar scientist, reporting on findings of a paper she co-authored, to address the role of the sun on climate. This is not in keeping with the scientific method.

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<sup>62</sup> [http://www.argo.ucsd.edu/About\\_Argo.html](http://www.argo.ucsd.edu/About_Argo.html)

<sup>63</sup> <https://pdfs.semanticscholar.org/860c/5a03ace0f1df81a6423b4494dcda4c024ee0.pdf> (bold emphasis added)



As the Dutch government recommended to the IPCC in 2013:<sup>64</sup>

*The IPCC needs to adjust its principles. **We believe that limiting the scope of the IPCC to human induced climate change is undesirable, especially because natural climate change is a crucial part of the total understanding of the climate system, including human-induced climate change. The Netherlands is also of the opinion that the word ‘comprehensive’ may have to be deleted, because producing comprehensive assessments becomes virtually impossible with the ever-expanding body of knowledge and IPCC may be more relevant by producing more special reports on topics that are new and controversial.*** (bold emphasis added)

#### 4. Undue Influence by Agenda Driven “Green” Groups:

In 2011, Canadian investigative journalist, Donna Laframboise, released a stinging critique of the IPCC which included the revelation that WWF and Greenpeace ‘legends’ were key players in reports. Greenpeace and WWF have been funded by ClimateWorks partners for millions of dollars. This suggests the scientific and objective intention of the IPCC reports has been tainted by agenda-driven politics.

#### 5. Lack of Baseline for Natural Agricultural Inputs

As an outcome of the IPCC SR15, many media outlets are reporting that consumers must stop eating meat – especially beef - to “save the planet.” Many “Climate Smart” agricultural policies are being promoted world-wide. As agricultural expert, Albrecht Glatzle of Paraguay reports, the IPCC never established a baseline GHG output of natural agriculture. For example, once some 60-100 million buffalo roamed the North American plains; they were decimated within about twenty years in the late 1800’s to a herd of perhaps 1,000 survivors. Global temperatures continued warming despite this massive loss of animals. Since that time, around the world, farmed livestock have replaced what were once feral or nomadic herds, but there is no accounting for this original baseline, consequently current livestock and industrial farming practices are demonized without proper context.

#### 6. Lack of Baseline for Pre-Industrial Temperature

The IPCC mantra is that we ‘risk’ exceeding 1.5°C over pre-industrial temperatures, but that baseline figure is set at 1850-1900 for Global Mean Surface Temperature (GMST).

If we look back some years at the 1700’s, at which time human industrial emissions began to grow with the Industrial Revolution in Europe, we find the world was in the midst of the Little Ice Age (LIA) (1250-1860). **Global temperatures were much colder** than the preceding Medieval Warm Period. Climatic conditions of the LIA were erratic and destructive – to the extent that people were burned at the stake as witches for the crime of ‘weather cooking with the help of Satan.’

Significant volcanic eruptions rocked the latter part of the LIA. Laki, in Iceland, catastrophically erupted in 1783 and caused a drop in North Hemisphere temperatures on the eastern seaboard of 4°C and the deaths of some 6 million people world-wide.<sup>65</sup>

<sup>64</sup> <https://www.destaatvanhet-klimaat.nl/2013/07/05/dutch-advise-to-ipcc-limiting-the-scope-to-human-induced-climate-change-is-undesirable/>

<sup>65</sup> <http://volcano.oregonstate.edu/laki-iceland-1783>

Though there were some extremes of heat, overall it was cold and miserable in the LIA. There were five years of virtually non-stop rain in England at the start of the 1300's; things got worse from there.<sup>66</sup> At some points it was so cold that "birds dropped dead from the sky."<sup>67</sup> People committed suicide to escape their horrible life.<sup>68</sup>

Consequently, is it reasonable to assume that a slight warming of 1.5°C from this devastating period of cold, erratic climate represents danger? Or have we benefitted from 258 years of improving and more stable climatic conditions?<sup>69</sup> Why is this important context absent from discussions of 'dangerous climate change'? Surely the most dangerous climate change is unrelenting cold and bizarre, erratic events (which can be amplified at any time by our 'active planet' with volcanic eruptions or tectonic events).

