THE NEW CLIMATE DENIAL

How social media platforms and content producers profit by spreading new forms of climate denial

The Center for Countering Digital Hate works to stop the spread of online hate and disinformation through innovative research, public campaigns and policy advocacy.

Our mission is to protect human rights and civil liberties online.

Social media platforms have changed the way we communicate, build and maintain relationships, set social standards, and negotiate and assert our society's values. In the process, they have become safe spaces for the spread of hate, conspiracy theories and disinformation.

Social media companies erode basic human rights and civil liberties by enabling the spread of online hate and disinformation.

At CCDH, we have developed a deep understanding of the online harm landscape, showing how easily hate actors and disinformation spreaders exploit the digital platforms and search engines that promote and profit from their content.

We are fighting for better online spaces that promote truth, democracy, and are safe for all. Our goal is to increase the economic and reputational costs for the platforms that facilitate the spread of hate and disinformation.

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1 Introduction

2023 was the hottest year on record.[1] Once unprecedented wildfires, floods, unbearable heat, and droughts are becoming normal to billions of people worldwide.[2] It is difficult to deny the simple fact that our climate is changing in predictable and yet, still, even now, shocking ways. The awe we feel when Mother Nature bellows with rage can only be matched by our fear that her final judgment will be catastrophic for our species.

And yet, the sensible majority of us who seek to avert climate catastrophe find ourselves continually having to deal with a tidal wave of disinformation designed to delay action. These lies, welcomed, enabled, and often funded by oil and gas tycoons who benefit financially, are cynically used by political leaders to explain why they remain stubbornly incapable of taking urgent corrective action.

In this Enlightenment battle of truth and science versus lies and greed, those on the side of science appear to have succeeded in persuading the public that anthropogenic climate change is a reality, which is why those who seek to undermine climate science have shifted strategy.

In this report, for the first time, researchers at the Center for Countering Digital Hate have quantified the startling and important rise over the past five years in what we call "New Denial" — the departure from rejection of anthropogenic climate change, to attacks on climate science and scientists, and rhetoric seeking to undermine confidence in solutions to climate change. "New Denial" claims now constitute 70% of all climate denial claims made on YouTube, up from 35% six years ago.

This study centers on data analysis performed by an AI tool, CARDS, developed by academics Travis G. Coan, Constantine Boussalis, John Cook and Mirjam O. Nanko. The AI allowed us to quantify the frequency of different types of climate denialist claims in text. CCDH researchers identified the changing tactics of climate deniers on YouTube by analyzing thousands of hours of transcripts of videos on the platform from 96 channels dating back to 2018.

In 2018, outright denialist claims like "the weather is cold" and "we're heading into an ice age" were popular among climate denialists – but as temperatures and evidence of global warming have increased, those narratives are no longer as effective. Analysis of 4,458 hours or nearly 186 days of YouTube content since 2018 shows that "Old Denial" claims that anthropogenic climate change isn't happening have dropped from 65% of all claims in 2018 to just 30% of claims in 2023.

It is vital that those advocating for action to avert climate disaster take note of this substantial shift from denial of anthropogenic climate change to undermining trust in both solutions and science itself, and shift our focus, our resources and our counternarratives accordingly. The narrative shift from "Old Denial" to "New Denial" seeks to undermine the solutions to mitigating the climate crisis and delay political action. A failure to shift our strategies would be enormously damaging. This report is a call-to-action to the climate change advocates, the funders, the politicians doing the hard work to green our economic models and incentives, to ensure their work effectively counters what our opponents are doing now, not six years ago.

Social media companies can help here too, given they are a primary means by which lies and disinformation are seeded into public discourse. In 2021, when CCDH reported on how Google and Facebook monetize climate denial content, Google promised to diligently enforce its policies. But what they defined as climate denial content then does not reflect the realities now. YouTube is potentially making up to $13.4 million per year in ad revenue from channels studied in this report. Thirteen million dollars is a drop in the bucket for Google, one of the biggest and most profitable corporations in history – but has an outsized impact on the future of our planet. They should expand their definition of climate denial to include "New Denial", and other platforms should follow suit.

Like so many of us, I am deeply concerned about climate change. It is an incredible injustice to our children to leave behind a world that is worse than the one we inherited, let alone one that threatens to be increasingly uninhabitable by humans. I am encouraged by the kinship I enjoy with those advocating for sensible policies to deal with climate change. This kinship is deepened by the profound analogies we can find between climate change – the incremental degradation of our physical ecosystem as a negative consequence of the industrial revolution and the carbonification of our economy, and the issues CCDH deals with – the degradation of our information ecosystem as a negative consequence of the information revolution and the digitization of our economy. I recognize – again from the climate change movement – that no company that profited lavishly from a new technology has ever voluntarily taken responsibility for the negative consequences. And so it is up to us – advocates, the public, the media, our political representatives – to ensure we remain informed, that we work to establish transparency, accountability and incentivize safer development of technology. The battles to heal our physical and information ecosystems dovetail, intertwine, and harmonize in this report. I remain confident that if we work diligently, collaboratively and with haste, we can leave our world more advanced, safer, and more prosperous than before.

Imran Ahmed
CEO, Center for Countering Digital Hate

2 Executive Summary

This report uses an AI model to measure changes in climate denial on YouTube

- Climate denial consists of attempts to undermine the scientific consensus on climate change based on rhetorical arguments.[3]
- We gathered transcripts for 12,058 videos from climate denial YouTube channels:
    - Data was drawn from 96 YouTube channels that have promoted denial
    - videos under analysis are climate-related and from the last six years
    - Videos in our dataset containing denial claims were viewed 325 million times
- These transcripts were categorized by an existing AI model trained on climate denial.
- Testing indicates the model is 78% accurate in categorizing claims in our dataset.

Climate deniers have shifted to a New Denial of climate impacts, solutions and advocates

- Climate experts have noted a change in climate deniers' tactics over recent years.[4]
- Our analysis shows that climate deniers have shifted from Old Denial to New Denial:
    - Global warming is not happening
    - Human-generated greenhouse gasses are not causing global warming
    - The impacts of global warming are beneficial or harmless
    - Climate solutions won't work
    - Climate science and the climate movement are unreliable
- New Denial constitutes 70% of denialist claims in 2023, up from 35% in 2018.
- This is driven by attacks on climate solutions, scientists and the climate movement.
- Influential deniers including Jordan Peterson and Blaze TV followed this trend.

Climate deniers have shifted away from an Old Denial of warming and its human causes

- Old Denial constitutes 30% of denialist claims in 2023, down from 65% in 2018.
- This is driven by a sharp fall in denialist claims that the climate is actually cooling.
- Experts suggest climate deniers have changed tactics because the results of global warming and climate change are evident to the public.[5]

YouTube continues to profit from ads served on Old Denial and New Denial content

- YouTube is making up to $13.4 million a year from ads on the channels we studied.
- YouTube's policies bar monetization of Old Denial, but do not cover New Denial.
- We collected evidence that YouTube is still serving ads on both forms of denial.

Platforms must update their policies to keep up with New Denial narratives

- Google must update its policy on climate denial content to reflect New Denial
- Digital platforms must demonetize and de-amplify climate denial content
- Climate advocates should use this report as a call to action to address New Denial

3 Climate denialist claims can be categorized as Old Denial and New Denial

This report studies climate denial, defined as attempts to undermine the scientific consensus about climate change based on rhetorical arguments.[6] To do this, we use an existing taxonomy of climate denialist claims that sorts them into five broad categories.[7]

1 Global warming is not happening
2 Human-generated greenhouse gasses are not causing global warming
3 The impacts of global warming are beneficial or harmless
4 Climate solutions won't work
5 Climate science and the climate movement are unreliable

Throughout the rest of this report, we refer to these five categories as overarching "super-claims" which can be broken down into smaller "sub-claims" detailed in the following section. For example, the super-claim that "global warming is not happening" can be broken down into sub-claims like "the weather is too cold for global warming to be true".

Old Denial and **New Denial**

Our analysis of YouTube channels that have previously posted climate denialist claims indicates there has been a clear change in their tactics over the last five years.

We see that they have shifted away from making denialist claims in the first two categories: that global warming is not happening or that human-generated greenhouse gasses are not causing global warming. Accordingly, we call claims in these two categories **Old Denial.**

At the same time, we see that these denialist YouTube channels have shifted towards making claims in the latter three categories: that the impacts of global warming are beneficial or harmless, that climate solutions won't work or that climate science and the climate movement are unreliable. We therefore call claims in these three categories **New Denial**.

The following sections outline this distinction between Old Denial and New Denial, and present our findings on how this shift has taken place in recent years.

4 Climate deniers are moving from the Old Denial of global warming and its causes...

...to a New Denial of climate impacts, solutions and the climate movement

1 Global warming is not happening

1.1 Ice isn't melting or snow coverage isn't vanishing

"Greenland's surface has gained more than 400 billion tons of ice and snow [...] more than 50 billion tons above average."[8]
Reality: Greenland is losing 270 billion tons of ice per year on average[9]

1.2 We're heading into an ice age or a period of global cooling

"We're in an ice age, thems are the facts. And the facts are where it's going to be getting colder as the sun shuts down into Grand Solar Minimum."[10]
Reality: Even if the next solar cycle is less active it will not cause an ice age[11]

1.3 Weather is too cold for global warming to be true

"Winters have been so cold in the Midwest and Northeast in recent years the climate alarmists have started blaming all the cold weather on global warming."[12]
Reality: Global warming can actually contribute to severe winter weather[13]

1.4 The climate hasn't warmed or changed in recent decades

"Satellite temperature records indicate that the planet is no warmer today than it was in 2003."[14]
Reality: Evidence shows warming from 1998 to the present[15]

1.6 Sea level rise is exaggerated or is not accelerating

"Sea level at this location has risen about 28 centimeters or 11 inches in the past 100 years. There's no curve upward in the last 50 years as most news reports would have us believe."[16]
Reality: Sea levels have risen by 3.98 inches since 1992, an unprecedented trend[17]

1.7 Extreme weather isn't increasing, has happened before or isn't linked to climate change

"The alarmists say hurricanes and other storms are getting worse: 'it's getting stronger and stronger, the winds are getting harder and harder.' No they aren't!"[18]
Reality: Climate change makes extreme weather including storms more common[19]

2 Human-generated greenhouse gasses are not causing global warming

2.1 Global warming is actually natural cycles or variation

"Solar activity is linked to warming over the past 300 years."[23]
Reality: The warming in recent decades is too great to be caused by solar activity[24]

