The Science vs. the Narrative vs. the Voters

Clarifying the Public Debate Around Energy and Climate

Roger Pielke Jr. and Ruy Teixeira

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Executive Summary

The relationship between voter opinion, scientific assessment, and media narrative is poorly understood, thereby reinforcing the current overly partisan and tribal discussion about energy and climate. This report focuses on these relationships, in both policy and political terms, in the context of American public opinion.

Both the public's views and the Intergovernmental Panel on Climate Change's (IPCC) scientific analysis differ in important respects from a narrative that has come to dominate the mainstream media discourse and public understandings of climate and energy. On the one hand, the public generally holds views well aligned with IPCC findings, but not media coverage, about trends in various extreme weather phenomena. On the other hand, the public shows very little understanding of IPCC conclusions related to projected future changes in climate and tipping points. There is also a sharp divergence between the media conventional wisdom and the views and preferences of voters on energy policy, especially as it relates to climate change.

The public broadly supports an "all-of-the-above" approach to energy policy and does not generally support a rapid elimination of fossil fuels. Instead, they support increased domestic production of fossil fuels. Rather than being motivated by media coverage to place a high priority on fighting climate change, the public is far more interested in the cost and reliability of the energy they use and the convenience and comfort of their energy-using products. They are unwilling to sacrifice much financially to address climate change or significantly change their consumer behavior.

Those proposing specific climate policies face a choice of aligning them in the direction of public opinion on climate and energy or seeking to change public opinion in favor of proposals that they presently do not support. We believe that policy proposals aligned with existing public opinion are far more likely to secure political support than are proposals that require a significant change in priorities or values among the public. This report seeks to clarify which direction the winds of public opinion are now blowing.

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With the abrupt changes in energy and climate policy promulgated by the second Trump administration, it is more vital than ever to understand what voters actually think about energy and climate; how those views align (or don't align) with scientific evidence, as summarized by the most recent assessment reports of the Intergovernmental Panel on Climate Change (IPCC); and how both match up with the dominant mainstream media narrative about these crucial issues.

Right now, the relationship between voter opinion, scientific assessment, and media narrative is poorly understood. Our report aims to clarify this underlying confusion to better inform policy initiatives and proposals, in both policy and political terms, in the context of American public opinion.

To facilitate our project, about one month before the 2024 election, we fielded the AEI 2024 Energy/Climate Survey. The survey asked more than 3,000 registered voters about their views on trends in extreme weather, IPCC climate projections, climate tipping points, favored energy sources, priorities and preferences on energy policy, willingness to bear costs to fight climate change, personal energy consumption behavior, and much more. In this report, we discuss the findings in the context of IPCC science and media conventional wisdom.

Trends in Extreme Weather, IPCC Projections, and Climate Tipping Points

We find that the public holds views generally well aligned with IPCC findings about trends in various extreme weather phenomena. However, survey respondents have a poor understanding overall of IPCC projections for future temperature changes and, contrary to the IPCC, tend to believe in a tipping point beyond which lie catastrophic results for humanity.

Let's start with what the IPCC says about the detection and attribution of changes in the frequency or intensity of various extreme events.

- "Detection" refers to the identification of a change in the statistics of weather or climate phenomena over a period of decades or longer.

- "Attribution" refers to the identification of the cause or causes underlying the detected change.

Table 1 summarizes the conclusions of the IPCC's sixth assessment report (IPCC AR6) on the detection and attribution of change (ignoring here the IPCC's levels of expressed confidence).[1]

The IPCC has detected increases in heat waves, extreme precipitation, ecological and agricultural drought (also known as soil moisture deficits), and fire weather (i.e., combined hot and dry conditions). Each of these detected changes has also been attributed to human influences on climate, at various levels of confidence, mainly through the emissions of carbon dioxide from the burning of fossil fuels, as well as other greenhouse gases and other human influences.

The IPCC has not, however, detected or attributed changes in flooding, meteorological or hydrological drought, tropical cyclones (including hurricanes), winter storms, thunderstorms, tornadoes, hail, lightning, or extreme winds.

When asked, most survey respondents reported that they have not, for the most part, observed changes in extreme weather phenomena, except for heat waves, where a majority reported observing an increase. (See Figure 1.)

Observed increases in hurricanes, floods, tornadoes, drought, cold snaps, and winter storms are a minority assessment among both Republicans and Democrats. However, about twice as many Democrats as Republicans reported experiencing increases, suggesting that political views influence how people interpret the weather they experience.

When asked about the period over which they have seen changes in extreme weather, very few (less than 10 percent) reported trends in periods over 20 years. Thus, most people were reporting climate variability rather than climate change, as understood by the IPCC.

When asked specifically about the cause of reported changes to extreme events, voters were generally split between ascribing causality to mostly human-caused climate change and mostly natural climate variability. Democrats were much more likely to ascribe causation of trends to human-caused changes in climate and Republicans to natural climate variability, indicating a clear partisan divide on perceptions of weather events.