## 7. Selection of Data

Roger Pielke, Jr. reported that the IPCC report invariably relies on most academic literature that uses the Representative Concentration Pathways – RCP 8.5 – the scenario for which is "*based on an assumption of the dramatic expansion of coal energy around the world over the twenty-first century that results in extremely high carbon dioxide emissions.*"<sup>70</sup> This is the least likely eventuality. Why is it the focus of IPCC reports, except to create exceptionally 'worse case' scenarios? Why is there not a balance between the highest and lowest? Observed temperatures most closely parallel the lowest – RCP2.6.

## 8. Sea Level Rise and Risks Distorted

For decades we have been told that most major coastal cities will be under water due to sea level rise from human cause climate change. But in most places of the world, where there is no underlying tectonic activity, sea level rise has remained stable at about 1.1 mm/year. At that rate, it would take a thousand years to cause any significant rise. Sea level 'rise' is affected by many factors that are unrelated to climate change at all. The damming and diverting of natural waterways can cause changes to coastal silt; residential developments or poorly constructed sea walls may contribute to significant coastal erosion which appears as if sea level rise but is a loss of coastal land. The oceans expand as they warm from heightened solar activity, causing an appearance of sea level rise, but will contract as solar activity declines. Certain atmospheric pressure systems far out at sea causes what appears to be local sea level rise. Tectonic activity or groundwater withdrawals may cause land subsidence. Isostatic rebound of the earth (which takes centuries following glacial melt) causes some land to rise, as it does on the north of the Baltic, or subside, as on the south. None of these factors are #ClimateChange; none will be mitigated by carbon taxes. These issues are complex and unfortunately are encapsulated in frightening unscientific soundbites about climate change.

But what of Antarctica or Greenland melt? Both places have regions of significant geothermal activity below the ice, which is up to 3.2 km thick in Greenland and up to 4.8 km thick in Antarctica. Antarctica has vast open lakes under the ice.<sup>71</sup> These are unrelated to human industrial activity or human-caused

<sup>66</sup> <https://www.amazon.ca/Third-Horseman-Weather-Famine-History/dp/0143127144>

<sup>67</sup> <https://www.amazon.ca/History-Sunday-Little-Ice-Age/dp/B001CUB97U>

<sup>68</sup> <https://www.amazon.ca/Global-Crisis-Climate-Catastrophe-Seventeenth/dp/0300153236>

<sup>69</sup> 1760-2018

<sup>70</sup> <https://issues.org/opening-up-the-climate-policy-envelope/>

<sup>71</sup> <https://www.livescience.com/38652-what-is-lake-vostok.html>

global warming. Greenland is often pointed to as a danger if the land-based ice melted, the cold waters would flood the seas, raise levels and cause a crisis. But research shows that when large glacial bodies melt, there is a remaining deep depression of land. Greenland, if the land-based ice melted, would more likely hold a huge inland lake. The ground would gradually rebound, releasing some of that water, but this would take centuries. An example is Lake Agassiz which once took up much of the Canadian and part of the northern American plains – the remnants now seen in the form of Lake Winnipeg.<sup>72</sup>

### **9. Climate Sensitivity of Carbon Dioxide Set Too High – Social Costs of Carbon Exaggerated**

Likewise, according to many scientists and economists working in the field, the climate sensitivity to carbon dioxide in climate models is too high, therefore the recent decades and the projected temperature rise are too high, therefore all the climate models project very high warming scenarios.

On top of that the economic Integrated Assessment Models (IAMS) are calibrated to the climate models (which are projecting high warming scenarios) resulting in Social Cost of Carbon projections that are also far too high. The IAMs attempt to determine what economic damages might result in the future due to present time use of fossil fuels. Based on those models, carbon pricing is set.

Many benefits of warming are not included in IAMs and some that are included are typically underestimated. In a typical business operation, the costs of an activity are weighed against the benefits and then a conclusion is drawn, or decision made, based on the relative value of the outcome.