2.3 There's no evidence for greenhouse effect

"Greenhouse gasses cannot physically cause the observed global warming, especially if we're talking about CO_2 which is .04 percent of the atmosphere."[25]
Reality: CO2 in the atmosphere warms the planet, causing climate change[26]

3 The impacts of global warming are beneficial or harmless

3.1 The climate's sensitivity is low or negative feedbacks are reducing warming

"The global surface temperature is relatively insensitive to very high levels of CO_2 because otherwise you wouldn't have entered a glaciation."[27]
Reality: Research suggests the climate is highly sensitive to human CO2 emissions[28]

3.2 Plants, animals or reefs are benefiting from climate impacts or are unaffected

"If sea level rises the coral says thank you very much and it just grows and grows."[29]
Reality: Coral reefs are losing the ability to keep pace with sea-level rise[30]

3.3 CO2 is beneficial or is not a harmful pollutant

"Life on Earth has benefited from the increase in carbon dioxide over the past 35 years. Earth has gotten much greener."[31]
Reality: The negative effects of CO2 far outweigh benefits to plant growth[32]

4 Climate solutions won't work

4.1 Climate policies aiming to mitigate or adapt to warming are harmful

"We're going to build thousands of new solar panels and wind farms, requiring the government to tear up tens of thousands or maybe even hundreds of thousands of acres of land [...] destroying the economy and destroying the environment."[33]
Reality: Renewables need the same or less space than fossil fuel infrastructure[34]

4.2 Climate policies are ineffective or flawed

"Governments have been doing this for years, they've been subsidizing energy efficiency and imposing energy efficiency measures and the thing is it doesn't even affect energy use."[35]
Reality: Energy efficiency reduces the energy needed for a range of services[36]

4.4 Clean energy technology or biofuels won't work

"They're replacing [fossil fuels] with solar energy and wind energy but then they realize that in the wintertime the sun doesn't shine and the wind doesn't really blow that much, so their energy costs have gone through the roof."[37]
Reality: All sources of power are not available 24/7, 365 days a year[38]

4.5 People need energy from sources such as fossil fuels or nuclear power

"If we try to go without fossil fuels in our lifetime, you are going to see the standard of living plummet."[39]
Reality: It is possible to shift to renewables and away from other energy sources[40]

5 Climate science and the climate movement are unreliable

5.1 Climate science is unreliable, uncertain or unsound

"The underlying cloud forcing relates to what has been almost unanimously identified in the last two years of literature to be the single greatest source of uncertainty in climate models, also bias and error in those climate models."[41]
Reality: Climate models are getting future warming projections right[42]

5.2 The climate movement is unreliable, alarmist or corrupt

"There is a 97% consensus among scientists that the IPCC is a fraud."[43]
Reality: IPCC predictions are more likely to underestimate the climate response[44]

OLD **NEW**

This taxonomy omits some rarer forms of climate denial

The taxonomy featured from this section of our report was developed by the same team behind the AI tool we used for our analysis, called CARDS.[20] In our report, we have chosen to list only those sub-claims that were common enough for the CARDS model to be trained on, omitting some rarer sub-claims that can be viewed in their original paper.[21] There may also be new forms of climate denial not yet reflected in this taxonomy, and the taxonomy is distinct from attempts to categorize different types of climate skepticism.[22]

5 We used AI to analyze denialist claims in thousands of hours of YouTube content

This report investigates the changing tactics of climate deniers on YouTube by analyzing thousands of hours of transcripts of their videos on the platform dating back to 2018. To do this, we used a new AI tool that can identify key climate denialist claims in text transcripts.

How we collected data

Researchers gathered a dataset of text transcripts for 12,058 climate-related YouTube videos posted between 1 January 2018 to 30 September 2023. These transcripts were sourced from 96 YouTube channels that are known to have published climate denialist content. This list of denialist channels contains a mix of individual pundits such as Jordan Peterson, media companies such as Blaze TV and think tanks such as the Heartland Institute.[45] In total, the dataset covers 4,458 hours or nearly 186 days of YouTube content.

Researchers drew up an initial longlist of 122 channels drawn from a previous CCDH study of climate misinformation on YouTube and a list of relevant think tanks and blogs compiled by researchers Coan et al.[46] YouTube channels belonging to fossil fuel companies were deemed out of scope, as they primarily promote greenwashing claims which the AI tool used for this report is not designed to identify.[47]

Using YouTube's API, we then searched these channels for videos containing climate-related keywords in their titles, tags, descriptions or transcripts.[48] This produced a longlist of potentially relevant videos, which we narrowed further by removing those that did not use climate-related keywords in their titles or descriptions.

We then gathered time stamped text transcripts for all remaining videos where auto-generated or user-submitted transcripts were available on YouTube. Further channels were eliminated from our analysis if the AI tool was not able to identify any denialist claims within all of that channel's transcripts.

This left us with a final dataset of text transcripts for climate related-videos posted by 96 YouTube channels run by individuals or organizations known to have promoted climate denial, all dating from the period from 1 January 2018 to 30 September 2023.

How we used an AI model to analyze climate denialist claims in YouTube transcripts

To analyze our dataset of YouTube transcripts, we used an AI tool called CARDS which is designed to identify and categorize key climate denialist claims in text.[49]

CARDS, short for *Computer-Assisted Recognition of climate change Denial and Skepticism*, is an AI tool developed by a team of academics including Travis Coan, Constantine Boussalis, John Cook and Mirjam Nanko.[50]

The tool is a deep learning model that can automatically process text to identify claims from the taxonomy of five climate denialist super-claims and 17 related sub-claims outlined in the previous section of this report. For example, the super-claim that climate solutions won't work contains the sub-claim that clean energy technology or biofuels won't work.

CARDS was developed to work on paragraph-sized chunks of text, making it necessary for us to break down the YouTube video transcripts in our dataset into appropriately-sized snippets before applying the model to them. As such, each video transcript from our dataset was split into one minute snippets, each of which comprises an average of 167 words. By applying the model to these snippets, researchers were able to identify a total of 34,692 climate denialist claims across all text transcripts in our dataset. Videos that the AI model identified as containing denialist claims received 325,227,148 views in total.

How we assessed the AI model's accuracy for our analysis

In order to assess the accuracy of CARDS when applied to our dataset of text transcripts, two researchers independently tested its results across a sample of 600 transcript snippets. We found that the model's categorization of sub-claims or no claim in snippets was judged accurate by both researchers for 78% of snippets in this sample. For the remaining snippets:

- In 13% of cases, one researcher agreed with the AI's categorization.
- In 1% of cases, both researchers agreed on the category of climate denial present in the snippet, but the AI had assigned a different category of climate denial.
- In 6% of cases, researchers agreed that there was no climate denial in the snippet, but the AI had falsely categorized the snippet as climate denial.
- In 1% of cases, researchers agreed that climate denial was present in the snippet, but the AI had not categorized it as climate denial.
- In the remaining 1% of cases, there was no agreement between researchers or the AI on the snippet's categorization.

Further details on our data collection, the CARDS model, accuracy testing and limitations of our analysis are detailed in Appendix 1.

6 YouTube data charts a clear shift from Old Denial to New Denial

YouTube data charts a clear shift from Old Denial to New Denial

Share of climate denialist claims on YouTube (%)
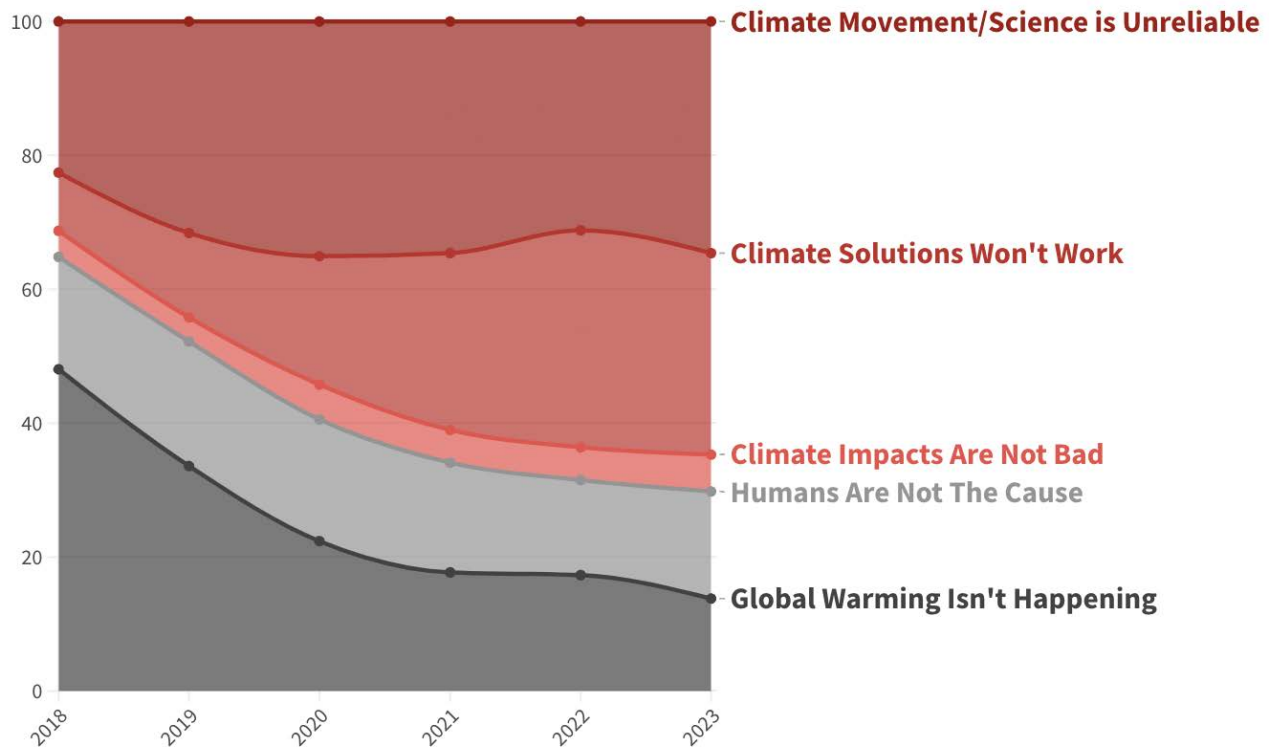
7 New Denial now constitutes 70% of climate denialist claims on YouTube

Analysis of content from YouTube suggests a new form of climate denial is now dominating, focused more on denying climate impacts, solutions and advocates and less on denying global warming or its human causes.