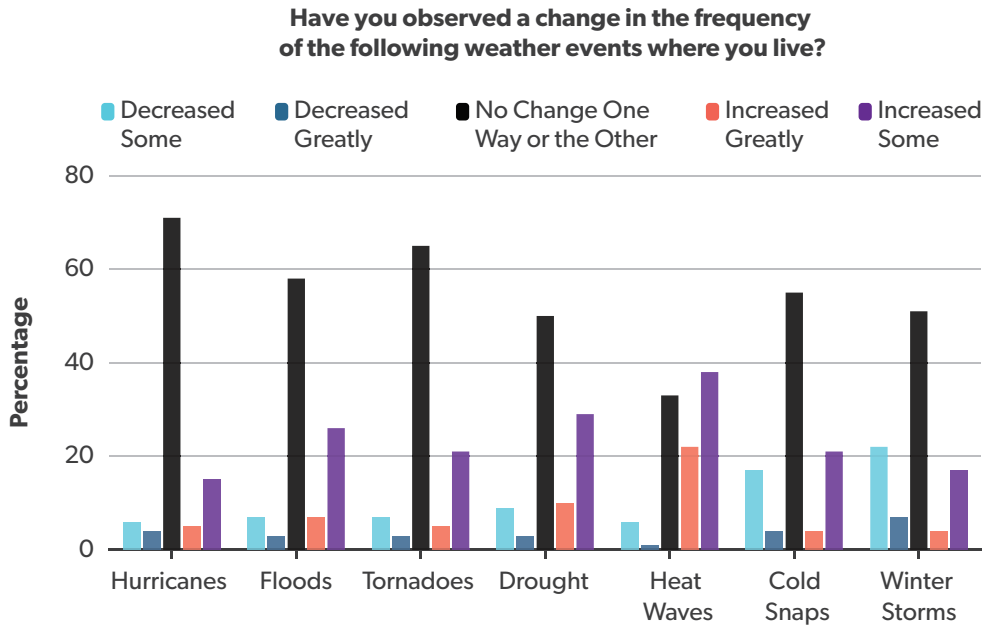
Survey respondents were asked, "How much higher does the IPCC project global temperatures will increase from recent levels by 2100 without additional climate policies beyond those currently in place?" The IPCC AR6 identifies such policies as limiting 21st-century warming to increases of less than 4°C (less than 8.2°F) above preindustrial temperatures or

Table 1. Summary of IPCC Findings on the Detection and Attribution of Extreme Weather Events

	Detection	Attribution
Heat Waves	Yes	Yes
Heavy Precipitation	Yes	Yes
Flooding	No	No
Meteorological Drought	No	No
Hydrological Drought	No	No
Ecological Drought	Yes	Yes
Agricultural Drought	Yes	Yes
Tropical Cyclones	No	No
Winter Storms	No	No
Thunderstorms	No	No
Tornadoes	No	No
Hail	No	No
Lightning	No	No
Extreme Winds	No	No
Fire Weather	Yes	Yes

Source: Intergovernmental Panel on Climate Change, Working Group I, "Weather and Climate Extreme Events in a Changing Climate," in *Climate Change 2021: The Physical Science Basis* (Cambridge University Press, 2021), 1513–766, https://www.ipcc.ch/report/ar6/wg1/chapter/chapter-11/.

Figure 1. Voters' Observation of Extreme Weather Events



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.

less than 2.9°C (less than 5.2°F) above today's temperatures.[2] This value is already out-of-date; more recent policy projections indicate an increase of less than 3°C (less than 5.4°F) total by 2100 or less than 1.6°C (2.9°F) above today's values.[3]

As shown in Figure 2, few survey respondents (approximately 10 percent) were able to accurately respond to this question, and about half reported not knowing. These results indicated that a topline projection of the IPCC is not at all understood or even known by the majority of the public.

Confusion between the IPCC's use of Celsius and the American usage of Fahrenheit is likely. People likely also confuse an increase over a preindustrial temperature baseline (defined as 1850–1900 by the IPCC) with an increase beyond contemporary temperatures.

In short, global temperatures and projections are not particularly salient metrics among the public.

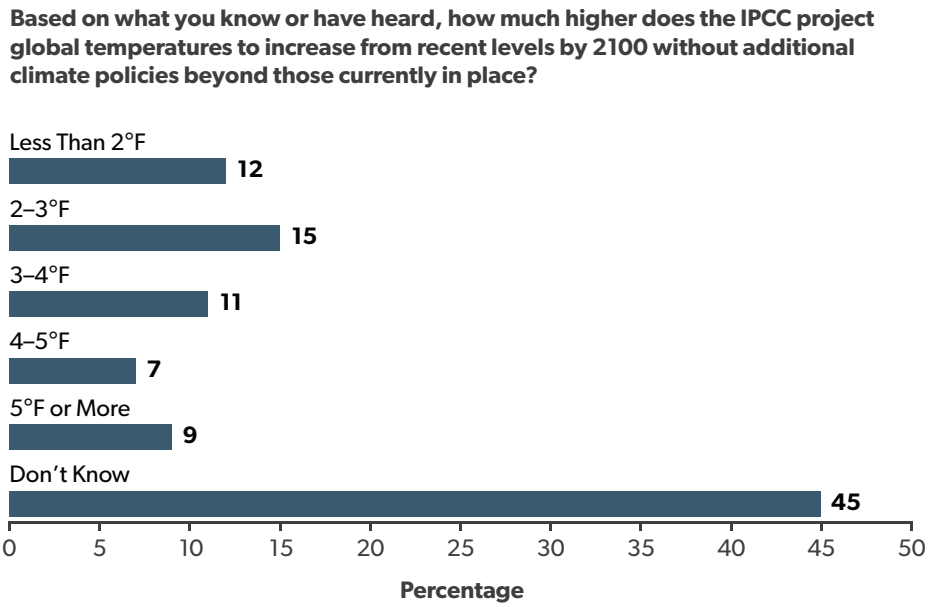
When asked for their own expectation for future temperature rise from today's values, which are about 2°F (1.1°C) above preindustrial values, respondents were fairly evenly split across a range of five categories: less than 2°F (1.1°C), 2°F to 3°F, 3°F to 4°F, 4°F to 5°F, and more than 5°F (2.8°C). About a quarter said they didn't know.

