

June 5, 2017

Dr. David T. Crowther
President
National Science Teachers Association
1840 Wilson Blvd.
Arlington, VA, 22201

Dear Dr. David T. Crowther,

As a member of the United States Senate's Committee on Health, Education, Labor and Pensions and Committee on Environment and Public Works, I want to alert you to factually inaccurate and scientifically unsound materials on climate change that are reportedly being sent to public school science teachers and college professors across America.

The information was sent by the Heartland Institute, an industry-funded front group that once compared climate scientists to the Unabomber. The mailing includes a report by the so-called "Nongovernmental International Panel on Climate Change" (NIPCC). This is another front group, designed to mimic the Intergovernmental Panel on Climate Change (IPCC). The "NIPCC" "report" and other materials come in an envelope with a printed headline from "*Environment & Climate News*" reporting "Study: Science Teachers Giving Unbalanced Education on Climate Change." "*Environment and Climate News*" is not a news outlet but the Heartland Institute's own newsletter.

The Heartland Institute is an industry-backed front group. The materials it is promoting have been discredited by scientific experts.

For decades, the Heartland Institute has played a prominent role disseminating "alternative facts" and fake science for industry funders. In the 1990s, it teamed up with Philip Morris to challenge the facts about the health risks of tobacco. Using the same strategies, the Heartland Institute has been supported by the Koch family foundations, ExxonMobil and other fossil fuel interests to undermine the scientific consensus about climate change.

Phony climate science books like "Why Scientists Disagree about Global Warming" are often used by groups like Heartland to put a veneer of legitimacy on their efforts. Professor Riley Dunlap of Oklahoma State University found that nearly 90 percent of climate-denial books published between 1982 and 2010 had ties to fossil-fuel-funded "think tanks" like the Heartland Institute. The three "experts" who wrote the NIPCC report do not have degrees in climate change modeling or climate science and all authors have been paid by Heartland.¹ Credible outside climate research groups, think tanks, and media organizations have debunked claims

¹ See DeSmogBlog profiles of S. Fred Singer, Bob Carter, and Craig Idso (online at <https://www.desmogblog.com/s-fred-singer>; <https://www.desmogblog.com/bob-carter>; <https://www.desmogblog.com/craig-idso>).

made by the NIPCC report.² The Heartland Institute repeatedly shows up in the work of academicians and researchers who study the phenomenon of industry funded “climate denial.”³

Climate change science is settled.

While there are legitimate differences of opinion about what should be done about climate change and about variations in the forecasts of climate change and effects in years ahead, the fact that human-caused climate change is occurring is not the subject of ongoing, legitimate scientific debate. In the vein of the infamous tobacco industry statement, “Doubt is our product,” the fossil fuel industry suggesting the “possibility” of ongoing scientific debate is simply another move in the industry playbook to undermine legitimate science. Because of the financial stakes behind industry science denial, and the communications advantages propaganda has over real science, this is a real problem for institutions that cherish and support real science.

The science that deniers like the Heartland Institute try to undermine dates back to the 1800s and is a regular subject in our classrooms. In 1824, French scientist Joseph Fourier explained that Earth’s temperature would be much lower if the planet lacked an atmosphere, providing one of the first descriptions of the greenhouse effect. In 1861, the same year President Lincoln took office, Irish physicist John Tyndall described the trace components of the atmosphere that were responsible for the greenhouse effect, including carbon dioxide, methane, and water vapor. In 1896, Swedish scientist Svante Arrhenius published the first calculation of global warming due to the addition of carbon dioxide from the burning of fossil fuels.

Changes to our climate today are measured using methods that are fundamentally the same as what we teach our students in science class. In our oceans, for example, the consequences of human-driven carbon pollution are evident through sea level rise, warming ocean temperatures, and ocean acidification. The tools we use to measure these changes are just more sophisticated versions of the yard sticks, thermometers, and pH test kits readily found in any high school science lab around the country.