As a share of all climate denialist claims in our set of YouTube transcripts, New Denial now constitutes 70% of claims in 2023, up from 35% in 2018. This is based on analysis of nearly 186 days of YouTube content posted by channels known to have promoted climate denial.

New Denial consists of three super-claims: climate impacts are not bad, climate solutions won't work and the climate movement or science is unreliable. As a share of all denialist claims in a given year, each of these claims have grown in prominence in the period studied:

- **Climate solutions won't work** has grown 21.4 percentage points
- **Climate movement/science is unreliable** has grown 12 percentage points
- **Climate impacts are not bad** has grown 1.6 percentage points

Old Denial, consisting of two super-claims that global warming is not happening or is not human caused, has become less prevalent over the same period. Together, they have dropped from 65% of all claims in 2018 to just 30% of claims in 2023. This drop is driven mainly by a decrease in the claim that global warming isn't happening, though both super-claims have shrunk:

- **Global warming is not happening** has dropped 34.3 percentage points
- **Humans are not the cause** has dropped by 0.8 percentage points


Why are deniers changing their focus?

In recent years, a number of experts on climate disinformation have observed a shift in the narratives pursued by climate deniers away from claims about the existence of human-caused climate change and towards a new playbook of climate claims.

Some experts have linked this to the growing evidence for climate change we see around us, reflected even in day-to-day weather, making it harder to deny warming. John Cook, a leading researcher on climate skepticism, has said: "Science denial has become untenable ... So inevitably, opponents of climate action are strategically shifting to misinformation targeting climate solutions in order to delay climate policy."[51]

Climatologist and geophysicist Michael Mann has also written that climate deniers have shifted their narrative in the face of increasing evidence of climate change, away from outright denial and towards what he calls "inactivism", defined as attempts to undermine climate action by the promotion of five Ds: deflection, delay, division, despair and doomism[52]

Case Study: YouTube channel BlazeTV transitioned from Old to New Denial

Number of claims identified on Blaze TV's channel
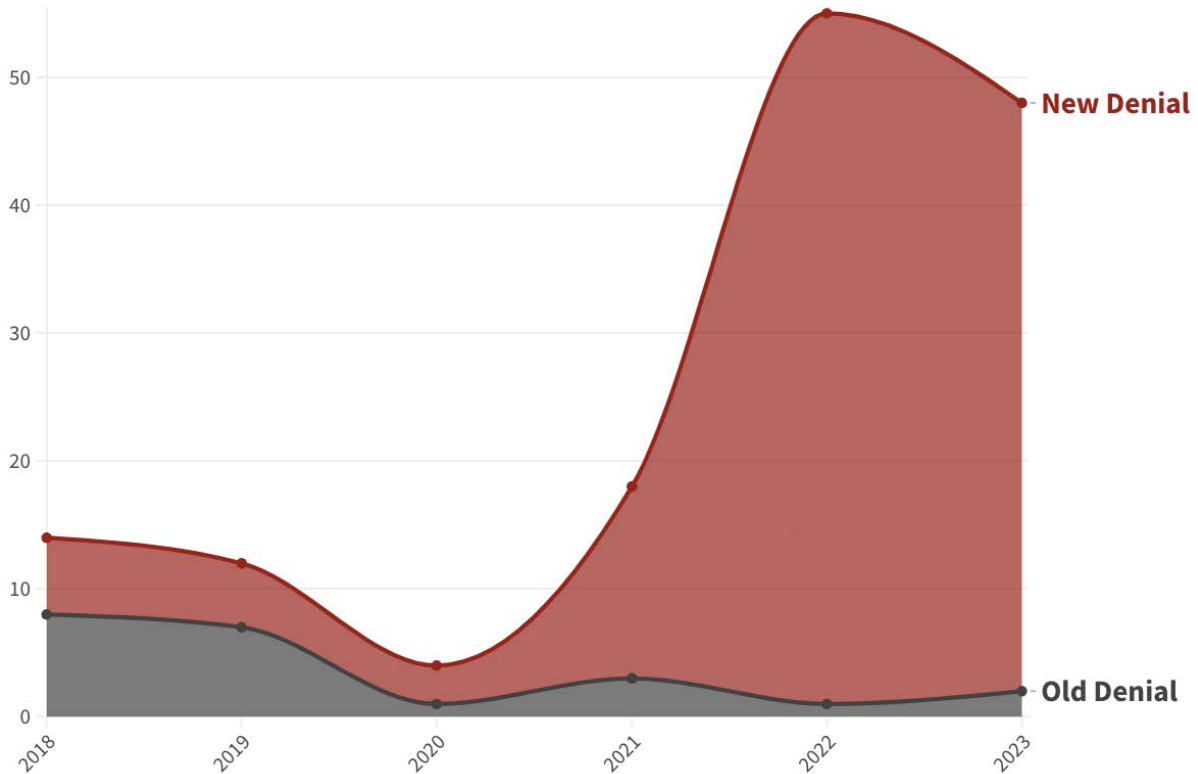
BlazeTV, a media company with 1.95 million subscribers on YouTube, transitioned from Old Denial and sharply increased its output of New Denial content over the last six years.

Blaze TV's founder, Glenn Beck, is known to have promoted Old Denial at least as long ago as 2010, claiming then there had been "zero warming for over a decade".[53] In fact, at that time the previous decade had been the warmest on record.[54]

Posting from his personal account on X, Glenn Beck is now receiving thousands of likes for promoting New Denial claims. One recent post on the platform denies that climate change caused "Maui's wildfires, or ANY wildfires", despite multiple studies showing otherwise.[55]

Another recent post directly attacks the reliability of climate experts, claiming "the 'experts' have gotten their doomsday predictions wrong EVERY time."[56]

Example: Climate movement is unreliable

71K views · 28 Jul 2022

In this video Glenn Beck, the founder of BlazeTV, claims that President Biden's government is using climate change as a cover to push for a great reset and government control. He states: "They don't care about saving the planet, they know climate change is not going to kill millions around the world, this is all about gaining power and control over you [...] they are using this so-called emergency to justify a reset."[57]

Watch on YouTube ▶️

8 New Denial: Deniers have shifted to attacks on climate solutions and advocates

New Denial sub-claims as a share of denialist claims on YouTube

2018   2023

22.6% Movement is unreliable

14.8%

13.6% Clean energy won't work

12.1% Science is unreliable
11.9% Policies are harmful

7.8%

3.8%
3.4% We need energy
2.8%
2.3% Not a pollutant
2.2%
1.7% No species impact
1.4%
1.5% Sensitivity is low
1.3%
1.2% Policies are ineffective
0.8%
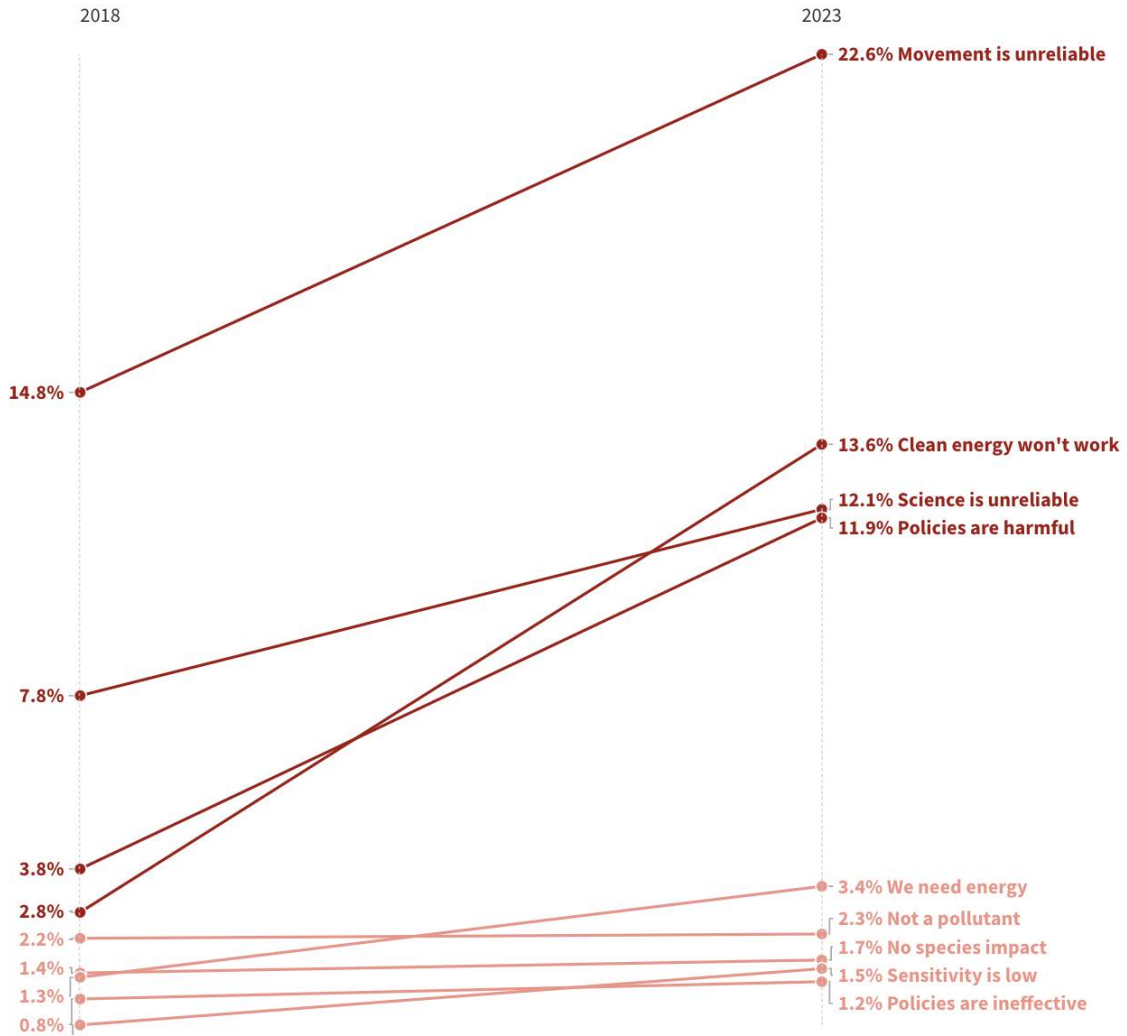
The increasing popularity of New Denial can largely be put down to the rise in four key sub-claims: that 'the climate movement is unreliable', that 'clean energy won't work', that 'climate policies are harmful' and that 'the science is unreliable'.

The rise in these sub-claims shows that, more than ever, those using YouTube to undermine climate action are focussing their attention on undermining green policies and clean energy and targeting attacks at members of the climate movement.

