The scientific case is relatively straightforward.
The “greenhouse effect” has been known for two centuries.

- Joseph Fourier (1827)
- John Tyndall (1859)
- Svante Arrhenius (1896)
- Guy Callendar (1939)
FOSSIL FUEL BURNING
Atmospheric Carbon Dioxide

Measured at Mauna Loa, Hawaii

![Graph showing the concentration of atmospheric carbon dioxide measured at Mauna Loa, Hawaii, from 1960 to 2010. The graph indicates a steady increase in carbon dioxide levels over this period.](image)
WARMING
TEMPERATURES
Indicators of a Warming World

- Glaciers
- Temperature Over Land
- Temperature Over Oceans
- Snow Cover
- Air Temperature Near Surface (troposphere)
- Tree-lines shifting poleward and upward
- Sea Surface Temperature
- Spring coming earlier
- Sea Level
- Sea Ice
- Species migrating poleward and upward
- Oceans Heat Content
- Ice Sheets
MODELS
Climate Models
Hansen’s 1988 Predictions

Annual Mean Global Temperature Change (°C)

Model Simulation of Past

Model Predictions of Future (in 1988)

SCENARIO B

OBSERVED WEATHER STATION DATA
Observed/Predicted Climate Trends
With Natural Factors Only

Temperature Anomaly (°C)

Observed recorded annual temperatures
Average predicted annual temperatures

1900 1920 1940 1960 1980 2000 2020
Observed/Predicted Climate Trends

With Natural and Human Factors

Temperature Anomaly (°C)

Observed recorded annual temperatures

Average predicted annual temperatures

1900 1920 1940 1960 1980 2000 2020
Projections of the Future

The pathways we choose.
Projections of the Future

Predicted Surface Warming Under Varying Emissions Scenarios

Global Surface Warming (°C)

YEAR 2000 CONSTANT CONCENTRATIONS

20TH CENTURY

A2
A1B
B1

YEAR 2000 CONSTANT CONCENTRATIONS
WHY NO ACTION?
## Winning the Global Warming Debate - An Overview

### 1. The Economy
   - **Public belief:** Efforts to reduce emissions are economically damaging.
   - **Government interference:** The climate change debate has become a serious threat to the economy.
   - **Solution:** Developing a new narrative that frames climate change as an opportunity for economic growth.

### 2. The Media
   - **Basic assumption:** The mainstream media does not accurately report on the climate change debate.
   - **Solution:** Utilizing right-wing blogs and opinion pages to counteract the media's bias.

### 3. The Environmental Movement
   - **Struggle:** The environmental movement is struggling to effectively communicate its message.
   - **Solution:** Repositioning issues to focus on personal responsibility and practical solutions.

### 4. The Media's Role
   - **Bias:** The media's bias is evident in its reporting on climate change.
   - **Solution:** Creating a narrative that reinforces conservative values and presents climate change as a manageable problem.

### 5. The President's Position
   - **Key point:** The President's position on climate change is a significant factor in public opinion.
   - **Solution:** Encouraging the President to take a moderate stance that aligns with popular opinion.

---

### Notes
- **Key takeaway:** Effective communication is crucial in winning the global warming debate.
- **Strategic approach:** Developing a comprehensive strategy that addresses public perceptions, media bias, and political positioning.

---

**FRANK LUNTZ MEMO, 2002**
1. The scientific debate remains open. Voters believe that there is no consensus about global warming within the scientific community. Should the public come to believe that the scientific issues are settled, their views about global warming will change accordingly. Therefore, you need to continue to make the lack of scientific certainty a primary issue in the debate, and defer to scientists and other experts in the field.
“With all of the hysteria, all of the fear, all of the phony science, could it be that man-made global warming is the greatest hoax ever perpetrated on the American people? It sure sounds like it.”

