

BEFORE THE UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY

In re:  
Endangerment and Cause or  
Contribute Findings for  
Greenhouse Gases Under  
Section 202(a) of the Clean Air  
Act

EPA Docket No.  
EPA-HQ-OAR-2009-01

**SEVENTH SUPPLEMENT TO PETITION FOR RECONSIDERATION OF  
“ENDANGERMENT AND CAUSE OR CONTRIBUTE FINDINGS FOR  
GREENHOUSE GASES UNDER SECTION 202(a) OF THE CLEAN AIR  
ACT”**

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## **SEVENTH SUPPLEMENT TO PETITION FOR RECONSIDERATION OF “ENDANGERMENT AND CAUSE OR CONTRIBUTE FINDINGS FOR GREENHOUSE GASES UNDER SECTION 202(a) OF THE CLEAN AIR ACT”**

Pursuant to Section 307(d) of the Clean Air Act, 42 U.S.C. § 7607(d) and 5 U.S.C. § 553(e), the Concerned Household Electricity Consumers Council (“CHECC”), consisting of Joseph D’Aleo, Clement Dwyer, Jr., Russell C. Slanover, Scott M. Univer, James P. Wallace III, Robin D. Weaver and Douglas S. Springer, hereby submit this seventh supplement to their January 20, 2017 Petition (“Petition”) to the U.S. Environmental Protection Agency (“EPA” or “the Agency”) to convene a proceeding for reconsideration of the “Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act” published by the Agency on December 15, 2009 (74 F.R. 66496, Dec. 15, 2009) (original EPA Docket No. Docket EPA-HQ-OAR-2009-171) (“the Endangerment Finding”), by submitting the following:

On January 19, 2021, then-EPA Administrator Andrew Wheeler denied the CHECC Petition.

Thereafter, on March 23, 2021, current EPA Administrator Michael S. Regan sent counsel for CHECC a letter “withdrawing the denial of your petitions as this response does not provide an adequate justification for the denial. The EPA therefore intends to reassess the petitions and to issue a new decision in due course.”

Since the Petition remains under consideration by the Agency, CHECC submits this seventh supplement to its Petition.

### **INTRODUCTION AND SUMMARY OF ARGUMENT**

There have been many recent assertions concerning fraud in peer-reviewed and published work in science—including climate. (See e.g., [GWPF Observatory, 7 May 2021](#)). All work cited here is peer-reviewed, published and purposely set up so as to be easily reproducible. No rebuttals have been received by the lead authors on any of the work cited.

Here we summarize the arguments presented below.

## **Section A: The Social Cost of CO<sub>2</sub> (SC-CO<sub>2</sub>) is Negative; CO<sub>2</sub> is a Beneficial Gas.**

1. Global Average Surface Temperature (GAST) data is a total fabrication.
2. Proof of GAST data fabrication invalidates each of the Three Lines of Evidence in the 2009 GHG Endangerment Finding.
3. Climate models are fundamentally flawed and cannot be used for attribution of global warming to rising atmospheric CO<sub>2</sub>/GHG concentration levels.
4. Climate models are fundamentally flawed since the Equilibrium Climate Sensitivity of CO<sub>2</sub> is actually zero; thus, the current SCC estimation/modeling systems, always involving such climate models linked to economic models, are also fundamentally flawed.
5. Finally, each of the Alarmist Claims when postulated as a separate falsifiable hypothesis should also be rejected.
6. That SC-CO<sub>2</sub> is less than 0 cannot be rejected. Thus, CO<sub>2</sub> is a Beneficial Gas

## **Section B: The Social Cost of Each Trace GHG Other than CO<sub>2</sub> is also Negative; therefore each Trace GHG is a Beneficial Gas**

1. The Equilibrium Climate Sensitivity (ECS) of each of the other GHGs currently subject to future emissions reduction regulation, e.g., Methane, N<sub>2</sub>O, CFCs and HFCs has been calculated incorrectly for years and is actually zero.
2. Therefore, the social cost of each trace GHG other than CO<sub>2</sub> is also negative; therefore, each is also a beneficial gas.

## **ARGUMENT**

### **A. THE SOCIAL COST OF CO<sub>2</sub> (SC-CO<sub>2</sub>) IS NEGATIVE; CO<sub>2</sub> IS A BENEFICIAL GAS**

Social Cost of Greenhouse Gases calculations (e.g., SC-CO<sub>2</sub>) are used in the policy making process to estimate the value to society of marginal reductions in greenhouse gas emissions, or conversely, the social costs of increasing such emissions. The current regulatory process assumes as a validated claim that SC-CO<sub>2</sub> is greater than 0, where the only open issue now is how much bigger than zero.

This claim is invalidated if the hypothesis that SC-CO<sub>2</sub> is less than 0 cannot be rejected; that is, that CO<sub>2</sub> is not a pollutant but rather is a beneficial gas. Following is a proof that such is the case.

#### **1. GLOBAL AVERAGE SURFACE TEMPERATURE (GAST) DATA IS A TOTAL FABRICATION.**

A peer-reviewed Climate Science Research Report entitled *On the Validity of NOAA, NASA and Hadley CRU Global Average Surface Temperature Data & The Validity of EPA's CO<sub>2</sub> Endangerment Finding, Abridged Research Report* was published in June 2017. This research was done pro bono.

The objective of this research was to test the hypothesis that these Global Average Surface Temperature (GAST) data sets are sufficiently credible estimates of global average surface temperatures such that they can be relied upon for climate modeling and policy analysis purposes. The relevance of this research is that proof of the validity of EPA's 2009 CO<sub>2</sub> Endangerment Finding requires GAST data to be a valid representation of reality.

In this research report, past changes to the previously reported historical data are quantified. It was found that each new version of GAST data has nearly always exhibited a steeper warming linear trend over its more than 100 year plus history. And, it was nearly always accomplished by each

reporting entity systematically removing the previously existing cyclical temperature pattern.