Only one economic model, the FUND model,<sup>73</sup> includes the benefit of carbon dioxide fertilization and global warming, a topic ignored by the IPCC. In many countries, particularly Canada and Russia and some parts of Europe, slight global warming lengthens the growing season, reduces the burden of winter heating and many winter weather extremes and associated costs for heating, road clearing and other infrastructure costs. Carbon dioxide rise has improved agricultural crop yields. These benefits are estimated at over US\$140 billion per year and must be part of a rational conversation on climate change.

### **10. Each person served by 97 Servants in the Developed World – This Benefit Unaccounted For**

Modern society would collapse into chaos and anarchy within days if fossil fuels were withdrawn from the market;<sup>74 75</sup> wind and solar cannot operate at a societal level on the grid without fossil fuel back-up. Extrapolating the “two and a half workers for every man” calculation of French economist Emile Levasseur of how steam power changed France, today we find that each of us is ‘served’ by 97 servants, thanks to the use of fossil fuels.

What would it cost us to employ the equivalent in human labour? What services are we willing to give up? Where is the benefit of fossil fuel use accounted for? What is the market-ready, viable alternative energy to power society? Is adaptation the most practical, cost-efficient course of action?

<sup>72</sup> <https://www.cbc.ca/news/canada/manitoba/lake-agassiz-book-bill-redekop-1.4388326>

<sup>73</sup> <http://www.fund-model.org/>

<sup>74</sup> <https://blog.friendsofscience.org/2017/11/28/life-without-fossil-fuels/>

<sup>75</sup> <https://blog.friendsofscience.org/2018/05/13/how-reliant-on-fossils-fuels-are-people-in-ontario/?highlight=ontario%20no%20fossil%20fuels>

## Goldilocks Thinking is Dangerous to Society

*“Take away the speculative technology embedded across scenarios and models and the entire policy architecture of the Paris Agreement and its parent, the UNFCCC, falls to pieces.... Carbon dioxide removal at massive scale is science fiction...”*

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- Roger Pielke, Jr.<sup>76</sup>

*“Opening Up the Climate Policy Envelope”*

IPCC reports are billed as being prepared by the ‘world’s top scientists’ but scientists often deal in abstract propositions. There is a world of ‘what if’ – while **the public and governments must address ‘what is.’**

Roger Pielke, Jr. has written a very thoughtful review of the IPCC report, daring to question the lack of reality attached to so many of the proposals. In *“Opening the Climate Policy Envelope,”* he asks questions that every citizen and policymaker should be asking, saying that we have been *“protecting the current policy envelope from critical scrutiny.”*

Pielke points out that two reinforcing assumptions drive IPCC economic models, which in turn support original UNFCCC assumptions (that humans cause ‘dangerous’ change to the atmosphere from greenhouse gas emissions; that humans can control climate change by controlling those emissions).

- a) Cost of inaction will be high; negative impact on society will be great.
- b) Actions to reduce emissions and eliminate them will be technically feasible at low or no cost and this is a ‘no-brainer.’

***“What if our view has focused on a policy regime that cannot succeed?  
What if we need to think differently in order to succeed?”***

Human society obviously does impact the earth in many ways, but what kind of decarbonization forecast can be believed if based on untested proposals, or more-of-the-same-unsustainable-renewables presented in the IPCC SR15 report? The report is largely premised on untested ideas that would have incalculable impacts on earth and society, and the ideas are unvetted and unrealistic.

Pielke is rightly critical of Biomass Energy Carbon Capture and Storage (BECCS), which has gone from a notion to the realm of “climate change saviour” according to Carbon Brief<sup>77</sup> - a central part of the ‘solutions’ for decarbonizing in the IPCC reports. But is it realistic? And if we think raising livestock in feedlots causes global warming – what would it do to decimate large agricultural land for a Goldilocks solution like this.

*“If nothing else, full implementation of BECCS “at scale” would require the use of a global land area one and a half times the size of India (land that will therefore not be available*

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<sup>76</sup> <https://issues.org/opening-up-the-climate-policy-envelope/>

<sup>77</sup> <https://www.carbonbrief.org/beccs-the-story-of-climate-changes-saviour-technology>

*for agriculture or other uses). In the absence of any justifiable method for predicting actual costs, why not just assume that BECCS will be affordable?”*

As with the push for renewables, an industry that is now collapsing across Europe, the unintended consequences, the costs and technical details of BECCS have not gone through any serious cost-benefit analysis or environmental impact assessment.