Rather than looking to the made-up “NIPCC,” public school science teachers should look to the actual Intergovernmental Panel on Climate Change (IPCC) for peer-reviewed, consensus information about climate change. The IPCC, an international organization established by the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP), assesses peer reviewed science related to climate change provides policymakers with regular updates. It won the Nobel Peace Prize in 2007 for its authoritative, objective, and transparent assessments of climate science. According to the IPCC’s fifth and most recent

^[2] See, e.g., “DenialGate Highlights Heartland’s Selective NIPCC Science,” 2012 (online at <https://www.skepticalscience.com/denialgate-highlights-heartlands-selective-nipcc-science.html>); “Not the IPCC (“NIPCC”) Report,” 2008 (online at <http://www.realclimate.org/index.php/archives/2008/11/not-the-ipcc-nipcc-report/>); “Do Scientists Agree About Global Warming?” 2011 (online at <http://www.politiifact.com/truth-o-meter/statements/2011/aug/14/tim-pawlenty/do-scientists-disagree-about-global-warming/>); “Heartland Institute’s Smoke And Mirrors Attempt To Debunk Consensus Science,” 2014 (online at <https://mediamatters.org/blog/2014/04/08/heartland-institutes-smoke-and-mirrors-attempt/198805>).

^[3] Robert J. Brulle, *Institutionalizing delay: foundation funding and the creation of U.S. climate change counter-movement organizations* Climate Change 681-694 (2014); Aaron McCright and Riley Dunlap, *The politicization of climate change and polarization in the American public’s views of global warming, 2001-2010* 52 *The Sociological Quarterly* 155-194 (2011); Justin Farrell, *Echo Chambers and False Certainty* 5 *Nature Climate Change* 719-720 (2015); Constantine Boussalis and Travis G. Coan, *Text-mining the signals of climate change doubt* 36 *Global Environmental Change* 89-100 (2016).

assessment published in 2014, the Earth's air temperature has risen by nearly 2 degrees Fahrenheit since 1850, the Greenland and Antarctic ice sheets are melting, and sea levels are rising faster now than at any point in the past two millennia.⁴

“Environment and Climate News” and “The Idea Channel” are not credible sources.

Environment and Climate News is a monthly Heartland Institute newsletter. In other words, Heartland is citing itself to promote its materials. The May 2016 edition, “Study: Science Teachers Giving Unbalanced Education on Climate Change,” featured on the front of the Heartland mailer was attributed to Bonnor Cohen but was in fact written by H. Sterling Burnett. Burnett is a research fellow at the Heartland Institute, not an independent scholar or writer.

The enclosed DVD is a 2008 video featuring inaccurate content. It was produced by The Idea Channel with funding from the Heartland Institute.⁵ With a nearly identical name to PBS's Idea Channel, The Idea Channel is owned by the Free to Choose Network. Like Heartland, the Free to Choose Network has received funding from anonymous sources linked to the fossil fuel industry.⁶

The video's central argument, that the climatic changes we are seeing now are a result of natural variability, has been discredited.⁷⁸ One of the experts interviewed was Rie Oldenberg, a curator at Greenland's Narsaq Museum. She commented “I am somewhat horrified” when informed of how her interview was used having been told she was participating in a video on Norse history.⁹ Another “expert” in the DVD, Willie Soon, has received \$1.2 million in funding since 2001 from the Koch brothers, the American Petroleum Institute, ExxonMobil, and other fossil fuel interests.¹⁰ David Legates, the other climate scientist interviewed, has been a coauthor on four papers with Soon where they failed to disclose that their work was supported by the fossil fuel industry.¹¹ The year the video was released, Willie Soon received nearly \$20,000 from the Free to Choose Network.¹²

Legitimate scientific organizations have extensive resources for teachers on climate change.

The science behind climate change and the effects it will have on communities across the country should be taught in public schools. Legitimate scientific organizations offer excellent

^[4] IPCC AR5 Climate Change 2014 Synthesis Report Summary For Policymakers, page 3-4 (online at https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf)

^[5] Richard Littlemore, “Heartland Institute Tricked Video Subject in “Unstoppable Solar Cycles,” *DeSmogBlog* (May 8, 2008) (online at <https://www.desmogblog.com/heartland-institute-tricked-video-subject-in-unstoppable-solar-cycles>).

^[6] See DeSmogBlog profile for Free to Choose Network (online at <https://www.desmogblog.com/free-choose-network>)

^[7] IPCC AR5 Climate Change 2014 Synthesis Report Summary For Policymakers, page 5-6 (online at https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf).