Senator James Inhofe, (R) Oklahoma
Proxy Reconstructions of Past Climate

Departures in Temperature (°C)
from the 1961–1990 average

Hockey League
THE POLITICIZATION OF SCIENCE
THE SCIENTIZATION OF POLITICS
<table>
<thead>
<tr>
<th>To</th>
<th>Dr. Michael Mann</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>The Honorable Ed Whitfield, Chairman, Subcommittee on Oversight and Investigations</td>
</tr>
<tr>
<td>Fax</td>
<td>434-502-2137</td>
</tr>
<tr>
<td>Date</td>
<td>June 23, 2005</td>
</tr>
<tr>
<td>Phone</td>
<td>434-504-7773</td>
</tr>
<tr>
<td>Pages</td>
<td>5, including cover</td>
</tr>
<tr>
<td>Notes</td>
<td>Hard copy to follow by U.S. Mail</td>
</tr>
</tbody>
</table>
Dr. Michael Mann
Assistant Professor
Department of Environmental Sciences
University of Virginia
Charlottesville, VA 22904

Dear Dr. Mann:

Questions have been raised, according to a February 14, 2005 article in The Wall Street Journal, about the significance of methodological flaws and data errors in your studies of the historical record of temperatures and climate change. We understand that these studies of temperature proxy records (tree rings, ice cores, corals, etc.) formed the basis for a new finding in the 2001 United Nation's Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report (TAR). This finding—that the increase in 20th century northern hemisphere temperatures is "likely to have been the largest of any century during the past 1,000 years" and that the "1990s was the warmest decade and 1998 the warmest year"—has since been referenced widely and has become a prominent feature of the public debate surrounding climate change policy.
AND we'd like to apologize to King George III for the lack of gratitude the colonists showed... STOP IT!
8 August 2005

The Honorable Joe Barton
Chairman, Committee on Energy
U.S. House of Representatives
2125 Rayburn House Office Bldg.
Washington, DC 20515

Dear Chairman Barton:

We are the Presidents of the two largest scientific societies engaged in climate research. However, we write today not primarily about climate research, but about the deleterious effects your requests to Drs. Mann, Hughes, and Bradley, and the National Science Foundation could have on the quality of science and its utility to you in the public policy process.

Climate of distrust

Six months into President George W. Bush's second term of office, partisan politics continues to widen the gulf between researchers and the administration.

The story has become familiar: fact based in the lab comes to Congress. Time after time, in agency after agency, policy is based on unscientific policy advice from the President's political appointees. The administration has become an effective medium for the rapid dissemination of policy advice. Bureaucratic paralysis has given way to a clearer and more efficient information policy framework: providing the public with an information service.

In one of the latest examples, Congressman Joe Barton (Republican, Texas) has asked the National Academy of Sciences to conduct an investigation into the scientific validity of the climate change science. The climate change science is a well-established body of knowledge that has been reviewed by the Intergovernmental Panel on Climate Change, the world's leading climate change research body.

The Bush administration has responded to this request by providing the public with an information service that is not based on science. Instead, it has provided the public with information that is based on political ideology. This is not the way science should be conducted or information should be disseminated.

The Bush administration has chosen to cherry-pick selected information on the issue of climate change, using an article from The Wall Street Journal as its scientific basis.

"Congressman Barton has chosen to cherry-pick selected information, using an article from The Wall Street Journal as his guide."

We hope you will reconsider your request and support the National Academy of Sciences in its work to provide the public with accurate and reliable information on climate change.
Houses Divided on Warming
Published: July 23, 2005

It's going to be hard enough to find common political ground on global warming without the likes of Representative Joe Barton harassing scientists who helped alert the world to the problem in the first place.

The Washington Post
Saturday, July 23, 2005; Page A16

"THIS IS HIGHLY unusual," declared a spokesman for the House Energy and Commerce Committee when asked this week whether the request by committee Chairman Joe Barton (R-Tex.) for information from three climate scientists was out of the ordinary. He and his boss are alone in that view. Many scientists and some of Mr. Barton's Republican colleagues say they were stunned by the manner in which he cooked up a climate change denial.

Last month from researchers whose work is widely accepted in the scientific community, he demanded that the energy committee hold hearings to review the work of three climate scientists. Mark T. Cook, a former social science researcher at the National Center for Atmospheric Research in Colorado, presenting the results of his own $100,000 study, wrote in a letter to the committee: "Skeptics are not given the benefit of the doubt and are often accused of driving the agenda..." He added: "In an era when public information is important, it is never more important that this committee respect the science." But Mr. Barton and the energy committee ignored Cook's letter.