Europe jumped into the role of being a ‘climate leader’ and rapidly expanded wind and solar, only to find expensive technical problems made 100% renewable untenable. Germany’s energy transition is costing them 1,000 billion euros. Jobs have been created, yes – at a subsidy of some 35,000 euros (~\$57,000 Cdn) per job!<sup>78</sup> Carbon dioxide emissions have gone up in Germany. Germany is now reliant on Russia for natural gas feed, a necessary back-up for wind and solar on the grid. The UK phased out coal and is now reliant on emergency LNG shipments from Qatar to save it from blackouts whenever regional gas supply has an issue.

Far from making these countries energy independent, the rapid rush to renewables has made them more dependent on certain sources of supply and created crippling costs. The UK and EU power grids are subject to often hourly interventions to ensure there is no blackout. This is often accomplished by asking industrial users to curtail use and power down, for which they are financially compensated....by taxpayers, who are already paying carbon taxes and exorbitant renewables subsidies.

Drax is a former coal-fired power generation company in the UK which converted coal plants to burning wood pellets. The Economist reports that Drax makes more money from Renewables Obligations (subsidies) from this move, than it makes from selling the power generated. Ironically these wood pellets are processed in the US and shipped by fossil fuelled container ship to the UK where they are deemed to be ‘green’ and renewable, and therefore worthy of substantial subsidy.

Other ideas being fielded by the IPCC and decarbonization promoters suggest that carbon dioxide could be ‘sucked’ from the air, as if a giant vacuum cleaner. Or that wide-scale adoption of electric vehicles will reduce emissions and would be the ‘storage’ for wind at peak times– without referencing the fact that the power grid would need multi-trillion-dollar upgrades and many more power plants<sup>79</sup> to power these vehicles (that do not exist).<sup>80</sup> Or the problem that wind often dies off for weeks at a time.<sup>81</sup>

Does anyone ask what energy is required to do this, or if this is even necessary? Shouldn’t these questions be asked, and pilot scale proofs provided before even becoming part of any important policy document like that of the IPCC?

Pielke notes that while the IPCC incorporates the untested notion of BECCS in its report, the working and tested technology of nuclear power is nowhere to be seen as a low-carbon solution.

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<sup>78</sup> [http://nlvow.nl/wp-content/uploads/2014/08/germany\\_lessonslearned\\_final\\_071014.pdf](http://nlvow.nl/wp-content/uploads/2014/08/germany_lessonslearned_final_071014.pdf)

<sup>79</sup> <http://euanmearns.com/how-much-more-electricity-do-we-need-to-go-to-100-electric-vehicles/>

<sup>80</sup> <http://blog.friendsofscience.org/2016/12/11/a-tale-told-by-numbers-world-vehicle-trends/>

<sup>81</sup> <http://euanmearns.com/how-much-more-electricity-do-we-need-to-go-to-100-electric-vehicles/>

Likewise, the IPCC and decarbonizing advocates have introduced the idea of geoengineering to ‘stop global warming.’ Some of these ideas include the wide-scale spraying of sulfur dioxide in the sky to cool down the atmosphere. This is an ironic return to the polluting days of the 1970’s where emissions trading began as an interim measure, while industrial plants installed sulfur dioxide scrubbers to *remove* sulfur dioxide particles from the air.

One must question the sanity of people who claim that emitting the benign gas carbon dioxide that we all exhale is a problem, but then advocate for intentionally emitting vast quantities of sulfur dioxide – a particulate that causes acid rain and is an asthma trigger (among other things) in the air as a ‘solution’ to nominal global warming. Alan Robock has expressed concerns in a 2016 paper for the AGU, in which he identified 27 potentially detrimental or catastrophic risks or concerns.<sup>82</sup>

Unfortunately, with the large vested interests in ‘clean-tech’ and the political and corporate push from activist investors, such ideas may take root without proper scientific or engineering evaluation.