Between 2018 and 2023, the change in the fastest-growing sub-claims as a share of all claims was as follows:

- **Clean energy won't work increased** by 10.8 percentage points
- **Climate policies are harmful** increased by 8.1 percentage points
- **The climate movement is unreliable increased** by 7.8 percentage points
- **Climate science is unreliable increased** by 4.3 percentage points

The following pages take each one in turn, highlighting an example of how they have been deployed in YouTube videos.


Example: Clean energy won't work

14K views · 25 Oct 2021

This video from the Heartland Institute, a climate denialist think tank, is titled "Nobles Lies and the Evil They Allow".[58] It features William Happer claiming that renewable energy will come "at the expense of decent ordinary citizens, who are forced to accept unreliable, expensive electrical power from environmentally devastating wind and solar power sources."[59]

Watch on YouTube ▶
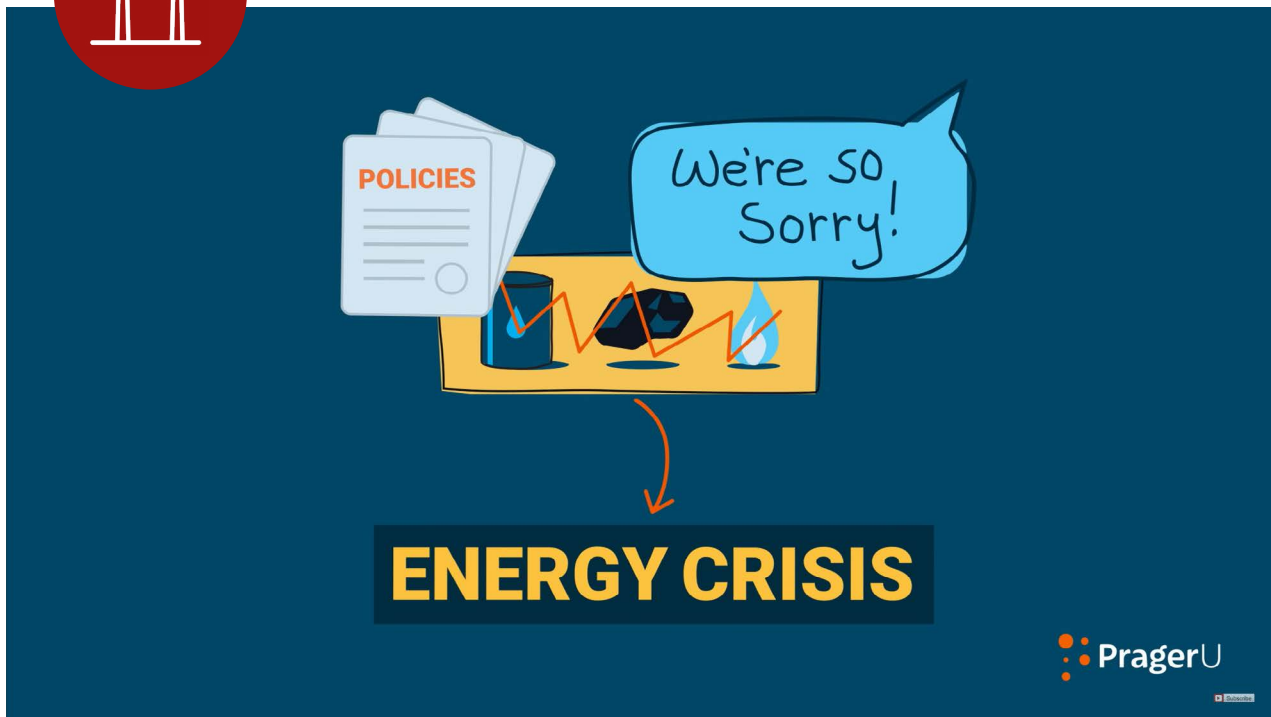
Example: Climate policies are harmful

2.7M views · 27 Feb 2023

This video titled "The Real Climate Crisis" posted by PragerU, promotes claims that climate policies are harmful.[60] It features narration from climate contrarian Alex Epstein who claims that "the world faces a serious crisis, one that will ruin whole economies and lead to needless suffering and death. The crisis is related to climate change but not in the way you're probably thinking: it's the global energy crisis, a man–made crisis created by climate change policies."[61]

Watch on YouTube ▶

Example: The climate movement is unreliable

1M views · 8 Dec 2022

This video of a conversation between Jordan Peterson and Alex Epstein, both known to have promoted climate denial, sees Epstein launch an attack on environmentalists.[62] He tells Peterson, "listening to a modern environmentalist is like listening to a doctor who's on the side of the germs, somebody who doesn't have your best interests at heart."[63]

Watch on YouTube ▶

Example: Climate science is unreliable

14K views · 25 Oct 2021

This video from The Heartland Institute channel features Anthony Watts, the operator of a climate denial blog, who says: "The future that they're portraying isn't going to happen because the data is not matching up. And that's the problem, that's the disconnect that the climate alarmists have. They look at the future only, they see these computer model projections and they equate them to fact."[64]

Watch on YouTube ▶

Case Study: Jordan Peterson's output of New Denial spiked in the last two years

Number of claims identified on Jordan Peterson's channel
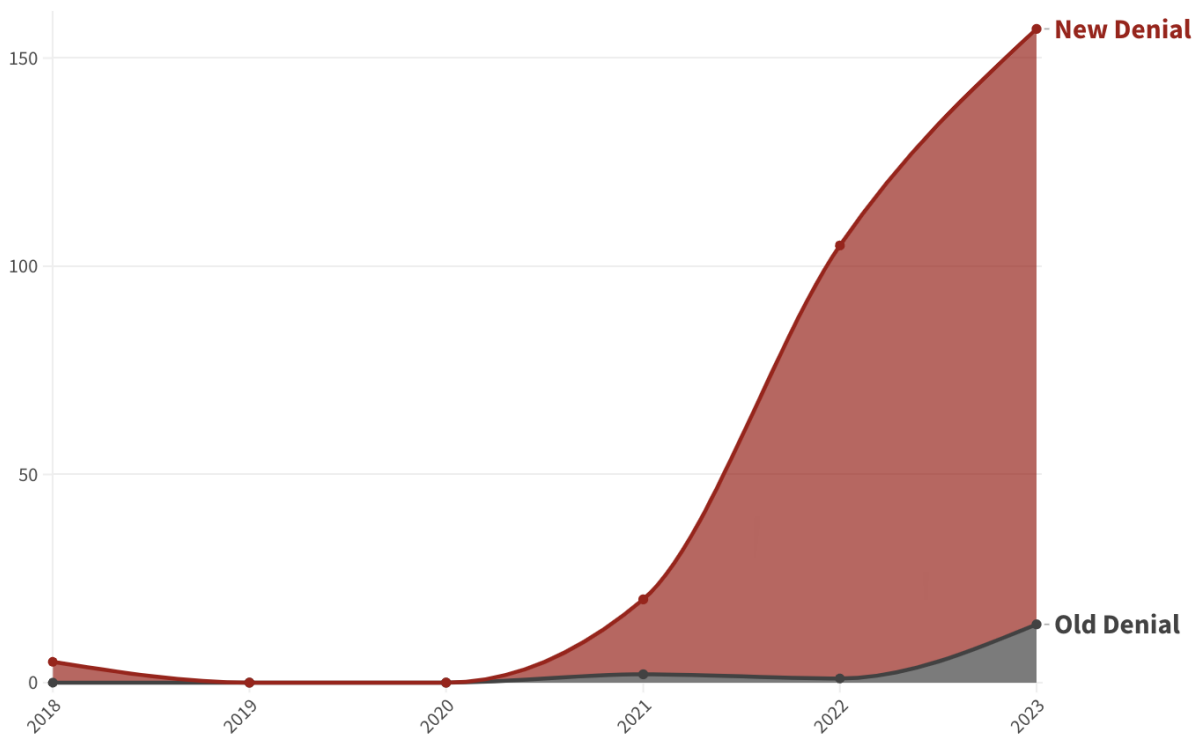
Jordan Peterson, the psychologist and media commentator, rarely posted climate denial content to his YouTube channel until 2021 when his output of New Denial rose sharply.

Peterson's channel is influential, with a total of 7.5 million subscribers.[65] His videos are primarily interviews, and in the last three years he increasingly hosted talks with climate contrarians under titles such as "The Great Climate Con", "Killing the Poor to Save the Planet" and "The Predictions Are Wrong".[66] His output of climate denial content, with a marked emphasis on New Denial, has risen every year since 2020.

In September 2023, Peterson launched a new organization called the Alliance for Responsible Citizenship whose inaugural conference saw speakers discount the impact of sea level rise and extreme weather events.[67]

um absurd logically but I I think it's
tantamount to genocidal in

Example: : Climate solutions won't work

1.3M views · 17 Nov 2022 In this video Jordan Peterson interviews Canadian politician Danielle Smith. While in conversation he says, , "In the terms that the environmentalists themselves hypothetically hold dear, the idea that we can make the planet more habitable on an environmental, on the environmental front by impoverishing poor people, by raising energy prices and food prices, is absolutely, it's not only absurd logically, but I think it's tantamount to genocidal."[68]