One notable difference was again between Republicans and Democrats, with 54 percent of Democrats projecting an increase of greater than 3°F by 2100. In comparison, just 24 percent of Republicans projected such an increase, and 45 percent felt temperature rise would be less than 3°F.

On this issue, the plurality of Republicans were more in line with the latest (post–IPCC AR6) policy projections. However, this assessment likely reflects a generally more optimistic view of our collective climate future among Republicans than among Democrats, rather than a better understanding of current scientific evidence.

The survey's findings were similar on the question of tipping points. The IPCC states that "abrupt changes and tipping points are not well understood,

Figure 2. Voters' Knowledge of IPCC Global Temperature Projections



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: Totals: 99 percent. *N* = 3,039.

but the higher the warming level and the longer the duration of overshoot, the greater the risk of unexpected changes."[4]

The IPCC does not, however, identify a numerical value for a tipping point, nor does it associate a tipping point with catastrophic outcomes for humanity. In fact, the IPCC does not associate climate change with existential, apocalyptic, or catastrophic outcomes.

When asked, "Does the IPCC think there is a tipping point beyond which temperature rise from the current day will produce catastrophic results for human civilization?," most respondents answered yes. This finding clearly indicates that most people believe there is a point beyond which the IPCC has identified catastrophic outcomes for humanity (Figure 3). Strong majorities hold this view across demographic and political categories.

When asked at what temperature level this tipping point would be found, respondents gave a wide range of answers, from less than 1°F to more than 5°F above current temperatures by 2100. About half said they did not know.

Once again, we see relative climate optimism among Republicans, with only 24 percent estimating that the climate tipping point would be triggered by a temperature rise of 3°F (1.7°C) or less by 2100. Democrats demonstrate relative climate pessimism, with 37 percent estimating that the tipping point would be reached at 3°F or less by 2100.

The Narrative

Both the public's views and the IPCC's analysis differ in important respects from the mainstream narrative that has come to dominate the media and public discourse on climate.

Perhaps the seminal event in the development of the narrative was an intervention by former Vice President Al Gore in 2006. His hugely influential movie, *An Inconvenient Truth*, did not hold back in its assessment of the direness of climate change and the lateness of the hour. Gore deliberately emphasized worst-case situations to spur immediate and massive action. In fact, graphic depictions of the effects of a 20-foot

(greater than six-meter) sea-level rise on contemporary urban infrastructure are included in the movie when that possibility is nowhere to be found in the IPCC projections for this century and for centuries—or perhaps millennia—to come.[5]

In the spirit of Gore's movie, Bill McKibben, author of an influential climate change book, *The End of Nature*,[6] and some Middlebury College students and recent graduates who had been working with him founded 350.org in 2008. The tone 350.org took was explicitly radical and apocalyptic. Its goal was to address the climate "crisis" by creating an international movement that could end the use of fossil fuels and hasten the transition to renewables (essentially, wind and solar).

The group recounts its history as follows:

> When we started organising back in 2009, we saw the climate crisis as the most important issue facing humanity—but climate action was mired in politics and virtually stalled.
>
> We didn't have a straight answer for how to fix things, but we knew what was missing: a climate movement that reflected the scale of the crisis.[7]

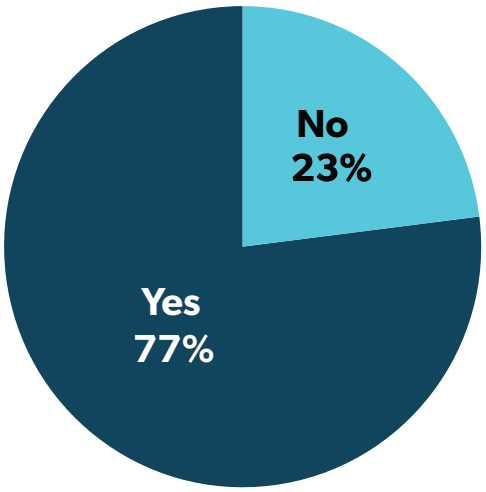
The radicalism of the group is suggested by the name, 350.org, which aspires to limit the carbon dioxide concentration in the atmosphere to 350 parts per million (ppm). But when the organization was founded, that target had already been passed, so the group aspired to not just limit global warming by reducing emissions but also reverse processes that had already taken place.

In a position paper, the group was adamant that reaching its goal was necessary to "ensure that future generations are not consigned to irreversible catastrophe."[8] Over time, the organization has moved from fossil fuel divestment campaigns on campuses and "Days of Action" demonstrations to a campaign to stop all new fossil fuel projects (including natural gas projects and pipelines) and move to 100 percent renewables (excluding nuclear energy).

The radical climate movement grew stronger during President Barack Obama's two terms, but members of the movement were disappointed with Obama's approach to energy and climate issues. The climate movement was particularly appalled by Obama's advocacy of an "all-of-the-above" approach to energy. Specifically, 350.org denounced the strategy as "a disaster for communities and the climate."[9] In 2014, 18 other environmental organizations, including Earthjustice, Environmental Defense Fund, the League of Conservation Voters, the Natural Resources Defense Council, and Sierra Club sent a letter to Obama. In it, they characterized the policy as "a compromise that future generations can't afford. It . . . locks in the extraction of fossil fuels that will inevitably lead to a catastrophic climate future."[10]

At the time of the 2009 Copenhagen Climate Change Conference under the UN Framework Convention on Climate Change (UNFCCC), the UNFCCC was calling for a target of 450 ppm carbon dioxide and a 50 percent reduction in emissions by 2050.[11]

Figure 3. Voters' Familiarity with IPCC's Understanding of Tipping Points



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: Numbers total 100 percent. *N* = 3,039.