This was true for all three entities providing GAST data measurement, NOAA, NASA and Hadley CRU. As a result, this research sought to validate the current estimates of GAST using the best available relevant data.

The conclusive findings were that the three GAST data sets are not a valid representation of reality. In fact, the magnitude of their historical data adjustments which removed their cyclical temperature patterns are totally inconsistent with published and credible U.S. and other temperature data.

Thus, despite current claims of record setting warming, it is impossible to conclude from the NOAA, NASA and Hadley CRU GAST data sets that recent years have been the warmest ever.

Finally, since GAST data set validity is a necessary condition for EPA's CO<sub>2</sub> Endangerment Finding, it too is invalidated by these research findings. This means that EPA's 2009 claim that CO<sub>2</sub> is a pollutant has been decisively invalidated by this research. (See the June 2017 GAST Research Report: <https://thsresearch.files.wordpress.com/2017/05/ef-gast-data-research-report-062817.pdf> and <https://thsresearch.files.wordpress.com/2017/07/ef-gast-data-secondsupplementtopetitionfinal.pdf> )

While this research report provided ample evidence that the current officially reported GAST data are simply not credible, there is a far simpler proof of that fact that can be understood more quickly and easily. Over the period 1900-2000, there is virtually no credible surface temperature data available for at least 40% of the surface of the Earth. This follows from the fact that the Southern Hemisphere's surface is over 80% ocean ( $.50 * .80 = .40$ ), and essentially no credible temperature data were captured monthly for these vast oceans over this time period.

Hence, it never made any sense to even attempt to compute a GAST data set including this time period unless the purpose was to construct a temperature data set that could be made to have virtually any pattern over that time period that the institutions involved desired to portray as reality. In truth, with literally no credible temperature data available for well over 40%

of the Earth's surface, these institutions were only limited by what was credible to the outside world.

Thus far, not knowing these facts, most relevant parties, e.g., regulators, environmentalists, and government officials, have been far too accepting of the GAST record as a valid global temperature database. Information on these temperature data limitations, along with citations to back it up, was published as an Addendum. (See:

<https://thsresearch.files.wordpress.com/2019/05/ef-addendum-to-the-gast-research-report-012919-final-1.pdf>)

It should be noted here that scientists in other key countries have begun to seriously question the validity of the GAST data. While many people, including most climate researchers, believe it is a confirmed fact that global surface mean temperatures have been rising and setting records since Industrial Revolution, a Japanese scientist in 2019 stated that it is “not backed by demonstrable data,” further stating that the data foundation underpinning global warming science is “untrustworthy.” (See:

<https://thsresearch.wordpress.com/2019/06/21/mit-doctorate-climate-scientist-slams-gw-claims-based-on-untrustworthy-falsified-datano-scientific-value/> )

Based on these facts, GAST data is a total fabrication.

## **2. PROOF OF GAST DATA FABRICATION INVALIDATES EACH OF THE THREE LINES OF EVIDENCE IN 2009 GHG ENDANGERMENT FINDING.**

EPA's Endangerment Finding appears at 74 C.F.R., page 66,495, et seq. At page 66,518 EPA sets forth the three “lines of evidence” upon which the Agency says it has attributed “observed climate change” to “anthropogenic activities,” thus providing the basis for the finding that human GHG emissions endanger human health and welfare. More information about the nature of each of the three “lines of evidence” can be gleaned from EPA's further elaboration in the Endangerment Finding itself and the associated Technical Support Document.

The first line of evidence, according to EPA, arises from our basic physical understanding of the effects of changing concentrations of greenhouse gases, natural factors, and other human impacts on the climate system. Intrinsic to the “basic physical understanding” in the first “line of evidence” is the “greenhouse gas fingerprint” or “Tropical Hot Spot” theory, which is that in the tropics, the upper troposphere is warming faster than the lower troposphere and the lower is warming faster than the surface, all due to rising atmospheric greenhouse gas concentrations blocking heat transfer into outer space. By this mechanism, increasing greenhouse gas concentration is assumed to increase global surface temperatures.

The second line of evidence arises from direct and indirect historical estimates of past temperatures showing that the changes in global surface temperature over the last several decades are unusual. More specifically, the second “line of evidence” refers to EPA’s claim that Global Average Surface Temperatures have been rising in a dangerous fashion over the last fifty years.

The third line of evidence arises from the use of computer-based climate models to simulate the likely patterns of response of the climate system to different forcing mechanisms (both natural and anthropogenic). Hence, the third “line of evidence” consists of EPA’s reliance on climate models (not actually “evidence”) where greenhouse gases are a key determinant of global warming. EPA uses climate models for two purposes: to “attribute” warming to human-caused GHG emissions, and to set regulatory policy for such emissions based on their modeled impact on global temperatures.

See <https://thsresearch.files.wordpress.com/2017/04/ef-epa-petitionforreconsiderationof-ef-final-1.pdf>, pages 8-9.

The assumption that Global Average Surface Temperature Data is a valid representation of reality is critical to all three lines of evidence in EPA’s GHG/CO<sub>2</sub> Endangerment Finding. This may be easily seen by reviewing in this context each line of evidence as defined above. Stated simply, first, the Tropical Hot Spot (THS) is claimed to be a fingerprint or signature of atmospheric and Global Average Surface Temperatures (GAST) warming



caused by increasing GHG/CO<sub>2</sub> concentrations.<sup>1</sup> If the GAST is invalid, no such proof is possible.

Second, higher atmospheric CO<sub>2</sub> and other GHG concentrations are claimed to have been the primary cause of the claimed record setting GAST over the past 50 years or so – when viewed in a past 120+ year context. Validation of this second Line of Evidence obviously also requires valid GAST data.