Watch on YouTube ▶

9 Old Denial: Deniers have shifted away from claims the climate is cooling

Old Denial sub-claims as a share of denialist claims on YouTube
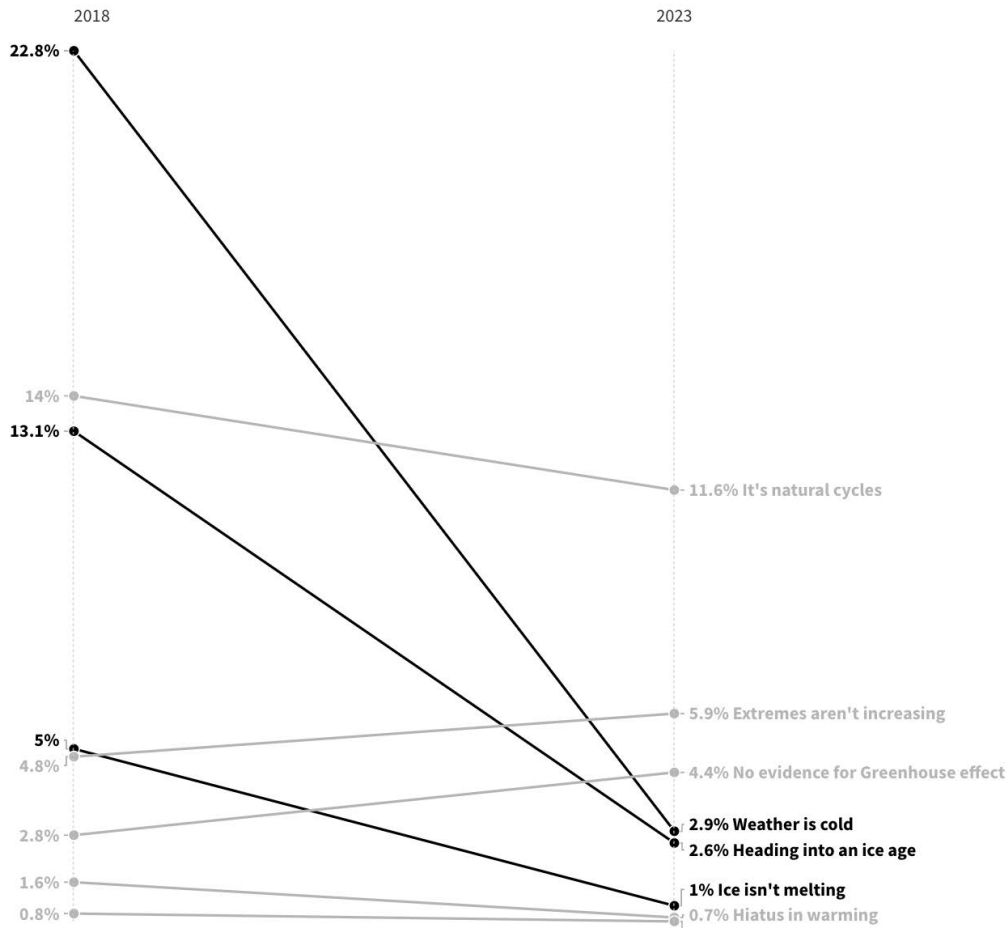
The fall in Old Denial has been driven by a drop in three sub–claims highlighting cool weather, with the sharpest declines being seen in the sub–claims that: 'the weather is too cold for global warming to be true', we're 'heading into an ice age' and that the 'ice isn't melting'.

The data shows that deniers are moving away from the tactic of cherry–picking cold weather examples and otherwise drawing attention to cold weather in order to prompt skepticism about climate change. When taken as a share of all claims in our sample, the drops in these claims are as follows:

- **Weather is too cold for global warming** dropped by 19.9 percentage points
- **We're heading into an ice age** dropped by 10.5 percentage points
- **Ice isn't melting** dropped by 4 percentage points

The following section takes each of these sub–claims in turn, highlighting an example for each one as to how it has been deployed in YouTube videos.
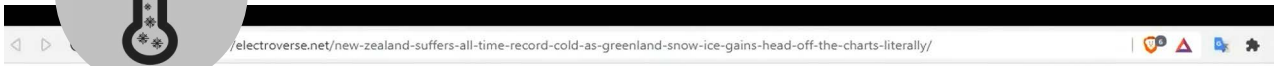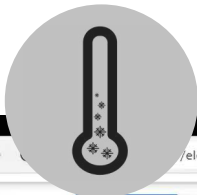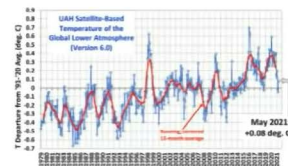
Example: Weather is too cold for global warming

6.6K views · 3 Jun 2021
This video from the Oppenheimer Ranch Project, a climate denialist YouTube channel that has been operating since 2014, promotes claims that the climate is in fact cooling.[69] Using cherry-picked data, the narrator claims "New Zealand suffers the all-time record cold. Every key data point now indicates a cooling planet. How long will it be before the likes of the IPCC and the mainstream media lap dogs report on the facts? Well […], probably never."[70]

Watch on YouTube ▶

Example: We're heading into an ice age

1.1M views · 18 Sept 2021 This video features an interview with Patrick Moore, who was once associated with Greenpeace but has since branded human-caused global warming "fake news".[71] Moore claims that global warming is in fact "an upward tick in a downward movement" and agrees when interviewer Chris Williamson asks "if you were to roll it forward by another 500 years you are going to see the crest of that thousand year cycle actually diminish and we're going to start to cool again, and then cool again to a lower level than we would have seen previously at the previous low."[72]

Watch on YouTube ▶

Arctic Sea Ice Extent

EUMETSAT OSI SAF data, with R&D input from ESA CCI.

Sea Ice Extent [million km²]

Legend:
- 1980s
- 1990s
- 2000s
- 2010s
- 2020s
- 2021

v2.1
Graph was plotted 15/08/2021 10:03 UTC
Source: EUMETSAT OSI SAF (http://osi-saf.eumetsat.int)
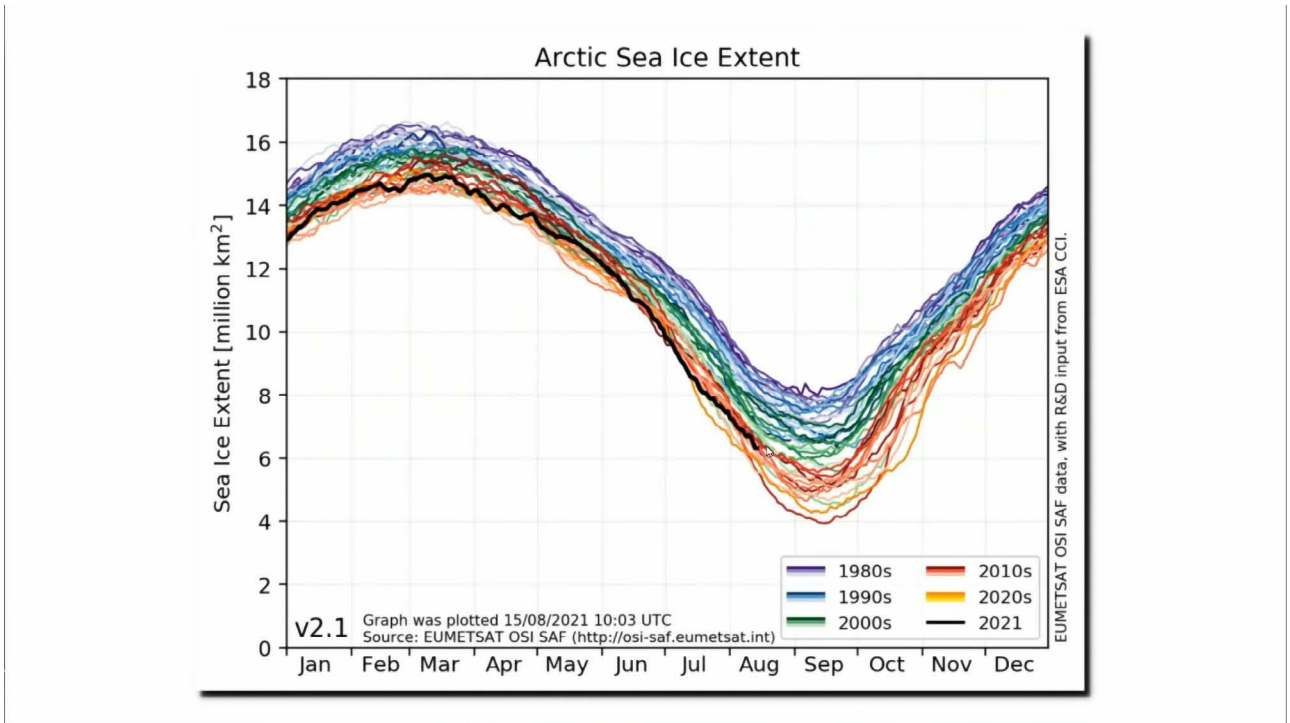
Example: Ice isn't melting

22K views · 15 Aug 2021 This video is taken from the YouTube channel of Steven Goddard, a climate denier who goes by the pseudonym Tony Heller.[73] The video claims that "Arctic sea ice extent is also the highest for the date in the past six years and if we go to Greenland we can see that the amount of ice accumulation on Greenland's surface is well above average."[74]

Watch on YouTube ▶
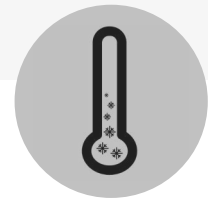
10 YouTube makes up to $13.4 million a year from channels posting denial

YouTube is potentially making up to $13.4 million a year in ad revenue from channels studied by this report that have posted climate denial content.

The social media analytics tool Social Blade produces estimates of typical ad pricing on YouTube using values that the company has found to be common amongst its partners.[75] It states the prices range from a low CPM (cost per mille, or cost per one thousand views) value of $0.25 USD up to a high CPM value of $4 USD.[76]

Social Blade data also shows that the 96 channels studied by this report received 3.4 billion (3,356,433,249) views on their content in the year between 18 December 2022 and 18 December 2023. Combining this figure with the tool's upper CPM value allows us to estimate that YouTube may have made as much as $13,425,733 in the year studied.

This analysis assumes that every view on each channel generates ad revenue, as YouTube does not provide data on how frequently ads were served on a given video or channel. In some cases YouTube splits ad revenue with a channel, in which cases it reportedly pays 55 percent of revenue to the content creator while retaining the remaining 45 percent.[77]

YouTube's policies on climate denial only cover Old Denial

Google's policy for YouTube creators prohibits ads for and monetization of "content that contradicts well-established scientific consensus around the existence and causes of climate change."[78] The platform specifies that this includes claims that global warming is not happening, that climate change is a hoax and that denial that human activity or human greenhouse gasses are contributing to climate change.

This policy closely reflects the two Old Denial super-claims – that global warming is not happening and that humans are not the cause. But notably, YouTube's rules do not cover the New Denial claims that are now being heavily pursued by denialists, namely that the impacts of global warming are beneficial or harmless, that climate solutions won't work or that climate science and the climate movement are unreliable.

YouTube is failing to enforce its policy against monetising Old Denial

Evidence collected in the course of research for this report shows that YouTube is failing to enforce its existing policy against the monetization of videos promoting Old Denial. The following pages collate examples of ads running on both Old Denial and New Denial content, with more examples available in a separate annex to this report.

Ads on Old Denial: global warming is not happening

Are We Doomed?