The Copenhagen conference, which ended in disarray, did alter the focus of climate discourse from concentration targets to global temperature targets—450 ppm was recast as 2ºC by 2100, and 350 ppm became 1.5ºC, even though 350 ppm had never really been studied.[12]

Following the election of Donald Trump in 2016, rhetoric from climate activists became increasingly heated throughout Trump's term. Organizations emerged to harness the increasingly radical energy around the issue, particularly among the young.

The Sunrise Movement was formed in 2017 with the tagline "We are the climate revolution."[13] The organization's intent was to promote a rapid transition to renewables via a Green New Deal that would simultaneously accomplish this transition and turn the United States into a social democratic paradise with great jobs and health care for everybody. The organization focused its energy on allying with politicians who would support that approach and pressuring others to do so. Famously, newly elected Representative Alexandria Ocasio-Cortez joined the organization in a sit-in at congressional offices, greatly elevating its profile.

Also in 2017, David Wallace-Wells's highly influential *New York* magazine article "The Uninhabitable Earth" (later a bestselling book) came out. Its title is clear enough, but the subhead said, "Famine, economic collapse, a sun that cooks us: What climate change could wreak—sooner than you think."[14] No one in liberal Democratic circles seemed even slightly fazed by the escalating level of rhetoric, which went far beyond the conclusions found in the IPCC's scientific assessments.

Although a number of climate scientists pointed out that Wallace-Wells departed in many places from established findings and focused on only the worst possible outcomes, his work's general effect was to raise the profile of climate catastrophism among the general public.[15] As Wallace-Wells repeatedly noted, no matter how much you think you know, it's "worse than you think." It was time to contemplate "the prospect of our own annihilation."[16]

In 2018, a 15-year-old Swedish activist, Greta Thunberg, came to the attention of the world's media. She stood outside the Swedish parliament every Friday with a sign demanding climate action ("School strike for climate").[17] The general tenor of her intervention and her many speeches and interviews as she became a media star was that climate change needs massive action now, and our political leaders are failing us. The hour is late, and we're on the verge of the apocalypse.

In 2019, she gave a widely covered scolding to politicians at the UN Climate Action Summit that encapsulated her catastrophist stance, increasingly the conventional wisdom of the climate movement:

> My message is that we'll be watching you.
>
> This is all wrong. I shouldn't be up here. I should be back in school on the other side of the ocean. Yet you all come to us young people for hope. How dare you!
>
> You have stolen my dreams and my childhood with your empty words. And yet I'm one of the lucky ones. People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth. How dare you!
>
> For more than 30 years, the science has been crystal clear. How dare you continue to look away and come here saying that you're doing enough, when the politics and solutions needed are still nowhere in sight. . . .
>
> How dare you pretend that this can be solved with just "business as usual" and some technical solutions? With today's emissions levels, that remaining CO2 budget will be entirely gone within less than 8½ years.[18]

This jeremiad was greeted rapturously by the world's press. But Thunberg was largely pushing on an open door. UN Secretary-General António Guterres had already been regularly talking about a "climate crisis" and "climate emergency."[19] The mainstream media were pressured by organizations such as Gore's Climate Reality Project, Greenpeace, and the Sunrise Movement to formally adopt such language and align their perspective with that of the activists. Protests led by Extinction Rebellion took

place outside the New York Times Building to press the point, resulting in 70 arrests.[20]

The Guardian formally updated its style guide that year to favor "climate emergency, crisis or breakdown."[21] *Guardian* Editor in Chief Katharine Viner noted, "The phrase 'climate change' . . . sounds rather passive and gentle when what scientists are talking about is a catastrophe for humanity."[22] *The Guardian* became a lead partner of Covering Climate Now, an initiative founded in 2019 by the *Columbia Journalism Review* and left-wing magazine *The Nation*. Eventually, more than 500 other news organizations joined the initiative, which was formed to promote increasingly aggressive media coverage of the climate story because humanity has "just 12 years to slash heat-trapping emissions in half or else face catastrophic temperature rise and the record-breaking extreme weather it unleashes."[23]

The formation of Covering Climate Now was a significant development. It helped to both motivate and reinforce a shift of the entire left of the political spectrum, including the Democratic Party, toward the catastrophist view of climate change held by activists. This view had a steady stream of news to report on. The media now ascribed any unusual weather event to climate change, uncritically covered any new study that suggested dire outcomes from climate change, and largely ignored the relatively restrained assessments of the IPCC reports for the most alarming findings and scenarios. Commentators typically linked these events to the need to radically reduce fossil fuel use and immediately ramp up renewables.

In parallel, a new area of analysis was created with an explicit goal of attracting media attention and supporting litigation against fossil fuel companies. Called "extreme event attribution," such analyses purported to connect just about every extreme weather event with climate change. The media found such framing irresistible, even though such analyses are (by design) typically not found in the peer-reviewed literature and directly contradict the IPCC's findings.