### **Climate Policy without Detailed Cost-Benefit and Engineering Analysis is Destructive to Society**

*“The new IPCC report will facilitate much sound & fury and empty exhortation. The report is notable for the almost complete absence of specific, actionable policy options. “Reduce emissions” is not a policy.”*

*-Roger Pielke, Jr. Tweet*

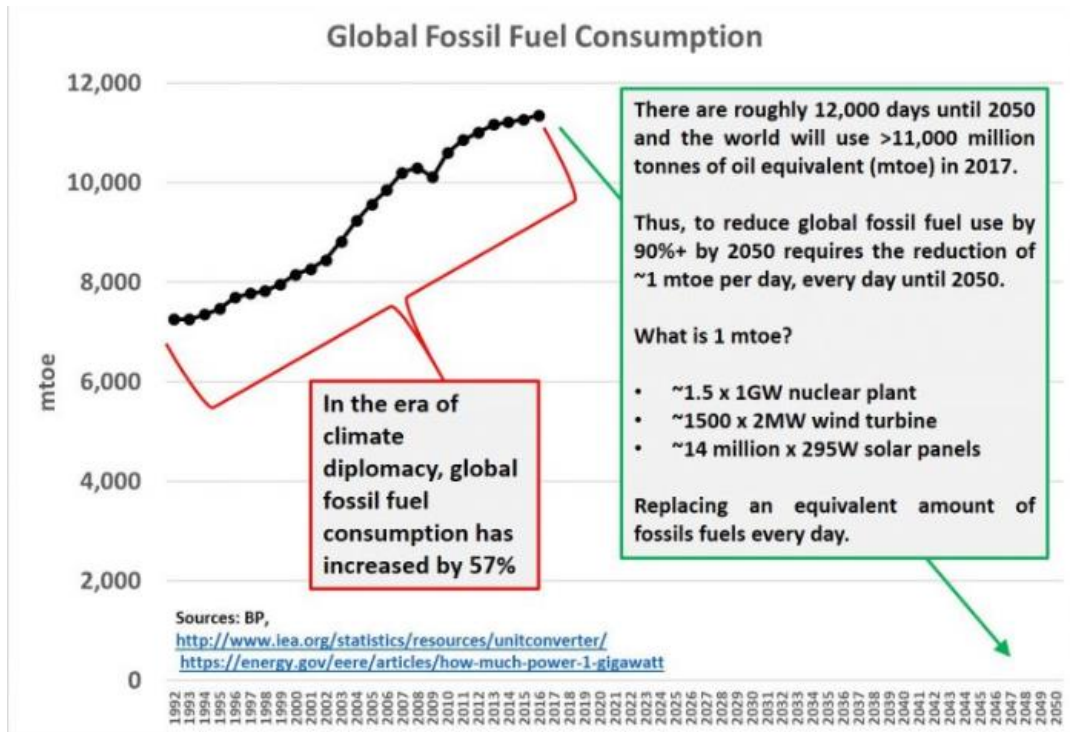
Many assumptions are made in IPCC reports about spontaneous decarbonization – that society will reduce emissions as time goes on because... people assume it will happen. Ironically, while emissions have dropped in most developed societies due to improved mitigation technology or improved efficiency, the demand for fossil fuels continues to rise, meaning there is no significant reduction in emissions world-wide.

Pielke shows this trend in an informative graph.<sup>83</sup>

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<sup>82</sup> [http://climate.envsci.rutgers.edu/pdf/Robock-2016-Earth's\\_Future.pdf](http://climate.envsci.rutgers.edu/pdf/Robock-2016-Earth's_Future.pdf)

<sup>83</sup> <https://wattsupwiththat.com/2018/01/29/illustrating-the-failure-of-the-climate-movement-in-one-graph/>



Rather than Goldilocks solutions, the principles of S.M.A.R.T. objectives must be incorporated into all climate policy assessments.

