

Using Science to address global problems and improve people's lives – The Union of Concerned Scientists

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Introduction – “If it's science, then it must be true...or not”

History is full of examples of where inaccurate science turned out to be tragically incorrect, often resulting in environmental damage or human suffering. For example, the Miasma Theory of Disease which prevailed in the 19th century proclaimed diseases like cholera were caused by “miasma”, a form of noxious air emanating from rotting organic matter. In London, this resulted in the flushing of sewage into the River Thames to get it away from human habitation, but this ultimately accelerated the spread of cholera by contaminating the local water supply. A local physician by the name of John Snow hypothesized that cholera was a specific disease which spread person-to-person via contaminated water, but his theories were either ignored or scoffed by his peers. The breakthrough came when he managed to convince the local authorities to switch off a particular public water pump, preventing further cholera outbreaks which had already killed over 600 people in a matter of weeks ([John Snow and the Pump Handle of Public Health](#)).

The lobotomy, a neurological procedure used between the 1930s and 1950s was once considered a miracle treatment for various psychiatric disorders such as schizophrenia and depression. Now widely discredited due to its unpredictable and long-term adverse effects (e.g. emotional apathy, intellectual disability) it became one of the most contentious chapters in modern medicine ([Lobotomy | Definition, Procedure, History, Effects, & Facts | Britannica](#)).



A prime example of how industry-led “science” puts profit before public health is the 1920s discovery by Thomas Midgley Jr that adding lead to gasoline improved the efficiency of vehicles and engine performance. Proponents at the time suggested the small amounts released into the air were negligible and ignored or suppressed early data showing its effect on the human nervous system. It wasn't until the first clinical studies in 1969

demonstrated a strong link between environmental lead exposure and poor cognitive performance in children resulting in many countries phasing out leaded gasoline in the 1970s ([How the world eliminated lead from gasoline - Our World in Data](#)).

While the above examples demonstrate science isn't always right, does it justify people's scepticism about science particularly if they don't like what they hear or it doesn't suit their agenda? Many scientists and philosophers of science argue that science is not “The truth,” but rather a systematic process for searching for it. A good analogy is thinking of science as a “map” of the world. As we get better tools, our “map” becomes more detailed and accurate, however it will always be a representation of the true world and not the true world itself.

Climate sceptics and deniers continue to claim climate change is an elaborate hoax, often weaving misrepresented and decontextualised pieces of scientific data or study outcomes into their narrative to further their often-political agenda. But the weight of evidence confirms there are clear signs of global warming as revealed in the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report ([Sixth Assessment Report — IPCC](#)), where the scientific community reached a landmark consensus stating there is unequivocal evidence humans have caused warming of the atmosphere, ocean and land.

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The Union of Concerned Scientists

The Union of Concerned Scientists ([Union of Concerned Scientists](#)) is a diverse group of nearly 250 scientists, analysts, policy experts, organisers and communicators whose mission is to use rigorous, independent science to develop solutions and advocate for a healthy, safe and just future. They advocate that the judicious use of science can be a tool to advance justice, equity, and policies to protect the health and well-being of people.

The Union acknowledge that science and evidence-based decision making have been critical to solving many of the biggest challenges facing humankind. To this end, they have identified the following priority areas of concern:

- Combating climate change.
- Develop sustainable ways to feed, power and transport people.
- Reduce the existential threat of nuclear war.
- Advancing racial and economic equity.
- Challenging powerful corporations or special interests when they mislead the public on science.



They expose special interest groups when they release bogus studies or make inaccurate conclusions, or when corporations and politicians sow doubt about science to further their own interests.

Building a more just society

The Union of Concerned scientists recognise decisions affecting people's well-being must be grounded in facts and evidence, but sadly policy choices are often driven by narrow private interests that stand to benefit from distorting science. For example, they highlight how "The Clean Air Act, The Clean Water Act, and The Endangered Species Act" although all evidence-based initiatives, there have been persistent efforts by The United States congress in recent years to undermine their safeguards.

We live in a world of prolific information, but equally prolific disinformation. Broad and interconnected networks allow disinformation to spread, often targeting underserved communities and increasing public confusion allowing perpetrators to profit at the expense of people's well-being. By working with communities and groups who bear the disproportionate impact of unjust policies, the Union with a collective power of over half a million science supporters across the country fight for social justice.

Achieving their objectives

The following case studies highlight the ways the Union use science and advocacy to achieve their objectives.

Case study No. 1 – New England Offshore Wind solution



The Union of Concerned Scientists performed an analysis of winter 2024-2025 wind speeds in the New England district in northeastern United States. They concluded that wind energy off the New England coast could generate enough energy to reinforce the reliability of the region's power grid. They extrapolated a wind farm totalling 1,500 megawatts would lower the risk of power outages by 55% over winter. A larger fleet of 3,500 megawatts would reduce the risk of outages by 75% ([New England's](#)

[Offshore Wind Solution | Union of Concerned Scientists](#)).

Case Study No. 2 – Suing the Trump administration

The Union's aim is to restore the role of science in policymaking and further the progress of science-based decisions across all levels of government. They fight for common sense, science-based solutions which protect the people and the planet. Here are some cases where the Union have sued the Trump administration and are winning:

- [EDF et al vs Wright \(August 2025\)](#): The Union challenged the administration's use of a secret group of climate sceptics to prepare a disparaging report to attack the "Endangerment Finding", a formal scientific determination made by the United States EPA (Environment Protection Authority) to regulate greenhouse gas emissions.
- [Sierra Club et al vs EPA](#): The Union joined the Sierra Club and other organisations to challenge the removal of webpages about environmental justice and climate change. They claimed that critical environmental justice tools were widely used by academics, regulators and advocates to identify communities affected by pollution and climate change.
- [JACL et al vs Musk \(March 2025\)](#): The Union joined a number of agencies to sue a range of defendants (including Elon Musk) on illegal cuts to federal agency funding and staff. They believe this lawsuit slowed down some of the Department of Government Efficiency's (DOGE) actions at the time and eventually led the administration to disband DOGE early.

[\(UCS vs Anti-Science Actions | Union of Concerned Scientists\)](#)

Case Study No. 3 – Overuse of synthetic fertilisers

Research by the Union shows that as much as 30 to 50 percent of applied nitrogen fertiliser in United States is more than what crops can use, resulting in enormous waste. These are the consequences of fertiliser overuse:

- Costly for farmers, particularly when fertiliser prices rise.
- Excess nitrogen seeps into the surrounding environment and transforms into heat trapping gases like nitrous oxide and carbon dioxide.
- In 2023, excess nitrogen fertiliser application was estimated to produce greenhouse gases equivalent to the emissions from 14 million cars driven for a year



The Union advocate for better funding to break the cycle of fertiliser dependency, giving farmers viable alternatives and incentives to implement conservation practices such as cover crops, buffer strips and restoring wetlands.

[\(Less Fertilizer, Better Outcomes | Union of Concerned Scientists\)](#)

Find out more about the Union of Concerned Scientists by visiting their website [Union of Concerned Scientists](#)