Third, climate models are claimed by EPA to be valid for policy analysis purposes, that is, their predictions of the impact of rising CO<sub>2</sub> concentration levels on future GAST levels are claimed to be credible. Thus, GAST is the critical (dependent) variable in all the climate models that EPA has relied upon. These climate models are also critical to the Social Cost of Carbon (SCC) estimates used to justify a multitude of regulations across U.S. Government agencies. **But all climate models which are tuned to fit fabricated GAST data have clearly been invalidated.**

Note that these are the climate models and the associated 2009 GHG Endangerment Finding that EPA relied upon in its policy analysis supporting, for example, its Clean Power Plan - which actually required a new Stationary Source Endangerment Finding. **Invalidation of the 2009 Endangerment Finding invalidates all subsequent EPA Findings in that they all rely on the validity of the 2009 Finding.** (See [CHECC CPP ANPRM Replacement Comment FINAL to EPA 022618](#), page 6)

To summarize, first, surface temperature records are one of EPA's three lines of evidence upon which it relies to attribute observed warming to human GHG emissions. Second, valid and reliable temperature records of long duration are a logical prerequisite to forming the "basic physical understanding" of climate, and third, to developing and validating climate models. (See, e.g., U.S. Climate Change Science Program, Synthesis and Assessment Product 1.3, § 1.3.2, p. 9; § 3.1.2, pp. 53-54 describing logical

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<sup>1</sup> See [http://icecap.us/images/uploads/ImportanceoftheHotSpot\\_093016\\_.pdf](http://icecap.us/images/uploads/ImportanceoftheHotSpot_093016_.pdf)

See also U.S. Climate Change Science Program, Synthesis and Assessment Product 1.1, Temperature Trends in the Lower Atmosphere - Understanding and Reconciling Differences, Chapter 1, p. 18-19, [https://www.gfdl.noaa.gov/bibliography/related\\_files/vr0603.pdf](https://www.gfdl.noaa.gov/bibliography/related_files/vr0603.pdf)

dependence of the physical understanding of climate, modeling and attribution on accurate temperature records.) It is therefore inescapable that if the GAST products from NOAA, NASA and Hadley CRU are invalid, then both the “basic physical understanding” of climate and the climate models themselves will also be invalid. (See <https://thsresearch.files.wordpress.com/2017/07/ef-gast-data-secondsupplementtopetitionfinal.pdf>, page 2)

**Clearly, if GAST data is not valid, neither is the 2009 GHG Endangerment Finding nor any subsequent GHG Findings.**

### **3. THE CLIMATE MODELS ARE FUNDAMENTALLY FLAWED AND CANNOT BE USED FOR ATTRIBUTION OF GLOBAL WARMING TO RISING ATMOSPHERIC CO<sub>2</sub>/GHG CONCENTRATION LEVELS.**

Argument 2 above alone invalidates all climate models that are tuned to explain the (now proven to be) fabricated GAST data – which is essentially all models cited by IPCC. EPA’s climate model attribution claim is that analysts cannot tune/fit their climate models to GAST data without adding CO<sub>2</sub> as an explanatory variable. But this is not a valid mathematical proof - **even if the GAST data were a perfect reflection of reality.** (See <https://thsresearch.files.wordpress.com/2017/05/ef-checc-suppl-pfr-of-ef-050817-final.pdf>, pages 3-7)

To prove that changes in atmospheric CO<sub>2</sub> concentration levels have had a statistically significant positive impact on the Earth’s atmospheric or surface temperatures, the proper mathematical methods must be utilized by the analysts. Using such tools, new climate research findings were published in April 2017 entitled: On the Existence of a “Tropical Hot Spot” & The Validity of EPA’s CO<sub>2</sub> Endangerment Finding Abridged Research Report, Second Edition. (See <https://thsresearch.files.wordpress.com/2017/04/ef-data-research-report-second-editionfinal041717-1.pdf>. Pages 7-12 discuss proper structural analysis methods in the climate context.)

This peer-reviewed Climate Science Research Report has proven that it is all but certain that EPA’s basic claim that CO<sub>2</sub> is a pollutant is totally false. All research was done pro bono.

Using proper mathematical methods, this research failed to find that the steadily rising atmospheric CO<sub>2</sub> concentrations have had a statistically significant impact on any of the 14 temperature data sets that were analyzed. It should be noted here that every effort was made to minimize complaints that this analysis was performed on so-called “cherry picked temperature time series.”

To avoid even the appearance of such activity, the authors divided up responsibilities, where Dr. John Christy of UAH was tasked to provide a tropical temperature data set that he felt was most appropriate and credible for testing the THS hypothesis. The structural analysis was done by Jim Wallace & Associates, LLC, and when completed, cross-checked by others with the required structural analysis skills. Moreover, the authors have made it quite simple for other analysts to cross check this work in that the report contains the summary output from literally all the quoted structural analysis results and all of the data used in the analysis can be obtained by reaching out to the authors.

The tropospheric and surface temperature data measurements that were analyzed were taken by many different entities using balloons, satellites, buoys and various land-based techniques. Needless to say, if, regardless of data source, the analysis results are the same, the analysis findings should be considered highly credible. These research findings rigorously confirmed the results of two previous papers. (See [https://thsresearch.files.wordpress.com/2020/01/kiss\\_paper\\_08\\_07\\_10\\_fin\\_aljptf\\_rev\\_jpfinalfooter.pdf](https://thsresearch.files.wordpress.com/2020/01/kiss_paper_08_07_10_fin_aljptf_rev_jpfinalfooter.pdf) and <https://thsresearch.files.wordpress.com/2017/04/ef-epa-petitionforreconsiderationof-ef-final-1.pdf> )

The Report’s analysis results invalidate EPA’s CO<sub>2</sub> Endangerment Finding, including the climate models that EPA has claimed can be relied upon for policy analysis purposes. These results amply demonstrate that CO<sub>2</sub> is not a required explanatory variable. Instead, these research results clearly demonstrate that once the solar, volcanic and oceanic activity, that is, natural factor impacts on temperature data are accounted for, there is no “record setting” warming to be concerned about. **In fact, there is no Natural Factor-Adjusted Warming at all.**

There is one more important point to make as to why climate models are such a dismal failure in fit and forecasting. Embedded in every climate model is the Tropical Hot Spot theory which requires rising atmospheric CO<sub>2</sub> concentration to impact tropical atmospheric and surface temperatures in a specific, statistically significant fashion. The results from this research (see pages 46-48) are as follows:

Adjusting for just the Natural Factor impacts, **NOT ONE** of the Nine (9) Tropical temperature time series analyzed above were consistent with the EPA's THS Hypothesis.