The Democratic evolution on climate change could be seen in the shift from the 2012 Obama-era Democratic platform to the 2020 Biden-era Democratic platform. In 2012, the platform said this:

> We can move towards a sustainable energy-independent future if we harness all of America's great natural resources. That means an all-of-the-above approach to developing America's many energy resources, including wind, solar, biofuels, geothermal, hydropower, nuclear, oil, clean coal, and natural gas. President Obama has encouraged innovation to reach his goal of generating 80 percent of our electricity from clean energy sources by 2035. . . . We can further cut our reliance on oil with increased energy efficiency in buildings, industry, and homes, and through the promotion of advanced vehicles, fuel economy standards, and the greater use of natural gas in transportation.[24]

By 2020, this reformist all-of-the-above approach had evolved to more strongly resemble the catastrophist views of the climate movement. In 2020, Democrats were promising to hit 100 percent clean electricity by 2035, make the building sector carbon neutral, and have the whole country hit net-zero usage by 2050. Fossil fuels were not mentioned at all, except for a proposal to hold oil and coal companies responsible for their environmental damage. Democrats also promised to ban "new oil and gas permitting on public lands."[25]

These political developments reinforced the narrative and made it the conventional wisdom of the college-educated left, much of the center, and the mainstream media. The narrative can be summarized as follows:

1. Climate change is not just happening; it's an existential crisis. We see it all around us in extreme weather events. Catastrophe will result unless immediate, drastic action is taken.

2. Fossil fuels are evil, and we must eliminate them as fast as we can. It is almost impossible to go too fast.

3. Any resistance to the rapid elimination of fossil fuels is either because people are misinformed about how serious the climate crisis is

or because of the fossil fuel industry's lobbying and political contributions.

4. Fossil fuels can be readily replaced by renewables—wind and solar. They are clean, natural, and cheap; there is no reason not to ramp them up fast.

5. Other clean technologies—such as nuclear power, which some consider unsafe and expensive, and carbon capture and storage, seen by some as a ploy by fossil fuel companies—should be phased out or, at best, play distant second fiddles to wind and solar, which are now ready for prime time. Clean energy from technologies other than wind and solar are being pushed by venal economic interests that are trying to stop the renewables revolution.

6. There are no downsides to the renewables revolution. It will actually make energy cheaper. Any intermittency or reliability problems are in the process of being solved. The rapid transition to renewables will create millions of high-wage jobs for workers. As we use more renewables and cut out fossil fuels, political support for the transition to clean energy should go up because of the benefits to consumers and workers.

7. The only challenge to the renewables revolution is political will, which is being blocked by deniers of science and those corrupted by money.

Among climate advocates, the narrative has changed only slightly since 2020. There is now more openness to nuclear energy and other possible technologies besides wind and solar to supply clean energy. But the catastrophism around climate change remains, as does the blanket opposition to fossil fuels. A rapid transition to clean energy, especially renewables, remains an article of faith.

The catastrophism around climate change, as noted in the first section, is not consistent with the IPCC's scientific findings, despite the claims of the narrative. Nor does the narrative appropriately fit ordinary voters' views on the effects of climate change, other than a confused sense that there could be some kind of climate tipping point in the future.

As we shall see in subsequent sections, the narrative also tends to diverge from observed trends in energy use and the economic and physical limits to the speed of an energy transition. And there is a sharp divergence between the narrative and the views and preferences of voters on energy policy, especially as it relates to climate change.

Favored Energy Sources

Table 2 summarizes how voters rank five energy sources: wind, solar, coal, natural gas, and nuclear. Table A1 shows how different groups rank the different energy sources and indicates many areas of strong agreement. Solar has strong support virtually across the board, with the exceptions of Republicans, conservatives, and 2020 Trump voters, who give solar just moderate support. Coal is uniformly ranked low. Natural gas has moderate to strong support, and nuclear has moderate to low support, with less variability than gas across groups. Wind has the highest degree of variability, with some groups ranking it second and others ranking it fifth. These results underscore the political conflict over wind projects across the United States.[26]

A significant amount of support for each energy source—except coal—helps to explain why an all-of-the-above approach to overall energy policy finds strong support across groups (see the fourth section, "Overall Energy Policy Framing").

The results for natural gas are particularly salient. While not widely acknowledged, the significant decline in electricity production emissions in the United States has been driven primarily by substituting natural gas for coal in electricity generation and only secondarily by the expansion of generation from wind and solar.

According to the US Energy Information Administration, natural gas was responsible for about two-thirds of carbon dioxide emissions reduction

Table 2. Voters' Energy Preferences

Rank the following sources of energy in terms of your personal preferences.

	First	Second	Third	Fourth	Fifth	Don't Know
Solar	38%	21%	12%	18%	6%	5%
Natural Gas	26%	19%	26%	21%	3%	5%
Nuclear	15%	12%	22%	18%	29%	5%
Wind	10%	33%	18%	15%	19%	5%
Coal	6%	11%	17%	24%	38%	5%

Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

between 2005 and 2019, compared with renewables' 30 percent share.[27] This finding underscores the role natural gas will play in the future, not just in the everyday economy but in serving as a bridge fuel in a clean-energy transition. Reflecting this, the EU recently recognized natural gas, along with nuclear power, as a "green" energy source.[28]

Renewable energy sources will also need to be backed up by baseload generation for the foreseeable future using other types of energy. Wind and solar can displace baseload generation at times when the wind is blowing and the sun is shining, and thus they contribute to reduced emissions. Battery technology can help to integrate highly variable generation technologies with baseload generation, but baseload generation cannot be replaced by wind and solar, even with batteries.

As US electricity demand increases, so will the use of nuclear power and, most immediately, natural gas. Coal is an important option in many parts of the world but could be phased out in the United States by expanding natural gas and nuclear generation.