Rep. Barton's harassment of scientists, disdain for fellow lawmakers a disservice

Copyright 2005 Houston Chronicle

The heart of science isn't quiet. Challenges to data, methodology and interpretation come throughout the scientific process. Harassment of scientists, however, deserves no role in scientific inquiry. U.S. Rep. Joe Barton (R-Texas) ignores this principle in his shameful hectoring of well-known climatologists.
July 1, 2005

Dear Mr. Chairman:

On June 23, 2005, you wrote to three of the world’s most respected experts on global warming to demand information about “all financial support” they ever received during their long and distinguished careers, “the source of funding” for every study they ever conducted, “all data archives” for every published study they ever wrote, and multiple other burdensome and intrusive requests.
July 14, 2005

Dear Mr. Chairman:

I am writing to express my serious objections to what I see as the misguided and illegitimate investigation you have launched concerning Dr. Michael Mann, his co-authors and sponsors.

First, your Committee lacks jurisdiction over this matter. Both the National Science Foundation and climate change research are under the purview of the House Committee on Science. This is in no way my central concern about your investigation, but I raise it as an initial because it may have legal implications as you proceed. Jurisdiction is also relevant because the narrowness toward the workings of science demonstrated in your investigative letters may reflect your Committee's inexperience in the issues you are investigating.

My primary concern about your investigation is that its purpose seems to be to intimidate scientists rather than to learn from them, and to substitute Congressional political review for scientific peer review. This would be pernicious.

It is equally appropriate for Congress to try to understand scientific disputes that impinge on public policy. There are many ways for us to do that, including briefing with a balanced set of witnesses, briefings with scientists, and requests for reviews by the National Academy of Sciences or other experts.
The message sent by the Congressional committee to the three scientists was not subtle: Publish politically unpalatable scientific results and brace yourself for political retribution, which might include denial of the opportunity to compete for federal funds.

Some scientists might reasonably be worried the timing of the data produced in a scientist’s career is highly irregular. It represents a kind of intimidation, which threatens the relationship between science and public policy. That behavior must not be tolerated.
Sarah Palin 'ClimateGate': Calls For Obama To Boycott Copenhagen

Glenn Beck Skewers Scientists Involved In ClimateGate

In a recent segment on his radio show, Glenn Beck 's latest line of attack on the global warming movement has raised eyebrows. Beck has been an outspoken critic of the so-called 'ClimateGate,' referring to the leak of e-mails from climate scientists at the University of East Anglia.

In his November 23 broadcast, Beck launched into a tirade against the scientists involved, claiming they had been manipulating data in order to exaggerate global warming.

"As Rasputin once said, 'Nothing is too absurd when it's to the advantage of the propertied classes,'" Beck said. "That's what these scientists are doing. They're manipulating data to manipulate the climate.""
“a lot of those emails obviously weren’t meant for public consumption” and could be misinterpreted if “taken out of context.”

—Sarah Palin, June 2011
Cuccinelli Censors Virginia Seal

Attorney general covers up goddess’s breast

By Nathan Stanley

Updated 7:08 PM EDT, Mon, May 3, 2010

Virginia Attorney General Ken Cuccinelli faced more national ridicule when he gave his staff’s PC version of the Commonwealth seal recently.

The seal features the Roman goddess Virtus in a pose that suggests she might be about to compromise her virtue. Her blue tunic is draped over one shoulder, leaving her left breast exposed like she’s performing a Super Bowl halftime show.

ATTORNEY GENERAL KEN CUCCINELLI, VIRGINIA
ATTORNEY GENERAL KEN CUCCINELLI, VIRGINIA

The Virginia General Assembly, in session on the 2nd day of April, 2010, at 10:00 A.M., enacted the following bill into law:

BILL NO. 706

The Bill:

The General Assembly of the Commonwealth of Virginia, pursuant to the authority conferred by section 3 of Article V of the Constitution of the Commonwealth of Virginia, makes and enacts this Act:

ASSEMBLY BILL NO. 706

AN ACT

To add a subdivision to section 38.2-485.1 of the Code of Virginia to require the Attorney General to report annually on the implementation of the Climate Action Plan of the Commonwealth, and to establish a Climate Action Plan Implementation Committee.