That is, adjusting for just the Natural Factor Impacts over their entire history; all nine time series of tropical temperature data analyzed above have non-statistically significant trend slopes – which invalidates the THS theory. Moreover, CO<sub>2</sub> did not even come close to having a statistically significant impact on a single one of these temperature data sets. The generic model worked extremely well in all 9 cases from an econometric structural analysis standpoint. It delivered a highly credible set of consistent research results that invalidate the THS theory, and with it what EPA claims to be the basic physical understanding of climate.

Note that this THS Invalidation process was carried out totally independent of the GAST data fabrication issue.

The authors of this report claim that there is no published, peer-reviewed, statistically valid proof that past increases in atmospheric CO<sub>2</sub> concentrations have caused the officially reported rising, even claimed record setting temperatures. And, EPA's climate models fail to meet this Attribution Modeling/Structural Analysis test.

More recently, in May 2018, a peer-reviewed "Comment on 'Examination of space-based bulk atmospheric temperatures used in climate research' by Christy et al.," Research Report, Third Edition was published and also submitted to EPA. This report is available at [EF DATA Comment on Christy et al Paper Final 042818V4](#) and the EPA submission at <https://thsresearch.files.wordpress.com/2021/05/ef-6th-supplement-to-checc-petition-for-reconsideration-of-2009-endangerment-finding.pdf>.

This research was carried out using as its temperature data the UAH TLT 6.0 atmospheric temperature data gathered via satellite. UAH data has been clearly shown to be the very best data available.<sup>2</sup> This research involved the use of the mathematical methods specifically designed for structural analysis of time series data. The results validated that increasing atmospheric CO<sub>2</sub> concentrations did not have a statistically significant impact on the UAH TLT 6.0 temperature data set over the period 1979 to 2016.

In fact, this Research Report demonstrated that there was a “Pause” in the UAH TLT temperature trend increases over the 1995 to 2016 period. This is a time period over which atmospheric CO<sub>2</sub> concentrations increased by over 12.0%. However, once again, the entire temperature data pattern was explained very well by the natural factors of solar, volcanic and oceanic activity.

Furthermore, based on a well-known solar activity forecast (Abdussamatov 2015<sup>3</sup>) and specific assumptions on the other natural explanatory variables (i.e., volcanic and oceanic activity), this research also provides a long-term forecast, which so far is tracking well, that UAH TLT temperatures are very likely to exhibit a declining trend from 2016 through 2026 at the least.

Importantly, the Research Report also points out that, even if the UAH temperature data had happened to have had a statistically significant downward sloping linear trend, it would not have guaranteed that CO<sub>2</sub> had not had a statistically significant positive impact on temperature. It simply would have required the use of the proper mathematical tools to obtain the statistical results to have proved it. This mathematical fact is why all of the focus on the magnitude of the slope of linear temperature trends by most climate scientists makes no sense to analysts experienced in mathematically proper structural analysis methods.

This report also states that in conclusion, 1) no scientists have yet devised an empirically validated theory proving that higher atmospheric CO<sub>2</sub> levels

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<sup>2</sup> See: <https://www.tandfonline.com/doi/full/10.1080/01431161.2018.1444293>

<sup>3</sup> See:

[http://www.doiserbia.nb.rs/\(X\(1\)A\(O911W9Dm0gEkAAAANjcxNWQ2NGEtM2ExNy00MTkwLWI3YTgtYTQ1N2QzMzI1NzqxAg7CGrxyf6\\_S075rvy0gkboWe-c1\)\)/img/doi/0354-9836/2015/0354-98361500018A.pdf](http://www.doiserbia.nb.rs/(X(1)A(O911W9Dm0gEkAAAANjcxNWQ2NGEtM2ExNy00MTkwLWI3YTgtYTQ1N2QzMzI1NzqxAg7CGrxyf6_S075rvy0gkboWe-c1))/img/doi/0354-9836/2015/0354-98361500018A.pdf), page S282

have led to higher global temperatures, and 2) if the causal link between higher atmospheric CO<sub>2</sub> concentrations and higher temperatures is broken, then EPA's assertions that higher CO<sub>2</sub> concentrations also cause sea-level increases and more frequent and severe storms, floods, and droughts and other deleterious effects on human health and welfare are also disproved. Such causality assertions by EPA require a validated theory that higher atmospheric CO<sub>2</sub> concentrations cause increases in temperatures.

The merits of the structural analysis methods used in this Research Report and its predecessors versus those used to develop the climate models relied upon in EPA's CO<sub>2</sub> Endangerment Finding become more obvious every day, the explanation for which has been further discussed in highly relevant Congressional Testimony, quoted<sup>4</sup> below:

The advantage of the simple statistical treatment [used herein] is that the complicated processes such as clouds, ocean-atmosphere interaction, aerosols, etc., are implicitly incorporated by the statistical relationships discovered from the actual data. Climate models attempt to calculate these highly non-linear processes from imperfect parameterizations (estimates) whereas the statistical model directly accounts for them since the bulk atmospheric temperature is the response-variable these processes impact. It is true that the statistical model does not know what each sub-process is or how each might interact with other processes. But it also must be made clear: it is an understatement to say that no IPCC climate model accurately incorporates all of the nonlinear processes that affect the system. I simply point out that because the model is constrained by the ultimate response variable (bulk temperature), these highly complex processes are included.