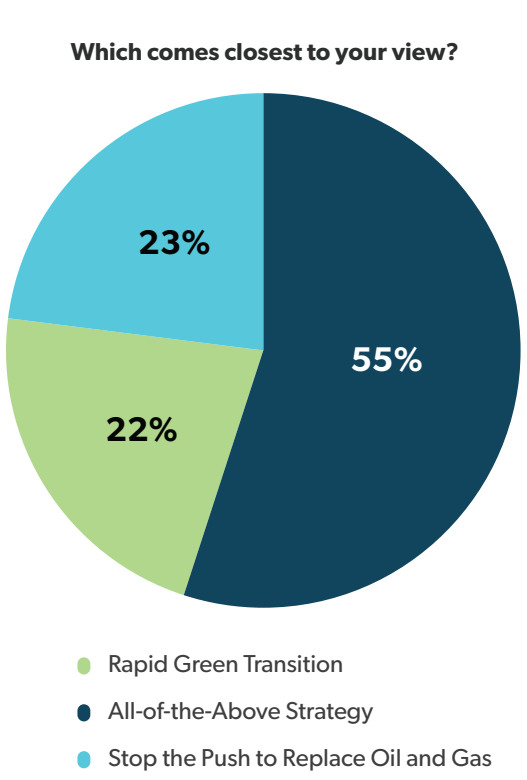
Thus, despite how the narrative demonizes natural gas as just another fossil fuel, the realities of energy use and electricity generation indicate its continued centrality to the energy system. Voters surveyed were able to see this even if advocacy groups pushing the narrative could not.

Overall Energy Policy Framing

Figure 4 shows how voters overall feel about three different energy policy strategies. Table A2 shows how different groups assess these strategies, demonstrating a remarkable degree of consensus among Americans across demographic, political, educational, and other characteristics. A majority of each group prefers an energy strategy characterized as "all of the above" versus a "rapid green transition" or opposition to "green energy projects." As one might expect, the strongest signs of polarization can be seen between liberals and conservatives and between Democrats and Republicans. But even among these groups, an all-of-the-above strategy is strongly preferred across the board.

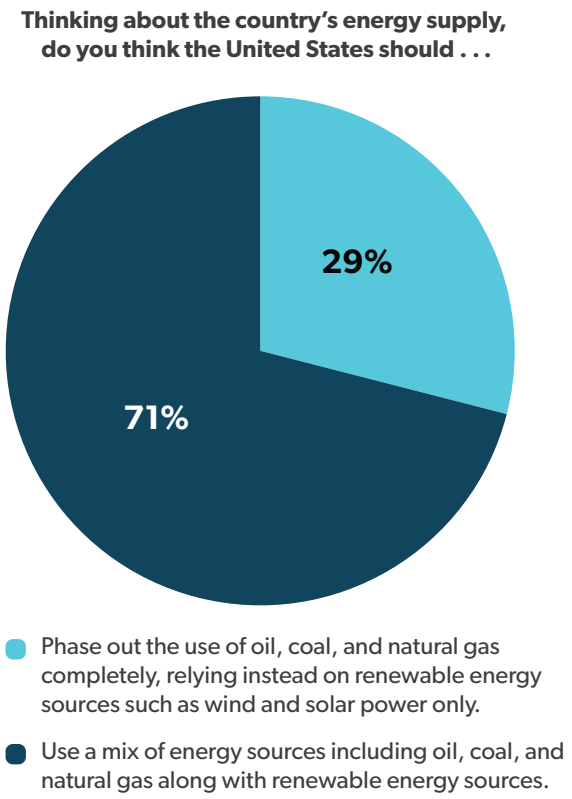
The preference expressed by voters for an all-of-the-above energy strategy is reinforced by their answers to a binary question asking if they preferred using a mix of energy sources to phasing out fossil fuels (Figure 5). Table A3 shows the answers to this question by different voter groups. With only one exception—liberals, and narrowly—Americans across the board strongly favor a mix of energy sources, to include fossil fuels as well as solar and wind. They do *not* favor a rapid green transition that eliminates fossil fuels.

Figure 4. Voters' Sentiment on Energy Policy Strategies



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

Figure 5. Voters' Stance on the Use of Fossil Fuels



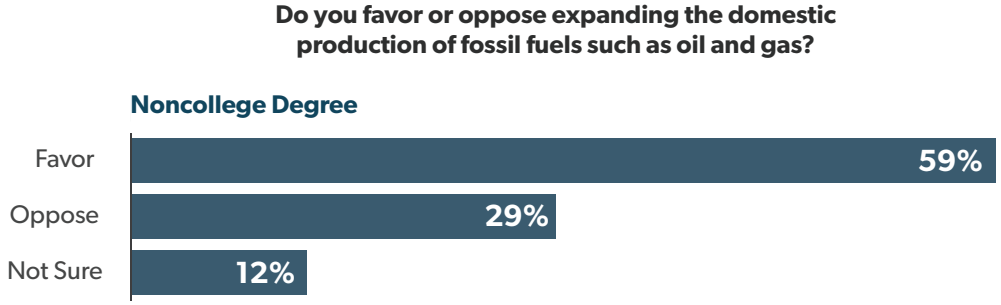
Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

Note especially that, by 74 percent to 26 percent, working-class (noncollege) voters prefer an energy approach that uses a mix of energy sources, including oil, coal, natural gas, and renewables, to an approach that seeks to phase out the use of oil, coal, and natural gas completely. Given recent political trends, this finding is highly salient.

In a different question, the survey found that voters strongly favor *more* domestic production of fossil fuels like oil and gas. By and large, voters are not aware that domestic production actually increased during the Biden administration, but when informed that it did, survey respondents had a strongly favorable reaction.