John Stossel ✓
892K subscribers

Subscribe

👍 59K   👎   ↗ Share   ⧉+ Save   •••

1M views · 19 Nov 2019

The screenshot shows an ad for the International Rescue Committee served on the video "Are We Doomed?" from John Stossell.[79] In the video, Stossel moderates a panel with members of climate denialist think tank The Heartland Institute, where one member claims: "There is no relationship between hurricane activity and the surface temperature of the planet".[80]

Watch on YouTube ▶

Ads on Old Denial: greenhouse gasses do not cause warming
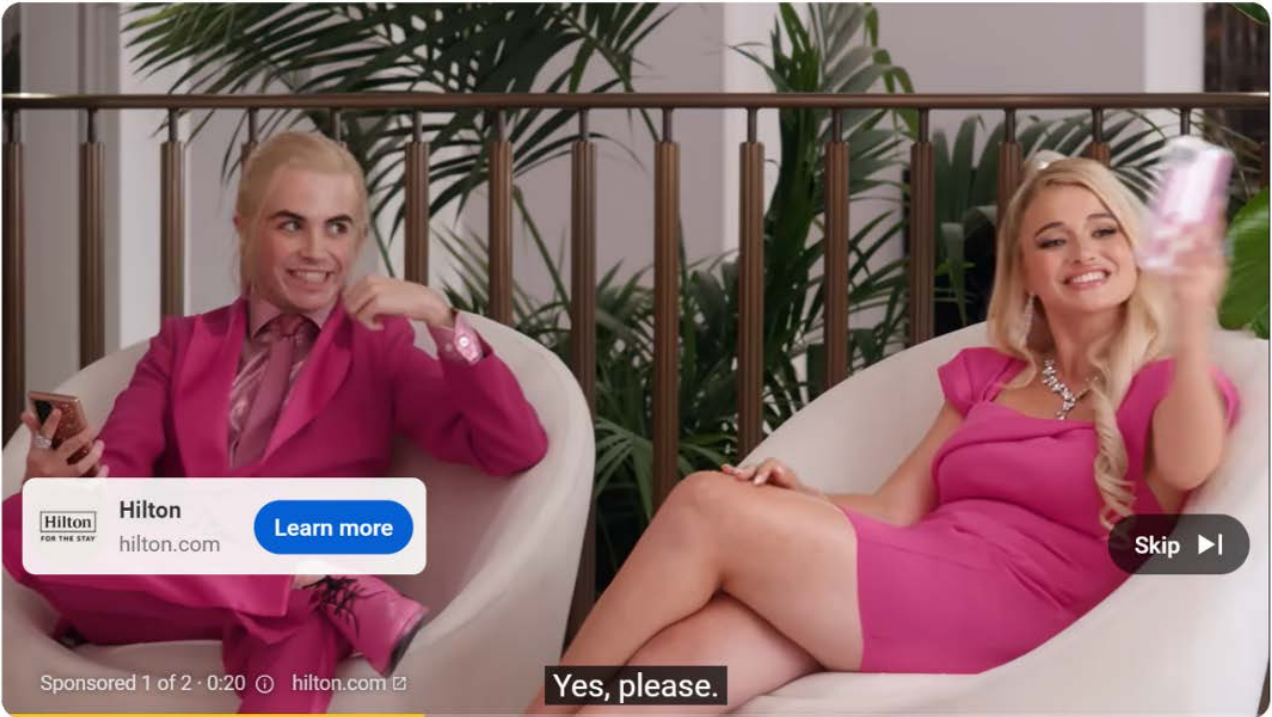
What's the Deal with the Green New Deal?

PragerU ✓
3.2M subscribers

Join   Subscribe

👍 24K   👎   ➤ Share   ☰+ Save   •••

7M views · 29 Jul 2019
An ad for Hilton is served on PragerU's video titled "What's the Deal with the Green New Deal?". The video promotes the claim: "Although CO$_2$ causes some warming, it's much less significant than we've been told".[81]

Watch on YouTube ▶

Ads on New Denial: climate impacts are not bad

Add your name
act.clf.org/fight-big-oil
Act now

Sponsored 1 of 2 · 2:00 ⓘ   act.clf.org/fight-big-oil ⊡   until now.

Skip ▶|
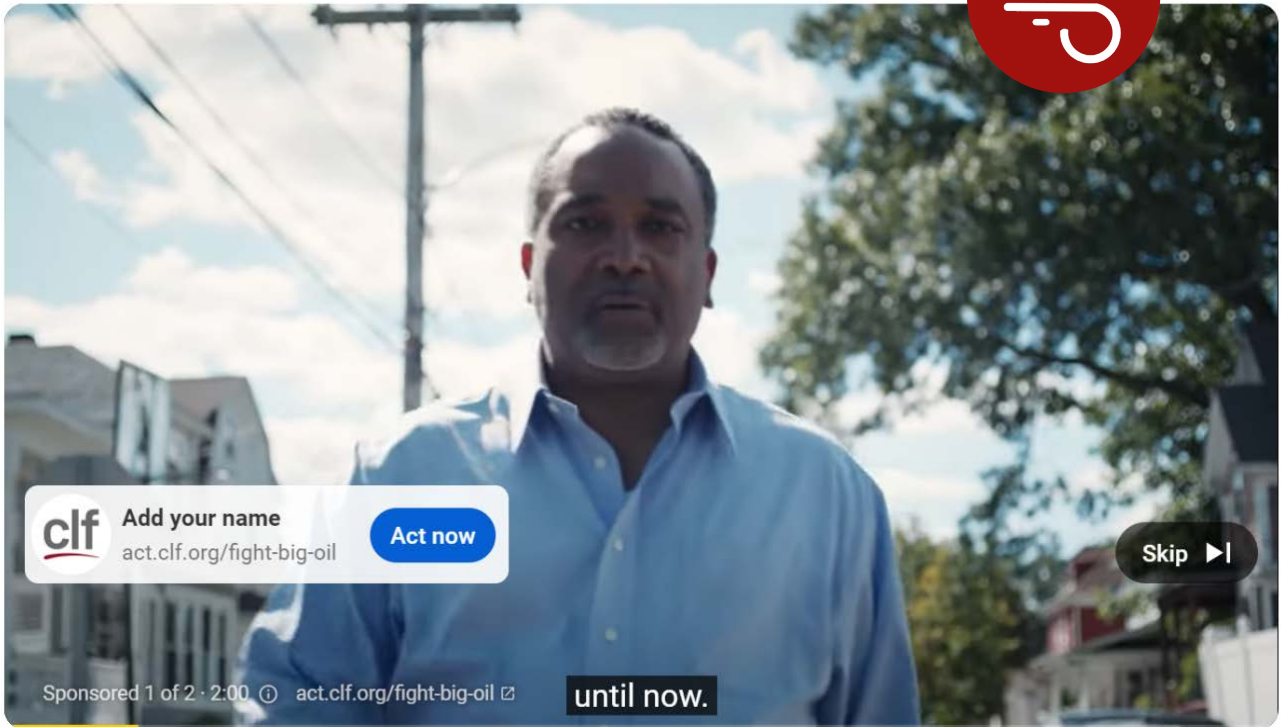
Context   ⋮

Climate change ⊡
United Nations
Climate change refers to long-term shifts in temperatures and weather patterns, mainly caused by human activities, especially the burning of fossil fuels.

The Great Climate Con | Alex Epstein | EP 312

Jordan B Peterson ✓
7.59M subscribers   Subscribe

👍 30K 👎   ➦ Share •••

1M views · 8 Dec 2022
YouTube serves an ad for the Conservation Law Foundation on a video titled "The Great Climate Con" from Jordan Peterson, in which he claims that rising CO_2 levels are beneficial, and that as a result, the "planet got greener".[82]

Watch on YouTube ▶

Ads on New Denial: climate solutions won't work

This is how they will CONTROL all of us, new lockdowns announced | Redacted with Clayton Morris

Redacted ✓
2.22M subscribers

Join   Subscribe

👍 55K   👎   ➤ Share   ⋯

2M views · 16 Dec 2022

An ad for Save the Children displayed on a video from Redacted titled "This is how they will CONTROL all of us, new lockdowns announced" from Redacted. The video falsely frames the urban planning concept of "15-minute cities" as "climate lockdowns", claiming "they also don't want you to leave your house and they want you to give up your cars".[83]

Watch on YouTube ▶

Ads on New Denial: climate movement or science is unreliable

1.3M views · 5 February 2018

Ad for BetterHelp on PragerU's video, "Can Climate Models Predict Climate Change?" in which Will Happer dismisses climate models, claiming: "In short, I know a lot about the Earth's atmosphere and climate. I also know a lot about long–term predictive climate models. And I know they don't work. They haven't worked in the past. They don't work now. And it's hard to imagine when, if ever, they'll work in the foreseeable future."[84]

Watch on YouTube ▶

11 Recommendations

Climate denial has evolved and social media platforms are failing to keep up with New Denial narratives.[85] While the United Nations Intergovernmental Panel on Climate Change has recognized the threat of disinformation in the climate crisis, the evolution of climate denial narratives is still an understudied phenomenon.[86] This report addresses that gap by quantifying the rise of New Denial narratives that seek to undermine the climate movement, dispute climate science and delay climate solutions.

In 2021, YouTube's parent company Google promised to stop monetizing climate denial content.[87] Just earlier this year, a YouTube spokesman asserted that YouTube would demonetize climate-change denial content.[88] Google has failed to keep its promise on Old Denial narratives, according to our research. Furthermore, Google's current policy against the monetization of climate denial urgently needs updating to address New Denial, or runs the risk of being even more ineffective.

1 Google must update its policy on climate denial content

Google's current policy on unreliable and harmful claims states that content which "contradicts authoritative scientific consensus on climate change" will not be monetized on its platforms.[89]

Climate change is a complex, multifaceted problem and scientific consensus is established through disagreement and inquiry. However, this report demonstrates a clear change in the substance of climate denial claims over the last five years, many of which contradict the well-established scientific consensus on climate change. To address this substantive change, Google must update its policy:

> **Current policy:** "We do not allow content that contradicts authoritative scientific consensus on climate change."

> **Recommended policy:** We do not allow content that contradicts the authoritative scientific consensus on the **causes, impacts, and solutions** to climate change.

Without updating and enforcing this policy, the purveyors of the New Denial and the platforms which host them will continue to facilitate and profit from climate denialism outside the narrow parameters of Google's current policy.

2 Digital platforms must demonetize and de-amplify climate denial content

This report demonstrates how New Denial narratives have risen in the last five years. All digital platforms should heed these findings. Major platforms including Instagram, Facebook, TikTok, and X must evaluate their own platforms for the prevalence of New Denial content and review their policies toward climate change denial, particularly those that permit the monetization and amplification of New Denial.