The fact that this statistical model explains [as much as] 75-90 percent of the real annual temperature variability, depending on dataset, using these influences (ENSO, volcanoes, solar) is an indication the statistical model is useful. ... This result promotes the conclusion that this approach achieves greater scientific (and policy)

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<sup>4</sup> U.S. House Committee on Science, Space & Technology, 29 Mar 2017, Testimony of John R. Christy, pages 10-11, Professor of Atmospheric Science, Alabama State Climatologist, University of Alabama in Huntsville

utility than results from elaborate climate models which on average fail to reproduce the real world's global average bulk temperature trend since 1979.

The enormous advantages of the mathematically proper structural analysis methodology used in this research and its predecessors over the methodology used in developing the climate models relied upon in EPA's CO<sub>2</sub> Endangerment Findings become more obvious every day.

Clearly, the climate models are fundamentally flawed and cannot be used for attribution of global warming to rising atmospheric CO<sub>2</sub>/GHG concentration levels.

**4. CLIMATE MODELS ARE FUNDAMENTALLY FLAWED SINCE THE EQUILIBRIUM CLIMATE SENSITIVITY OF CO<sub>2</sub> IS ACTUALLY ZERO. THEREFORE, THE SCC ESTIMATION/MODELING SYSTEMS, WHICH ALWAYS LINK SUCH CLIMATE MODELS TO ECONOMIC MODELS, ARE ALSO FUNDAMENTALLY FLAWED.**

The TSD (Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, Interagency Working Group on Social Cost of Carbon, United States Government, February 2010), at page 4, gives information on the key assumptions from which the SCC estimates have been derived.

From this document, it is clear that the SCC values that have been derived from this process were critically dependent on a key parameter, the so-called Equilibrium Climate Sensitivity (ECS). For this parameter to be non-zero requires a proof that rising atmospheric CO<sub>2</sub> concentration have had a statistically significant impact on global temperatures. (See [https://archive.ipcc.ch/publications\\_and\\_data/ar4/wg1/en/ch8s8-6-2.html](https://archive.ipcc.ch/publications_and_data/ar4/wg1/en/ch8s8-6-2.html))

However, from Arguments 1-3 above, no scientists have yet devised an empirically validated theory proving that rising atmospheric CO<sub>2</sub> levels have had a statistically significant impact on global temperatures.

Hence, for CO<sub>2</sub>, the Best Estimate of Equilibrium Climate Sensitivity (ECS) is zero.<sup>5</sup> Of course, this will mean that all SCC estimation/modeling systems would have to forecast no economic impact from continued increases in atmospheric CO<sub>2</sub> concentrations. Thus, current SCC estimation/modeling systems, relying on flawed climate models linked to economic models, are themselves all fundamentally flawed.

Moreover, as stated in Argument 3, if the causal link between higher atmospheric CO<sub>2</sub> concentrations and higher temperatures is broken, then EPA's economic impact-related alarmist claims that higher atmospheric CO<sub>2</sub> concentrations also cause sea-level increases and more frequent and severe storms, floods, and droughts, etc. are all also disproved. Such causality assertions by EPA require a validated theory that higher atmospheric CO<sub>2</sub> concentrations cause increases in temperatures.

**5. WHEN POSTULATED AS SEPARATE FALSIFIABLE HYPOTHESES, EACH OF THE ALARMIST CLAIMS IS REJECTED.**

If the causal link between higher atmospheric CO<sub>2</sub> concentrations and higher global average surface temperature ("GAST") is broken by invalidating each of EPA's three lines of evidence, then EPA's assertions that higher CO<sub>2</sub> concentrations also cause loss of Arctic ice,<sup>6</sup> sea-level

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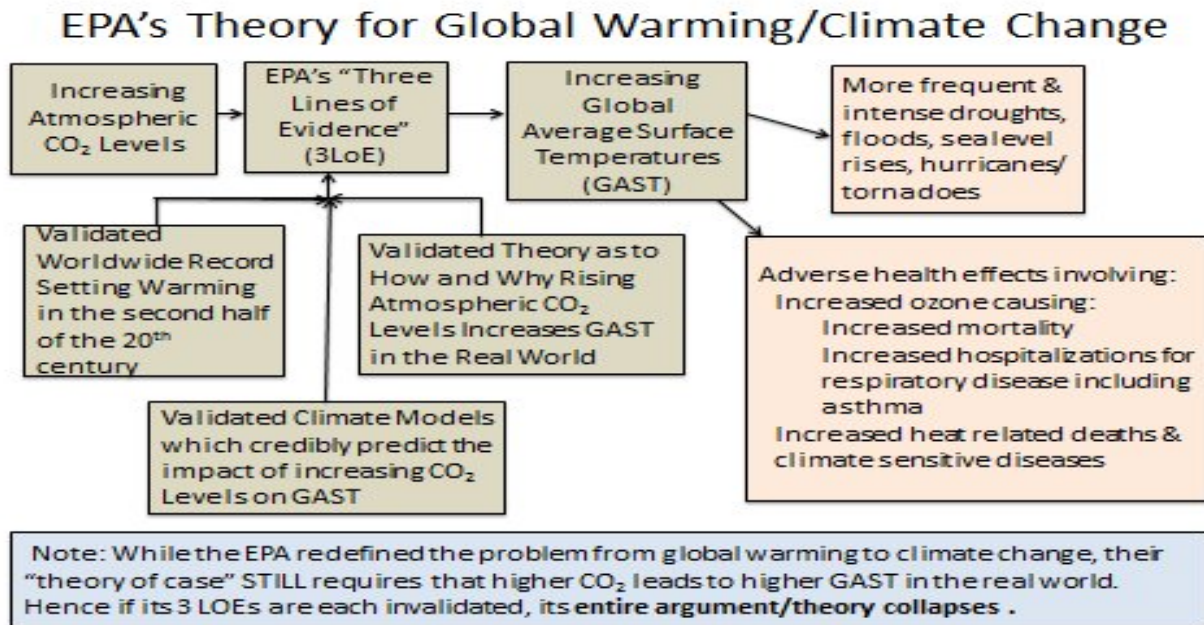
<sup>5</sup> This statement is based on the fact that all of the structural analysis findings cited above found the impact of rising atmospheric CO<sub>2</sub> concentration on temperature to be not statistically significant; that is, either quite small positive or quite small negative. Thus, for policy analysis purposes, the appropriate current estimate is zero.