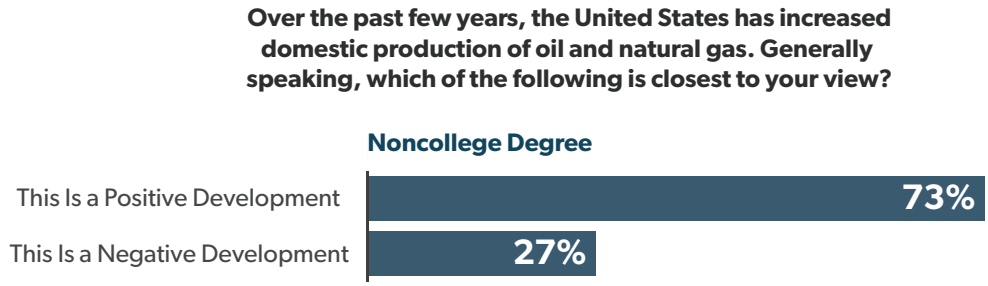
Again, the working class leads the way: By 30 percentage points (59 percent to 29 percent), working-class voters favor producing more oil and gas, as shown in Figure 6. But only 15 percent of these voters were aware that the Biden administration increased oil production on federal lands. However, when informed that the United States has, in fact, increased domestic production of oil and gas in the past several years, they are pleased. As shown in Figure 7, almost three-quarters (73 percent) of working-class voters said, "This is a positive development, which brings good jobs for US workers, ensures our energy supply, and helps the US support our allies who need similar resources." Only 27 percent thought, "This is a negative development, which brings more pollution, climate change, and continued reliance on fossil fuels."

Figure 6. The Working Class's View on Domestic Production of Oil and Gas



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

Figure 7. The Working Class's Stance on Increased Oil and Gas Production



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

A similar result comes from a September 2024 *New York Times*/Siena College poll.[29] In that poll, two-thirds of likely voters said they supported a policy of "increasing domestic production of fossil fuels such as oil and gas." And similarly, support for increasing fossil fuel production was particularly strong among working-class voters: 72 percent of those voters backed such a policy. Support was even higher among white working-class voters (77 percent). But, remarkably, support was also strong among many demographics in which conventional wisdom might lead one to expect opposition. For example, 63 percent of voters under age 30 said they wanted more oil and gas production, as did 58 percent of white college graduate voters and college-educated voters overall. Indeed, across all demographics reported by the *Times*/Siena survey—all racial groups, all education groups, all regions (Midwest, Northeast, South, and West), and all neighborhood types (city, suburb, and rural area or small town)—net support (total support minus total opposition) was at least 15 points and usually much higher.

The all-of-the-above approach to energy use expressed by voters and their lack of support for rapidly eliminating fossil fuels aligns them with the realities of today's energy systems. The commitment on the environmental left to an extremely rapid elimination of fossil fuel usage twinned with a commitment to an equally rapid buildup of wind and solar in energy production stems from their idea that we must hit net-zero usage by 2050 to limit global warming to 1.5°C. And, of course, the necessity for such commitments is an integral part of the narrative.

But how *possible* is any of this? Is it really possible to hit net-zero usage by 2050? Can fossil fuels be eliminated that fast?

The answer is that it is *not* possible (outside of edge "solutions" such as crashing industrial civilization through "degrowth" or imposing a world authoritarian government to ration energy use). The data strongly suggest the political infeasibility of such a program. But the technical infeasibility of the program is even clearer.

As the polymath Vaclav Smil, who is universally acknowledged to be one of the world's premier energy experts, has observed,

> We are a fossil-fueled civilization whose technical and scientific advances, quality of life and prosperity rest on the combustion of huge quantities of fossil carbon, and we cannot simply walk away from this critical determinant of our fortunes in a few decades, never mind years. Complete decarbonization of the global economy by 2050 is now conceivable only at the cost of unthinkable global economic retreat.[30]

And as he tartly observes regarding the 2050 deadline, "People toss out these deadlines without any reflection on the scale and the complexity of the problem. . . . What's the point of setting goals which cannot be achieved? People call it aspirational. I call it delusional."[31]

Smil backs his argument with a mountain of empirical evidence in his 2024 comprehensive essay, *Halfway Between Kyoto and 2050: Zero Carbon Is a Highly Unlikely Outcome*. The essay is a gold mine of relevant and highly compelling data. Smil's outline of the realities of the net-zero 2050 challenge is worth quoting at length:

> The goal of reaching net zero global anthropogenic CO2 emissions is to be achieved by an energy transition whose speed, scale, and modalities (technical, economic, social, and political) would be historically unprecedented. . . . The accomplishment of such a transformation, no matter how desirable it might be, is highly unlikely during the prescribed period. . . . In terms of final energy uses and specific energy converters, the unfolding transition would have to replace more than 4 terawatts (TW) of electricity-generating capacity now installed in large coal- and gas-fired stations by converting to non-carbon sources; to substitute nearly 1.5 billion combustion (gasoline and diesel) engines in road and off-road vehicles; to convert all agricultural and crop processing machinery (including about 50 million tractors and more than 100 million irrigation pumps) to electric drive or to non-fossil fuels; to find new sources of heat, hot air, and hot water used in a wide variety of industrial processes (from iron smelting and cement and glass making to chemical syntheses and food preservation) that now consume close to 30 percent of all final uses of fossil fuels; to replace more than half a billion natural gas furnaces now heating houses and industrial, institutional, and commercial places with heat pumps or other sources of heat; and to find new ways to power nearly 120,000 merchant fleet vessels (bulk carriers of ores, cement, fertilizers, wood and grain, and container ships, the largest one with capacities of some 24,000 units, now running mostly on heavy fuel oil and diesel fuel) and nearly 25,000 active jetliners that form the foundation of global long-distance transportation (fueled by kerosene). . . .
>
> We are now halfway between 1997 (27 years ago) when delegates of nearly 200 nations met in Kyoto to agree on commitments to limit the emissions of greenhouse gases, and 2050; the world has 27 years left to achieve the goal of decarbonizing the global energy system, a momentous divide judging by the progress so far, or the lack of it.
>
> The numbers are clear. All we have managed to do halfway through the intended grand global energy transition is a small relative decline in the share of fossil fuel in the world's primary energy consumption—from nearly 86 percent in 1997 to about 82 percent in 2022. But this marginal relative retreat has been accompanied by a massive absolute increase in fossil fuel combustion: in