Currently, serious gaps exist in the policies of these platforms toward climate change. Meta's Instagram and Facebook leave it up to third-party fact checkers to identify posts and advertisements that deny the existence of climate change, merely removing advertisements and limiting the reach of content after they have been flagged.[90] TikTok's policy is restricted to removing Old Denial content and does nothing to address the New Denial.[91] X has no official policy towards content or advertising that pushes Old Denial or New Denial claims.[92]

To support the global efforts to avert climate disaster, Instagram, Facebook, TikTok and X should all demonetize and de-amplify New Denial content. Demonetizing climate denial removes the economic incentives underpinning its creation and protects advertisers from bankrolling harmful content. Moreover, de-amplifying climate denial limits its reach and visibility, allowing time for fact-checking and other protective measures to be applied where content is clearly contrary to the well-established scientific consensus on climate change.

3 Climate advocates: use this report as a call to action to address New Denial

New Denial narratives are now the most prevalent arguments used to undermine climate action. Climate advocates and policymakers must recognize this shift or risk losing the information battle necessary to deliver climate solutions. In a worrying example, prior CCDH polling on social media usage tested respondents' agreement with conspiracy theory statements, including the statement: "Humans are not the main cause of global temperature increases."[93] CCDH found that 43% of adults and 56% of teenagers who report high activity on social media expressed agreement with that statement.[94] This link between social media usage and conspiracist belief illustrates why urgent action is needed to prioritize information integrity on digital platforms in climate policymaking.

The only viable response to the threat of climate disaster is action. This report should be used as a call to action for those who want to advance progress against climate change.

Attacks on the energy transition, scientists who advance climate science and the solutions to generate political action to the climate crisis will only increase, given the trends described in this report. We must build resilience among climate scientists, so they know how to navigate social media to spread science and truth, and not be diverted or put off by deniers and trolls.

Advocates must be adaptable in order to create scalable responses to the biggest existential threat facing our species. Shifting resources, tactics, investments, and approaches to reflect the emerging narratives and challenges identified in this report is necessary to achieve climate progress.

Policymakers and climate advocates alike must ensure they heed these findings, by recognising the nature of the new climate denial and by adopting legislation under CCDH's STAR framework to inject safety, transparency, accountability, and responsibility into the governance of digital platforms and strengthening information integrity around the world.

Appendix 1: Methodology

This report investigates the changing tactics of climate deniers on YouTube by analyzing thousands of hours of transcripts of their videos on the platform dating back to 2018. To do this, we used a deep-learning model that can identify key climate denialist claims in text transcripts.

How we selected a longlist of YouTube channels to study

Researchers gathered a dataset of text transcripts for 12,058 climate-related YouTube videos posted between 1 January 2018 to 30 September 2023. These transcripts were sourced from 96 YouTube channels that are known to have published climate denialist content. This list of denialist channels contains a mix of individual pundits such as Jordan Peterson, media companies such as Blaze TV and think tanks such as the Heartland Institute.[95] In total, the dataset covers 4,458 hours or nearly 186 days of YouTube content.

Researchers drew up an initial longlist of 122 channels drawn from a previous CCDH study of climate misinformation on YouTube and a list of relevant think tanks and blogs compiled by researchers Coan et al.[96] YouTube channels belonging to fossil fuel companies were deemed out of scope, as they primarily promote greenwashing claims which the AI tool used for this report is not designed to identify.[97]

How we selected YouTube videos for our final dataset

Using YouTube's Search API, we searched channels in our longlist of channels for videos containing climate-related keywords in their titles, tags, descriptions or transcripts.[98] This produced a longlist of potentially relevant videos, which we narrowed further by removing those that did not use climate-related keywords in their titles or descriptions.

To collect the data, researchers used YouTube's Search API to return all videos from each channel since the start of 2018 matching the following query using climate-related terms: **query =**

"climate|greenhouse|green|environment|environmental|environmentalist|weather|heat|cool-ing|hurricane|floods|ice|wildfire|wildfires|drought|temperature|warming|greta|fossil|environ-ment|energy|recycling|renewable|renewables|windmills|solar|hydropower|geothermal|frack-ing|hydroelectricity|turbines|biomass|nuclear|CO2|carbon|coal|diesel|methane|emissions|-pollution|electric|climategate|alarmist|alarmism|evs|lithium|combustion|biodiversity|extinc-tion|polar|plants|coral|antarctica|greenland|glaciers|97|net|COP|oil|gas"

Subsequently, we used this query to filter out any videos that did not contain climate-related terms in their titles or descriptions:
query =

"climate|climate change|climate crisis|climate emergency|greenhouse|greenhouse gas|greenhouse gasses|green|green energy|environment|environmental|environmentalist|man-made|man made|human made|human caused|extreme weather|weather|heat|cooling|hurricane|floods|ice|little ice age|ice age|ice core|ice cores|wildfire|wildfires|drought|temperature|warming|greta|greta thunberg|fossil|fossil fuel|fossil fuels|environment|energy|recycling|renewable|renewables|windmills|wind farms|wind turbines|solar|solar panels|solar farms|hydropower|geothermal|fracking|hydroelectricity|turbines|biomass|nuclear|power plant|nuclear power|CO2|carbon|carbon dioxide|coal|coal power|coal powered|diesel generator|diesel powered|diesel power|diesel|methane|emissions|pollution|electric|electric cars|electric vehicles|net emissions|net zero|climate scam|climate hysteria|climate fraud|climate cult|climate religion|climategate|alarmist|alarmism|evs|lithium|lithium batteries|combustion|biodiversity|extinction|polar|polar bears|plants|plant food|bug food|bug based diet|coral|coral reef|antarctica|greenland|ice sheet|greenland ice sheet|glaciers|arctic|97|97 percent|net-zero|COP|natural cycles|medieval warm period|water vapor|sun spots|seal level|sea level rise|climate lockdown|15 minute cities|fifteen minute cities|fifteen minute city|15 minute city|oil|gas"

How we prepared YouTube video transcripts for analysis

We then gathered time stamped text transcripts for all remaining videos where auto-generated or user-submitted transcripts were available on YouTube. Where available, these transcripts can be viewed in full with timestamps by opening the description pane of a video and clicking "Show transcript". Videos were eliminated from our analysis if transcripts were not available.

Further channels were eliminated from our analysis if the AI tool was not able to identify any denialist claims within all of that channel's transcripts. This left us with a final dataset of text transcripts for climate related-videos posted by 96 YouTube channels run by individuals or organizations known to have promoted climate denial, all dating from the period from 1 January 2018 to 30 September 2023.

How we used an AI model to analyze climate denialist claims in YouTube transcripts

To analyze our dataset of YouTube transcripts, we used an AI based model called CARDS which is designed to identify and categorize key climate denialist claims in text.[99]

CARDS, short for Computer-Assisted Recognition of climate change Denial and Skepticism, is a deep-learning model developed by a team of academics including Travis Coan, Constantine Boussalis, John Cook and Mirjam Nanko.[100]

The model labels text as containing claims from the taxonomy of five climate denialist super-claims and 17 related sub-claims outlined in the previous section of this report, or as containing no claim. For example, the super-claim that climate solutions won't work contains the sub-claim that clean energy technology or biofuels won't work.

CARDS was developed to work on paragraph-sized chunks of text, making it necessary for us to break down the YouTube video transcripts in our dataset into appropriately-sized snippets before applying the model to them. As such, each video transcript from our dataset was split into one minute snippets, each of which comprises an average of 167 words. By applying the model to these snippets, researchers were able to identify a total of 34,692 climate denialist claims across all text transcripts in our dataset. Videos that the AI model identified as containing denialist claims received 325,227,148 views in total.

How we checked the AI model was accurate

To check the AI model correctly categorized the content to a minimum standard of accuracy, we conducted an accuracy test on the results. We created a random sample of 600 snippets from data categorized by the AI and manually assessed if they had been correctly categorized according to Coan et al's taxonomy. To make sure all types of claim were assessed including those that occurred less frequently, we selected 30 snippets per claim. As the "no claim" class was the most common, 90 of these were included in the test set.

Before performing the accuracy test, researchers familiarized themselves with the taxonomy by completing Coan et al's training test, in which they assigned labels to a gold-standard set consisting of nine paragraphs. Researchers then corrected their assignments using the guide in Coan et al's supplementary materials.[101]

Next, they independently assessed the same set of 600 snippets and compared their results to measure the accuracy of the model. Researchers were able to view the categories assigned by the model, and for all snippets they marked whether they agreed or assigned an alternative category where they did not. If snippets contained more than one claim from Coan et al's taxonomy, researchers marked agreement with the model-assigned category so long as they felt it matched one of those claims.

Once all 600 snippets had been reviewed by two researchers, the share of snippets for which two separate researchers had both agreed with the model label came to 78%. For the remaining snippets:

- In 13% of cases, one researcher agreed with the AI's categorization.
- In 1% of cases, both researchers agreed on the category of climate denial present in the snippet, but the AI had assigned a different category of climate denial.
- In 6% of cases, researchers agreed that there was no climate denial in the snippet, but the AI had falsely categorized the snippet as climate denial.

- In 1% of cases, researchers agreed that climate denial was present in the snippet, but the AI had not categorized it as climate denial.
- In the remaining 1% of cases, there was no agreement between researchers or the AI on the snippet's categorization.

How we estimated the ad revenue generated by channels studied by this report

The social media analytics tool Social Blade produces estimates of typical ad pricing on YouTube using values that the company has found to be common amongst its partners.[102] It states the prices range from a low CPM (cost per mille, or cost per one thousand views) value of $0.25 USD up to a high CPM value of $4 USD.[103]

Social Blade data also shows that the 96 channels studied by this report received 3.4 billion (3,356,433,249) views on their content in the year between 18 December 2022 and 18 December 2023. This figure is based on the difference in total view count for each channel, comparing Social Blade's records for 18 December 2022 through to 18 December 2023 using the tool's API, therefore representing how many views that channel's videos gained in that year–long period.

Combining this figure with the tool's upper CPM value allows us to estimate that YouTube may have made as much as $13,425,733 in the year studied. This analysis assumes that every view on each channel generates ad revenue, as YouTube does not provide data on how frequently ads were served on a given video or channel. In some cases YouTube splits ad revenue with a channel, in which cases it reportedly pays 55 percent of revenue to the content creator while retaining the remaining 45 percent.[104]

How we counted the data for our graphs

The analysis in this report focuses on the share of different claims across time, rather than the absolute number of claims. The pure number of claims and videos increased in the period between 2018 to 2023, our analysis focuses on the proportion of each claim to account for this. "Claims" are individual transcript snippets that the model labeled as containing denialist claims.