^[8] This video was also sent to teachers in Canada. The National Center for Science Education lists it as “Climate Change Denial Supplementary Materials” and assessed it as using “rhetorical tricks ... questions that are raised but not answered, false choices, and red herrings.” (online at <https://ncse.com/library-resource/climate-change-denial-supplementary-materials>).

^[9] Richard Littlemore, “Heartland Institute Tricked Video Subject in “Unstoppable Solar Cycles,” *DeSmogBlog* (May 8, 2008) (online at <https://www.desmogblog.com/heartland-institute-tricked-video-subject-in-unstoppable-solar-cycles>).

^[10] Justin Gillis and John Schwartz, “Deeper Ties to Corporate Cash for Doubtful Climate Researcher,” *New York Times* (February 21, 2015) (online at <https://www.nytimes.com/2015/02/22/us/ties-to-corporate-cash-for-climate-change-researcher-Wei-Hock-Soon.html>).

^[11] See DeSmogBlog profile of David Legates (online at <https://www.desmogblog.com/david-legates>).

^[12] See Polluterwatch.org profile of Willie Soon (online at <http://polluterwatch.org/willie-soon>).

educational resources including lesson plans, research prompts, and volunteer programs, all of which promote fact-based science.

- The Climate Literacy and Energy Awareness Network (CLEAN) is a catalog of existing online resources that have been reviewed for scientific accuracy and pedagogical potential by the National Oceanic and Atmospheric Administration (NOAA) and the National Science Foundation.¹³ The catalog can be searched by grade level, resource type and other criteria and includes lesson plans, learning activities, and multimedia resources.
- Climate.gov is a resource by NOAA that focuses on climate change with downloadable maps, case studies, and data sets for instructional use.¹⁴ In particular, NOAA's Climate Dashboard allows students to visualize the progression of climate change first hand. For teachers seeking accurate resources for student research projects, NOAA also hosts curated resource collections on a wide range of topics.¹⁵ These collections provide background information, multimedia resources, and a rich collection of real world data.
- NASA's educators page has supplementary lesson plans for grades K-12 called "Classroom Combos" that are perfect for teachers looking to instill a deeper understanding of math and science learning objectives ranging from tide change to robotics.¹⁶ These lesson materials include teaching tips and note many opportunities for extensions.

Science teachers play an important and formative role in helping children understand the world we live in. They teach our children to make observations, collect information, and to use evidence to formulate conclusions. American students will hear only one to two hours of instruction about climate change per year, so the instruction they receive should be factually accurate and scientifically vetted. A 2016 nationwide survey of science teachers found that 15 percent disagreed or strongly disagreed with the scientific consensus that climate change is occurring and that human activity contributes to that change. This figure points to the need to disseminate high quality, scientifically valid curricula to teachers across America.

The Heartland Institute's latest campaign asks teachers to "consider the possibility the science isn't settled." That statement is political ideology dressed up as scientific inquiry. The Heartland Institute's phony science is antithetical to the scientific method and the resources it is sending to our nation's teachers are far from objective. In contrast, your organization has led efforts to promote sound, peer-reviewed science and climate change curriculum in the classroom. I hope you find the information in this letter useful to those efforts.

Regrettably, Heartland's present efforts may not be the last attempt by it or others to undermine science education in our schools. Last summer, I joined 18 of my Senate colleagues to expose how 32 industry-funded front groups like Heartland spread fake science to block action on

^[13] Climate Literacy and Energy Awareness Network (CLEAN) (online at www.cleanet.org)

^[14] Climate.gov (online at www.climate.gov)

^[15] NOAA Education: Resource Collections (online at <http://www.noaa.gov/education/for-educators>)

^[16] NASA Education (online at <https://www.nasa.gov/offices/education/about/index.html>)

climate change.^[17] As these groups turn their efforts to classrooms, I hope you will work to address industry-driven efforts to affect what is being taught in the classroom. I request that you keep my office apprised of strategies your organization has found effective counter this misinformation. If you have any questions in relation to this request please feel free to contact my staff in my Washington, DC office at (202) 224-2921.

Sincerely,



Sheldon Whitehouse
United States Senator

^[17] See press release (online at <https://www.whitehouse.senate.gov/news/release/senators-call-out-web-of-denial-blocking-action-on-climate-change>)