S - specific, significant

M - measurable, meaningful

A - agreed upon, attainable, achievable, acceptable, action-oriented

R - realistic, relevant, reasonable, results-oriented

T - time-based, tangible, trackable

A full cost-benefit analysis must be done of proposed climate policies, and it is time we open up the climate policy envelope and ask:

- a) Is the 'climate catastrophe' premise founded on reliable data? We have shown there are many gaps and wild assumptions, that models and baseline data are unreliable.
- b) Is a global warming trend, while coming out of the brutal 500 years of the Little Ice Age mostly a natural cycle? Has this warming been good or bad for society?
- c) Are catastrophic claims of sea level rise concomitant with other known geological ice melt periods? Should we stop selling coastal real estate properties if society thinks this is a real risk? Can other measures, such as sea walls, be instituted to mitigate against risk? Does evidentiary data from historic sea level markers dispute claims of sea level rise?
- d) Are 'science fiction' solutions a credible part of the climate policy conversation?
- e) Can we afford the 'cure' – or is it better to continue to adapt?

- f) A global carbon law is a disastrous recipe for useless litigation based on highly questionable premises as noted above. “One-Size” does not “Fit-All” in terms of geography, weather, industry and population base.
- g) Untold billions have been spent so far – is there any measurable evaluation of the relative ‘success’ or benefit to citizens and taxpayers?
- h) What if climate change naturally does not exceed a 1.5°C rise in temperature? Will climate policies be cancelled; will there be legal or punitive action for claiming the ‘science is settled’ and refusing public debate? Are there white-collar fraud implications?<sup>84</sup>
- i) What if the solar minimum we are entering causes a new Little Ice Age? Are we prepared that climate can change either way – warmer or cooler?
- j) Should the UNFCCC and IPCC be abandoned in favor of a network of nationally governed, regional climate and weather monitoring/reporting agencies who operate, as suggested by the Dutch government, with data posted in real-time, and shared information transparently on line?
- k) Should the IPCC be required to show “Climate Leadership” by cancelling all future climate conferences? This would prevent the GHG emissions of thousands of climate agents flying to exotic spots – thus ‘walking the talk.’ Video conferencing allows for virtual meetings of almost any size today.

**In a democracy, there are many competing needs. Climate change is just one element of many.**

However, most of the signatories of the #ParisAgreement are not democracies – many are totalitarian states. Their understanding of what the COP21 and the Paris Agreement mean may be quite different than that of Canada and the developed world.

This is concerning, and the implications may be dire.

As Bjorn Lomborg has shown in his research, in most of the world, climate change is not even a consideration. People want the basics of food, shelter, work, clean water. There are many real-world problems that the existing ENGOs and climate agencies could be addressing with the trillions of dollars spent to date on ineffective ‘climate change’ policies.

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<sup>84</sup> [https://tomaswell.files.wordpress.com/2015/02/carbon\\_credit\\_fraud.pdf](https://tomaswell.files.wordpress.com/2015/02/carbon_credit_fraud.pdf)



## In Summary

The Climate Industrial Complex is built on faulty scientific, economic and energy premises.

It is time that citizens and policy-makers take a hard and critical look at what has been spent to date, what the relative benefits or negative impacts are, and how to go forward in a rational, evidence-based manner.

Humans affect climate. We do not control it.

*“Motivated by the precautionary principle to avoid dangerous anthropogenic climate change, **attempts to modify the climate through reducing CO2 emissions may turn out to be futile.** The stagnation in greenhouse warming observed over the past 15+ years demonstrates that CO2 is not a control knob on climate variability on decadal time scales. Even if CO2 mitigation strategies are successful and climate model projections are correct, an impact on the climate would not be expected for a number of decades owing to the long lifetime of CO2 in the atmosphere and thermal inertia driven by the ocean (AR5 WG1 FAQ 12.3); solar variability, volcanic eruptions and natural internal climate variability will continue to be sources of unpredictable climate surprises.”*

- Judith Curry  
Atmospheric Scientist





Friends of Science Society is an independent group of earth, atmospheric and solar scientists, engineers, and citizens who are celebrating its 16th year of offering climate science insights. After a thorough review of a broad spectrum of literature on climate change, Friends of Science Society has concluded that the sun is the main driver of climate change, not carbon dioxide (CO<sub>2</sub>).

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**Climate — Change your Mind.**  
**Is it you? Is it really CO<sub>2</sub>?**

Earth

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