Fiscal note:

The Department of Planning and Budgeting estimates that the implementation of this act will have no fiscal impact.
Science subpoenaed

The University of Virginia should fight a witch-hunt by the state's attorney general.

Virginia science is under scrutiny once again. This time, it's not a modest $2 million dollars—though a sum not to be sniffed at—nor is it a federal investigation by the Justice Department. It is a state attorney general's investigation, led by a man who was once a professor at the University of Virginia. The investigation centers around a scientist who was at the University of Virginia and then moved to the University of California, San Francisco. The attorney general, Ken Cuccinelli, has subpoenaed documents and emails related to the scientist's research.

The scientist in question is Michael Mann, a prominent climate scientist who has been a vocal critic of the United States' response to climate change. Mann's work has been heavily scrutinized by conservative groups, who have accused him of scientific misconduct.

Cuccinelli's investigation is part of a broader effort to undermine scientific research and to silence critics of climate change. The attorney general has previously been accused of using the legal system to压制 scientific freedom and to undermine the work of scientists who challenge his political agenda.

The scientist's work is crucial for understanding the impact of climate change and for developing strategies to mitigate it. It is essential that we protect scientific freedom and allow scientists to do their work without fear of retribution.

The University of Virginia should fight this witch-hunt by the state's attorney general and stand up for the rights of scientists to do their work without interference.
Hinkle: First They Came for the Climatologists

A. BARTON HINKLE TIMES-DISPATCH COLUMNIST
Published: May 11, 2010

THE CHRONICLE
of Higher Education

Ken Cuccinelli, Enemy of Freedom
By Kerita Cugier
ATTORNEY GENERAL KEN CUCCINELLI, VIRGINIA
Cuccinelli Curtailed; Judge Quashes UVA Subpoena
Climate change challenge dealt — for now

Judge Blocks Virginia AG’s Climate Witch Hunt
By Kate Sheppard | Updated 5:30 p.M., May 22, 2011

By / 8:50 PM ET, May 23, 2011

Virginia Attorney General Ken Cuccinelli has been
aggressively pursuing any attempted to skew science, among other things. The latest was a climate
scientist, among other things. The latest was a climate
scientist’s attempt to subpoena materials from a former University of Virginia
climate scientist.
The GOP's Coming Climate Witch Hunt

Scientists are bracing for a new wave of attacks and investigations by the incoming House majority.

Katie Couric (author, Katie Couric)

Global warming critic plots revenge

9/28/2010

Mother Jones

Analyze Times NATION

World Business Sports Entertainment Health Living

Traffic Crime Politics Community

Politics

Reps attacks on the EPA and climate

10/30/2010

In control of the House, they plan to go after the Obama administration's critics and the scientists who have offered evidence on global warming, by manipulating data.
The Washington Post

Can the party of Reagan accept the science of climate change?

By Sherwood Boehlert

Friday, November 1, 2018

Watching the rout of newly elected GOP lawmakers converge on Washington, I couldn't help thinking about an issue I hope our party will better address. I call on my fellow Republicans to open their minds to the science that has largely become the party's line: Denying that climate change and global warming are occurring and that they are largely due to human activities.

National Journal reported last month that 19 of the 20 senior GOP Senators challenged the science of climate change in their own articles or floor statements. Many newly elected Republican House members take that position. It is a stance that defies the findings of our country's National Academy of Sciences, national scientific academies from around the world and 97 percent of the world's climate scientists.

Why do so many Republican senators and representatives think they are right and the world's top scientific academies are wrong? I would like to be able to chalk it up to lack of information or misinformation.

I am well aware that some of my colleagues in both parties, as well as some to whom I speak at informal gatherings, have doubts about the science of climate change. I have been an engineer for 42 years, I know there are legitimate areas for debate. What I find incomprehensible is the dogged determination by some to discredit distinguished scientists and their findings.
“All that is necessary for the triumph of evil is that good men do nothing.”

—EDMUND BURKE