<sup>6</sup> Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act ("TSD"), pp. ES-4 ("Sea ice extent is projected to shrink in the Arctic under all IPCC emissions scenarios") See *also id.* at pp. 52; 73



increases<sup>7</sup> and more frequent severe temperatures,<sup>8</sup> storms,<sup>9</sup> floods,<sup>10</sup> and droughts<sup>11</sup> are also necessarily disproved. (See <https://thsresearch.files.wordpress.com/2018/03/ef-cpp-fifth-supplement-to-petition-for-recon-final0d0a-020518-3.pdf>)

EPA's faulty chain of reasoning is depicted in the Figure below.



Such causality assertions require a validated theory that higher atmospheric CO<sub>2</sub> concentrations cause increases in GAST and in turn cause these other phenomena. Lacking such a validated theory, EPA's conclusions cannot stand. In science, credible empirical data always trump

<sup>7</sup> *Id.* at p. ES-4 (“By the end of the century, global average sea level is projected by IPCC to rise between 7.1 and 23 inches.”); *See also id.* at 52,73.

<sup>8</sup> *Id.* at pp. ES-4 (“It is very likely that heat waves will become more intense, more frequent, and longer lasting in a future warm climate, whereas cold episodes are projected to decrease significantly.”); *See also id.* at pp. 44-45; 73-74.

<sup>9</sup> *Id.* at ES-4 (“It is likely that hurricanes will become more intense”).

<sup>10</sup> *Id.* at ES-4 (“Intensity of precipitation events is projected to increase in the United States and other regions of the world. More intense precipitation is expected to increase the risk of flooding.”)

<sup>11</sup> *Id.* at p. ES-6 (Reduced snowpack, earlier spring snowmelt, and increased likelihood of seasonal summer droughts are projected in the Northeast, Northwest, and Alaska. More severe, sustained droughts and water scarcity are projected in the Southeast, Great Plains, and Southwest.”); 45-46; 73-74.

proposed theories, even if those theories are claimed to (or actually do) represent the current consensus.

Thus, to be absolutely sure such alarmist claims are not true for some other reason, the scientific method must be applied to test each separate alarmist claim by specifying it as a falsifiable hypothesis and testing each claim using the most credible, relevant empirical data. This process has yet to yield a non-falsified claim. The alarmist claim rebuttal analysis results of this ongoing process are shown below.

### **Climate Alarmist Claim Fact Checks - May 21, 2021.**

Below are a series of fact checks of the 13 most common climate claims such as those made in the recently released Fourth National Climate Assessment Report. The authors of these reviews are all recognized experts in the relevant fields. For each claim, a summary of the relevant rebuttal is provided below along with a link to the full text of the rebuttal, which includes the names and the credentials of the authors of each rebuttal, all of which is incorporated herein by reference.

Claims the globe has experienced the [warmest ever](#) month or year are totally unsupported by any credible analysis of raw global surface temperature data and its availability. Moreover, the invalidation of Global Average Surface Temperature Data by itself invalidates the EPA 2009 GHG/CO<sub>2</sub> Endangerment Finding as well as the subsequent EPA Findings' claimed link between rising atmospheric CO<sub>2</sub> concentrations and the other climate alarmist claims – which are also independently invalidated below by relevant empirical data. Thus, all such climate alarmist claims are in reality just politically driven fictions.

[Heat Waves](#) - have been decreasing since the 1930s in the U.S. and globally.

[Hurricanes](#) - the decade just ended as the second quietest for landfalling hurricanes and landfalling major hurricanes in the U.S since the 1850s. 2020 saw a record 30 named storms and many Gulf impacts like the quiet solar periods in the late 1800s and this century, but the ACE index ranked 13th highest. See 2020 Update showing similarities to late 1800s [here](#) and global contrasts [here](#).

[Tornadoes](#) - the number of strong tornadoes has declined over the last half century. More active months occur when unseasonable cold spring patterns are present.

[Droughts and Floods](#) - there have been no statistically significant trends.

[Wildfires](#) - decreasing since the very active 1800s. The increase in damage in recent years is due to population growth in vulnerable areas and poor forest management. See Australia Wildfire story [here](#). See this analysis that shows how public lands are ablaze but private lands are not because they are properly managed [here](#).

[Snowfall](#) - has been increasing in the fall and winter in the Northern Hemisphere and North America with many records being set.

[Sea level](#) - the rate of global sea level rise on average has fallen by 40% the last century. Where today, the rate is increasing - local factors such as land subsidence are to blame. See how sea level trends are being adjusted [here](#).

[Arctic, Antarctic and Greenland Ice](#) - the polar ice varies with multidecadal cycles in ocean temperatures. Current levels are comparable to or above historical low levels. Arctic ice returned to higher levels with a very cold winter in 2019/20. Ice was highest level since 2013. See update [here](#) on the AMO, PDO ocean cycles, the Solar and Arctic temperatures.

[Ocean Acidification](#) - when life is considered, ocean acidification (really slightly reduced alkalinity) is a non-problem, or even a benefit.