Appendix 2: Limitations

This appendix outlines some of the limitations of the analysis set out in this report. In short, while our use of an AI-based model allowed us to label denialist claims in nearly 186 days of YouTube video content, we were not able to automatically fact-check every claim identified. Our analysis is also limited to YouTube content, although our findings may apply to content that the same individuals and organizations post to other social media platforms.

Limitations of using AI tools to categorize claims

The use of artificial intelligence to categorize data enabled researchers to quickly categorize large amounts of data, substantially expanding the scope of the study beyond what would be possible with manual data analysis. But using a deep-learning model in this way introduced some notable limitations:

• The estimated accuracy level of the tool sits at 78%, with two researchers separately agreeing in those cases that the tool had correctly labeled a given narrative. As a result, the analysis should be interpreted as a means of understanding broad trends rather than exact instances of any given narrative.

• The model can not fact-check claims made in videos as a human researcher could.[105] So while the CARDS tool used for this report's analysis is effective in identifying a range of climate denialist claims, its results should not be interpreted as performing fact-checks of those claims.

• The transcripts were separated into one minute snippets in order to be the right length for the AI to process. By their nature, the transcripts did not contain any punctuation. This process likely had implications for the correct labeling of claims, as the text expressing a single claim may have crossed the one minute cutoff of a transcript snippet in some instances. It could also mean that a claim would be counted several times if it was expressed across several minutes of transcript.

Limitations arising from our selection of YouTube channels

This list of channels analyzed in this study was designed to incorporate prominent climate denial voices, including both think tanks and high-profile YouTube pundits, but it is not an exhaustive list of channels that host climate denialist content. There are likely many more denialist content creators on YouTube that were not included in the study, despite contributing to harmful narratives around climate change.

As noted, our analysis deliberately omits channels belonging to fossil fuel companies as they primarily promote greenwashing claims which the AI tool used for this report is not designed to identify.[106] As such, it is a limitation of this report that it does not chart the role of fossil fuel companies in promoting climate denial on YouTube, or attempt to account for greenwashing as part of the phenomenon of climate denial.

Limitations arising from inaccessible transcripts

YouTube has an in-built transcript feature making it possible to gather ready-made transcripts for most videos. However, transcripts were unavailable for 9% of videos in our longlist, meaning a number of videos matching our search of YouTube were not included in the analysis. In addition, some errors were present in the available transcripts, which may have negatively affected model performance.

Appendix 3: List of YouTube channels

The following table collates all 96 YouTube channels from which we gathered a dataset of text transcripts of videos used for our analysis. A full explanation of how this list of channels was used in our analysis is available in Appendix 1: Methodology.

Channel Title	Channel Link	Source
ADH TV	@alanjones	CCDH/CAAD Research
Academic Influence	@AcademicInfluence	CCDH/CAAD Research
Age Of Truth TV	@AgeOfTruthTV	CCDH/CAAD Research
American Enterprise Institute	@AEI	CARDS List
Andrew Klavan	@AndrewKlavan	CCDH/CAAD Research
Andrew Lawrence	@AndrewLawrenceComedy	CCDH/CAAD Research
Anonymous Official	@-anonymous	CCDH/CAAD Research
Anthony Pompliano	@AnthonyPompliano	CCDH/CAAD Research
Anything Goes	@AnythingGoesChannel	CCDH/CAAD Research
Author Matt Ridley	@AuthorMattRidley	CARDS List
Behold Israel with Amir Tsarfati	@beholdisrael	CCDH/CAAD Research
BizNewsTv	@BizNewsTV	CCDH/CAAD Research
BlazeTV	@BlazeTV	CCDH/CAAD Research
Brian Craig	@BrianCraigShow	CCDH/CAAD Research
CDN	@ClimateDN	CCDH/CAAD Research
Capital Research Center	@capitalresearchcenter/featured	CARDS List
Centre for Independent Studies	@CISAus	CCDH/CAAD Research
Chris Williamson	@ChrisWillx	CCDH/CAAD Research
Climate Resistance	@ClimateResistance	CARDS List
Climate of Sophistry	@ClimateofSophistry	CCDH/CAAD Research
Clyde Do Something	@ClydeDoSomething	CCDH/CAAD Research
Competitive Enterprise Institute	@CEIdotorg/featured	CARDS List
Cutting Through The Noise	@cuttingthroughthenoise3086	CCDH/CAAD Research
Daily Renegade	@DailyRenegade	CCDH/CAAD Research
Dane Wigington	@DaneWigington	CCDH/CAAD Research
EIKE – Europäisches Institut für Klima und Energie	@EikeKlimaEnergie	CCDH/CAAD Research
Endtime	@EndtimeInc	CCDH/CAAD Research
Epoch TV – Streaming the Truth	@EpochTVofficial	CCDH/CAAD Research
FreedomWorks Media	@FreedomWorksMedia	CARDS List
George Christensen	@GeorgeChristensenMP	CCDH/CAAD Research
Glenn Beck	@glennbeck	CCDH/CAAD Research
Heritage Action for America	@Heritageaction	CARDS List

Channel Title	Channel Link	Source
Hudson Institute	@hudsoninstitute	CARDS List
Human Progress	@HumanProgressOrg	CCDH/CAAD Research
Hügo Krüger	@hugo_kruger	CCDH/CAAD Research
Independent Institute	@independentinstitute	CCDH/CAAD Research
Institute for Advanced Study	@videosfromIAS	CCDH/CAAD Research
Jim Steele	@jimsteele9246	CCDH/CAAD Research
John Polomny	@ActionableIntelligenceAlert	CCDH/CAAD Research
John Stossel	@StosselTV	CCDH/CAAD Research
Jordan B Peterson	@JordanBPeterson	CCDH/CAAD Research
Joseph Z	@JosephZ	CCDH/CAAD Research
JustinCredibleTV	@JCredTV	CCDH/CAAD Research
KIRO Newsradio 97.3 FM	@kironewsradio	CCDH/CAAD Research
Kim Iversen	@KimIversen	CCDH/CAAD Research
LaughingAtLiberals	@LaughingAtLiberals	CCDH/CAAD Research
Lex Clips	@LexClips	CCDH/CAAD Research
Liberty and Finance	@LibertyandFinance	CCDH/CAAD Research
Malcolm Roberts	@MalcolmRobertsOneNation	CCDH/CAAD Research
Manhattan Institute	@ManhattanInst	CARDS List
Mark Moss	@1MarkMoss	CCDH/CAAD Research
Mr Reagan	@MrReaganUSA	CCDH/CAAD Research
National Center for Public Policy Research	@NCPPR	CARDS List
Natural Allies for a Clean Energy Future	@natural_allies	CCDH/CAAD Research
Newsmax	@NewsmaxTV	CCDH/CAAD Research
Oppenheimer Ranch Project	@OppenheimerRanchProject	CCDH/CAAD Research
Pacific Research Institute – PRI	@pacificresearch1	CARDS List
Paul Joseph Watson	@PrisonPlanetLive	CCDH/CAAD Research
PowerfulJRE	@joerogan	CCDH/CAAD Research
PragerU	@PragerU	CCDH/CAAD Research
ReasonTV	@ReasonTV	CARDS List & CCDH/CAAD Research
Reclaim The Media	@ReclaimTheMedia_	CCDH/CAAD Research
Redacted	@RedactedNews	CCDH/CAAD Research
Saifedean Ammous	@saifedean	CCDH/CAAD Research
Salem Center for Policy	@SalemCenterforPolicy	CCDH/CAAD Research
Saving American Energy	@savingamericanenergy	CCDH/CAAD Research
Shaun Attwood	@shaunattwoodOFFICIAL	CCDH/CAAD Research
Steamboat Institute	@SteamboatInstitute	CCDH/CAAD Research

Channel Title	Channel Link	Source
SuspiciousObservers	@SuspiciousObservers	CCDH/CAAD Research
TCCTV	@TCCTV/featured	CARDS List
TFTC	@TFTC	CCDH/CAAD Research
The Cato Institute	@catoinstitutevideo	CARDS List
The Crigler Show	@TheCriglerShow	CCDH/CAAD Research
The Fraser Institute	@FraserInstitute/videos	CARDS List
The Global Warming Policy Foundation	@theglobalwarmingpolicyfoun4676	CCDH/CAAD Research
The Heartland Institute	@HeartlandInstitute	CCDH/CAAD Research
The Houndog	@houndogsteve	CCDH/CAAD Research
The Jay Martin Show	@TheJayMartinShow	CCDH/CAAD Research
The Lumen Fidei Institute	watch?v=Z6gY2JPQ3M4	CCDH/CAAD Research
The Realignment	@therealignment	CCDH/CAAD Research
TheDC Shorts	@DailyCallerVideo	CCDH/CAAD Research
TheRemnantVideo	@TheRemnantvideo	CCDH/CAAD Research
Timcast IRL	@TimcastIRL	CCDH/CAAD Research
Tom DeWeese	@TomDeWeese	CARDS List
Tom Nelson	@tomnelson2080	CCDH/CAAD Research
Tony Heller	@TonyHeller	CARDS List
TopherField	@TopherField	CCDH/CAAD Research
Triggernometry	@triggerpod	CCDH/CAAD Research
Unsafe Space	@UnsafeSpace	CCDH/CAAD Research
Viva Frei	@VivaFrei	CCDH/CAAD Research
WAPolicyCenter	@WAPolicyCenter	CARDS List
Walk The World	@WalkTheWorldDFA	CCDH/CAAD Research
Wisdom Land	@WisdomLand	CCDH/CAAD Research
cfact	@cfact	CARDS List
ideacity	@ideacity	CCDH/CAAD Research
spiked	@spiked	CCDH/CAAD Research

Appendix 4: Super-claims over time

The following table shows the proportion of denialist claims from each super-claim over time, as represented by the chart in Section 6.

	1. Global heating is not happening	2. Human-generated greenhouse gasses are not causing global heating	3. The impacts of global heating are beneficial or harmless	4. Climate solutions won't work	5. Climate science and the climate movement are unreliable
2018	48.1%	16.8%	3.9%	8.7%	22.6%
2019	33.6%	18.6%	3.6%	12.6%	31.6%
2020	22.4%	18.2%	5.2%	19.2%	35.1%
2021	17.7%	16.4%	4.9%	26.4%	34.6%
2022	17.3%	14.2%	4.9%	32.4%	31.2%
2023	13.8%	16.0%	5.5%	30.1%	34.6%
CHANGE	–34.3%	–0.8%	1.6%	21.4%	12%

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