Carbon Pollution as a [health hazard](#) - carbon dioxide (CO<sub>2</sub>) is an odorless invisible trace gas that is plant food and it is essential to life on the planet. CO<sub>2</sub> is not a pollutant. The [EPA reports](#) between 1970 and 2019, the combined emissions of the six common real pollutants (PM2.5 and PM10, SO<sub>2</sub>, NO<sub>x</sub>, VOCs, CO and Pb) dropped by 77 percent.

Climate change is [endangering food supply](#) - the vitality of global vegetation in both managed and unmanaged ecosystems is better off now than it was a hundred years ago, 50 years ago, or even a mere two-to-three decades ago thanks in part to CO<sub>2</sub>.

There is a [97% consensus](#) that climate change is man-made - a 97% consensus is a convenient fiction meant to bypass the scientific method

and sway public opinion and drive societal changes and policies that support political agendas.

**6. ONE CANNOT REJECT THAT SC-CO<sub>2</sub> IS LESS THAN 0. THEREFORE, CO<sub>2</sub> IS A BENEFICIAL GAS**

This conclusion must be reached because based on Arguments 1-5 above, there has been no validation of the claims that rising atmospheric CO<sub>2</sub> levels have imposed any costs whatsoever on human health and welfare through any known mechanism and certainly not by causing record setting Global Average Surface Temperatures. In fact, independent of that now disproven mechanism, nothing truly unusual has been going in the Earth's Climate System over the last 100 plus years. The Alarmist's Claims have all been falsified.

So, there are no supposed *higher temperature-driven* costs, but the benefits of rising atmospheric CO<sub>2</sub> levels on plant growth and the reduced costs of feeding the Earth's growing population are clearly enormous. The vitality of global vegetation in both managed and unmanaged ecosystems is better off now than it was a hundred years ago, 50 years ago, or even a mere two-to-three decades ago thanks in part to rising CO<sub>2</sub> levels. For proof see the "Food Supply" Claim in Argument 5 above.

Thus, CO<sub>2</sub> is a Beneficial Gas having a negative SC-CO<sub>2</sub>.

**B. THE SOCIAL COST OF EACH TRACE GHG OTHER THAN CO<sub>2</sub> IS ALSO NEGATIVE; THEREFORE, EACH TRACE GHG IS A BENEFICIAL GAS.**

- 1. THE EQUILIBRIUM CLIMATE SENSITIVITY OF EACH OF THE OTHER GHGS CURRENTLY SUBJECT TO FUTURE EMISSIONS REDUCTION REGULATION, E.G., METHANE, N<sub>2</sub>O, CFCs AND HFCs, HAS BEEN CALCULATED INCORRECTLY FOR YEARS AND IS ACTUALLY ZERO.**

While it is beyond the scope of this analysis to go into detail here, a major error in climate modeling to date has been that the climate impact of the most important GHG by far, water, has been modeled almost as an afterthought. This has been true even though, on a molecular level, all GHGs from the standpoint of their backradiation potential are very much alike.

Considering how molecules stretch, bend and rotate, all the polyatomic atmospheric molecules behave in roughly the same way. The probability of a molecule absorbing a photon is characterized by its *cross-section*, and all the cross-section values lie within about one order of magnitude of each other. That factor is relevant when making a molecule-to-molecule comparison of GHGs.

However, the amount of each of these GHGs in the atmosphere varies enormously. Water can be estimated at about 15,000 ppm. Among the *trace gases*, CO<sub>2</sub> is currently about 418 ppm; CH<sub>4</sub> is around 1.7 ppm; and N<sub>2</sub>O is below 0.1 ppm. The assorted CFCs and HFCs (Freons) are even much less populous.

The absorption bands of both CH<sub>4</sub> and N<sub>2</sub>O are located around 7.6 microns (1350 cm<sup>-1</sup>), where there is very little energy being emitted by the surface of the earth. More important, both their bands are completely overlapped by the wide absorption band of H<sub>2</sub>O. What this means in practice is that any photon that CH<sub>4</sub> or N<sub>2</sub>O might be eligible to catch on its way out into space has already been captured by H<sub>2</sub>O. From an infrared radiation point of view, those two gases are just a very tiny blip within the water spectrum.

Calculations of infrared radiation out from the upper atmosphere by each gas have been carried out by Van Wijngaarten and Happer, and then compared with actual observations from satellites in space.<sup>12</sup> The agreement – across the entire infrared -- is stunning. On graphs of the data, lines drawn using green or red ink allow close scrutiny to reveal the extremely tiny contribution of N<sub>2</sub>O and CH<sub>4</sub> to impeding infrared radiation heading into space. *Id.*, fig. 4 This means those gases make only a tiny contribution to backradiation to warm the planet. (See also <https://thsresearch.files.wordpress.com/2019/05/ef-icecap-methane-real-story-r5.pdf> )

Additional calculations by van Wijngaarten and Happer with the amounts of each gas in the atmosphere varied show the importance of such changes. *Id.*, and fig. 5. Impacts of variations in CH<sub>4</sub> or N<sub>2</sub>O are both of no consequence. Only changes in CO<sub>2</sub> concentration levels from its current level of around 400 ppm show any perceptible impacts: completely eliminating CO<sub>2</sub> causes an obvious change implying cooling; while cutting CO<sub>2</sub> in half from current levels has only a very slight effect; and the impact of doubling CO<sub>2</sub> from current levels is likewise difficult to detect. These facts are entirely consistent with the many structural analyses cited above (see Section 2, Argument 3) finding that the modern increases in CO<sub>2</sub> have not had a statistically significant impact on global temperatures - even given the 27% plus increase in atmospheric CO<sub>2</sub> concentration since 1959.

The above facts notwithstanding, a calculation method devised by the IPCC over a decade ago, but still used by EPA today, was designed to obtain a number called the “Global Warming Potential” of other trace GHG molecules compared to carbon dioxide. The idea was to compare the impact on temperature, say its Equilibrium Climate Sensitivity (ECS), of a marginal change in gas A to the *same amount of ppm change* in CO<sub>2</sub>. The increase in absorption potential of gas A was in the numerator, the change in CO<sub>2</sub> absorption potential in the denominator. But since the concentration of CO<sub>2</sub> is already well over 400 ppm, there is only a very tiny change in

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<sup>12</sup> See Methane and Climate, By W. A. van Wijngaarden and W. Happer, CO2 Coalition, 2020 [http://co2coalition.org/wp-content/uploads/2019/11/MethaneClimate\\_WijnGaardenHapper.pdf](http://co2coalition.org/wp-content/uploads/2019/11/MethaneClimate_WijnGaardenHapper.pdf)

absorption potential associated with changing CO<sub>2</sub> concentration by 1 ppm. As a result, the number in the denominator is extremely small.

When the number for gas A, say, is divided by a tiny denominator for CO<sub>2</sub>, the quotient will be very large. But that number is called the Global Warming Potential (GWP) of gas A. It will always be very large, whether for CH<sub>4</sub> or N<sub>2</sub>O or any Freon. And, assuming its absorption spectra is not already overwhelmed by H<sub>2</sub>O, the smaller the amount of gas A in the atmosphere, the less saturated its absorption spectra, and the higher the absorption potential of an increase in concentration, yielding an even higher GWP. Clearly, this GWP number is meaningless in this context, and must never be used to guide any climate policy. For example, it implies the

$$\text{Equilibrium Climate Sensitivity of CH}_4 \text{ (ECS}_{\text{CH}_4}\text{)} = \text{GWP}_{\text{CH}_4} * \mathbf{ECS}_{\text{CO}_2}$$

which, if ECS<sub>CO<sub>2</sub></sub> were positive, would grossly overstate the impact of changes in the atmospheric concentrations of these trace GHGs on the Earth's surface temperatures. However, the proper values of GWP for all these other GHGs are actually irrelevant to the issue at hand.

Since the ECS<sub>CO<sub>2</sub></sub> variable in the equation above has been demonstrated in Section 2, Arguments 1-4 above to be zero, then by this formula the ECS of all trace GHGs must also be zero. Moreover, quite independent of this "proof", based on the physics discussed in the paper cited above, there is no reason to expect otherwise.

Thus, the ECS of all trace GHGs must also be zero.

## **2. THE SOCIAL COST OF EACH TRACE GHG OTHER THAN CO<sub>2</sub> IS ALSO NEGATIVE; THEREFORE, EACH IS ALSO A BENEFICIAL GAS.**

The argument here can be made quite simply. First, it has been shown in Argument 1 that all of these trace GHGs have ECS = 0. This means that the changes in the concentrations in any or all of these trace gases can be expected to not have a measurable impact on the Earth's surface temperatures. Thus, there is no scientifically justifiable expectation of associated temperature-related costs to society.

Second, all of these trace gases, to the extent they end up in the atmosphere, do so because of processes that clearly provide economic benefits to society or they would not go on. The uses of all of these gases all derive from their value in the competitive marketplace and the benefits from their current use are obvious in the enormous demand for their related products and services.

Thus, the social cost of each trace GHG other than CO<sub>2</sub> is also negative; therefore, each is also a beneficial gas.

### **C. RECOMMENDATIONS BASED ON SCIENCE ARGUMENTS.**

In short, based on the sum total of the eight validated arguments above, the currently contemplated SCC estimates are not only worthless; they are extremely dangerous to put forward to current U.S. energy, economic and national security-related policymakers as credible input to their analyses.

As clearly demonstrated by this body of research findings, climate alarmism has no basis in science. This alarmism is all driven and supported by fabricated temperature data as well as mathematical climate modeling and analytical incompetence. Motives of key scientists and other key players will be left to others to sort out.

Based on the easily reproducible, peer-reviewed and published research cited herein, climate science now finds that there is no mathematically valid proof that past increases in atmospheric GHG concentrations have caused the officially reported global warming over the last 50 years or so.

Therefore, there is no proof of any social costs related to such GHG emissions.

In fact, these GHG emissions are beneficial to society no matter what processes by which they might occur. Typically, if the efficiency of the particular process involved can be improved, such GHG emissions will automatically be reduced through action by a competitive marketplace. If not, there is no cost to society in any case.

Finally, on-going fact checks of the 13 most common climate alarmist claims have consistently validated that absolutely nothing unusual is going on with the Earth's climate system. In the considerable research cited,



changes in the Earth's temperature have been shown to be readily explained by natural factors involving solar, volcanic and oceanic activity.

These findings strongly suggest that America and its allies have already made extremely severe climate policy errors, the negative impacts of which will only grow exponentially. By taking these erroneous climate and energy policy actions, America is rapidly destroying its energy security to the detriment of its economic and national security but to the great benefit of all three of its major enemies: China, Russia and Iran. This must stop immediately and America must now reverse course quickly – taking the following action:

All efforts by state and federal governments to subsidize in any way the use of any renewable energy sources must be immediately terminated.

All current state and federal as well as private (e.g., financial) sector efforts to inhibit the finding, production and use of all fossil fuels must be immediately terminated.

All U.S. government action and funding at all levels to take steps to regulate the emissions of all GHGs must be immediately terminated – since they are all beneficial gases. Regulation of Criteria Pollutants under the CAA has been very successful and must be continued.

America must stay out of the Paris Agreement and encourage its key allies to get out if they are in it.

This new information on climate science must be widely publicized via every possible credible channel targeting today's relevant audiences, including: key federal and state leadership, financial, fossil fuel and auto sector leadership as well as key media outlets.

The utter lunacy of America's Federal Government leadership continuing to take the unsuspecting American people on this ride over a cliff would certainly seem to be outrageous behavior on the part of those who know, or should know, the facts. Many of these key facts, e.g., the GAST data fabrication, have been provided to high level officials years ago without result. For the sake of all Americans, we pray that recipients of this transmission will behave differently.