> 2022 the world consumed nearly 55 percent more energy locked in fossil carbon than it did in 1997.[32]

Fossil fuel consumption has increased in the years since Smil wrote this, and it is expected to continue increasing for the foreseeable future. Even so, a global phaseout of coal use for electricity production is feasible, and it represents the lowest-hanging fruit for reducing carbon dioxide emissions.

Voters' all-of-the-above views are much better aligned with the physical realities of our energy system and the possibilities for transition as outlined by Smil and others. They are not aligned with the fantastical goals demanded by the narrative.

Energy Values and Priorities

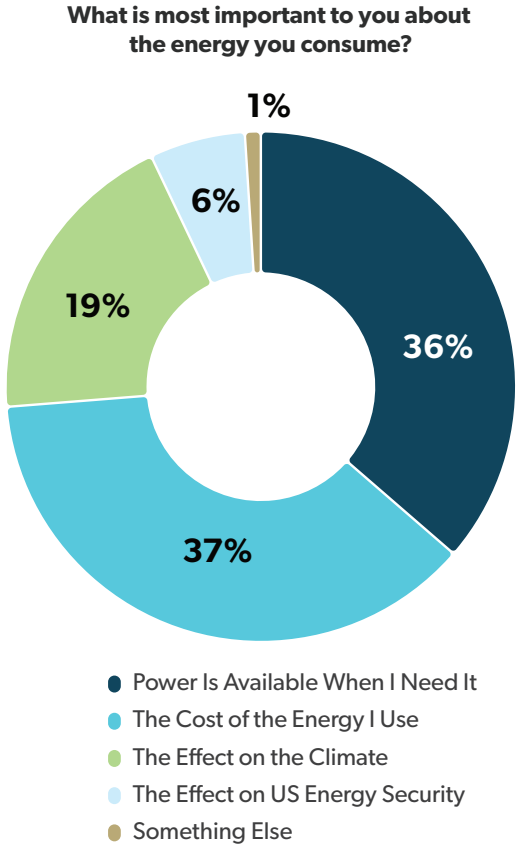
In terms of the energy voters consume, cost and reliability are much more important to them than possible effects on the climate (Figure 8). Given four choices, 37 percent of voters said the cost of the energy they use was most important to them, and 36 percent said the availability of power when they need it was most important. Just 19 percent thought the effect on climate of their energy consumption was most important, and 6 percent selected the effect on US energy security.

Table A4 shows the results on this question across demographic groups. Across the board, Americans value energy costs and reliability over energy consumption's effects on the climate. Certainly, there is variation: Concern about climate is weighted much more heavily among Democrats and liberals than among Republicans and conservatives, reflecting a familiar partisan pattern of polarization on climate issues. But even here, less than a third of liberals and Democrats prioritize their energy use's effect on climate, with roughly twice as many in each group selecting the cost or reliability of energy as their main priority.

Priorities are particularly lopsided among working-class voters. In terms of the energy these voters consume, cost and reliability are much more important to them than possible effects on the climate. Given the four choices posed, 41 percent of these voters said the cost of the energy they use was most important to them, and 35 percent said the availability of power when they need it was most important. Together, that's 76 percent of the working class prioritizing energy's cost or reliability. In contrast, just 17 percent thought their energy consumption's effect on the climate was most important. (Another 6 percent selected the effect on US energy security.)

Consistent with these views, getting to net-zero usage as quickly as possible is relatively unimportant to voters (Table 3). Asked to consider proposals to reduce the effects of global climate change, only 29 percent of voters said "getting the US to net

Figure 8. Voters' Energy Priorities



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

Table 3. Voters' Views on Efforts to Reduce the Effects of Global Climate Change

Thinking about proposals to reduce the effects of global climate change, how important is each of the following considerations to you personally?

	Very Important	Somewhat Important	Not Too Important	Not Important at All
Keeping Consumer Costs Low	66%	29%	4%	1%
Increasing Jobs and Economic Growth	60%	32%	6%	3%
Protecting the Quality of the Environment for Future Generations	56%	32%	8%	4%
Making Sure Proposals Help Lower-Income Communities	46%	38%	11%	6%
Limiting the Burden of Regulations on Businesses	32%	36%	21%	12%
Getting the US to Net-Zero Carbon Emissions as Quickly as Possible	29%	34%	17%	21%

Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

zero carbon emissions as quickly as possible" was very important to them personally—fewer than said "limiting the burden of regulations on business" was very important (32 percent). Voters were most likely by far to say keeping consumer costs low (66 percent) and increasing jobs and economic growth (60 percent) were very important aspects of climate mitigation proposals. The split was wider among working-class voters: 71 percent thought keeping consumer costs low was very important, compared with 26 percent who thought rapidly getting to net-zero usage was very important.

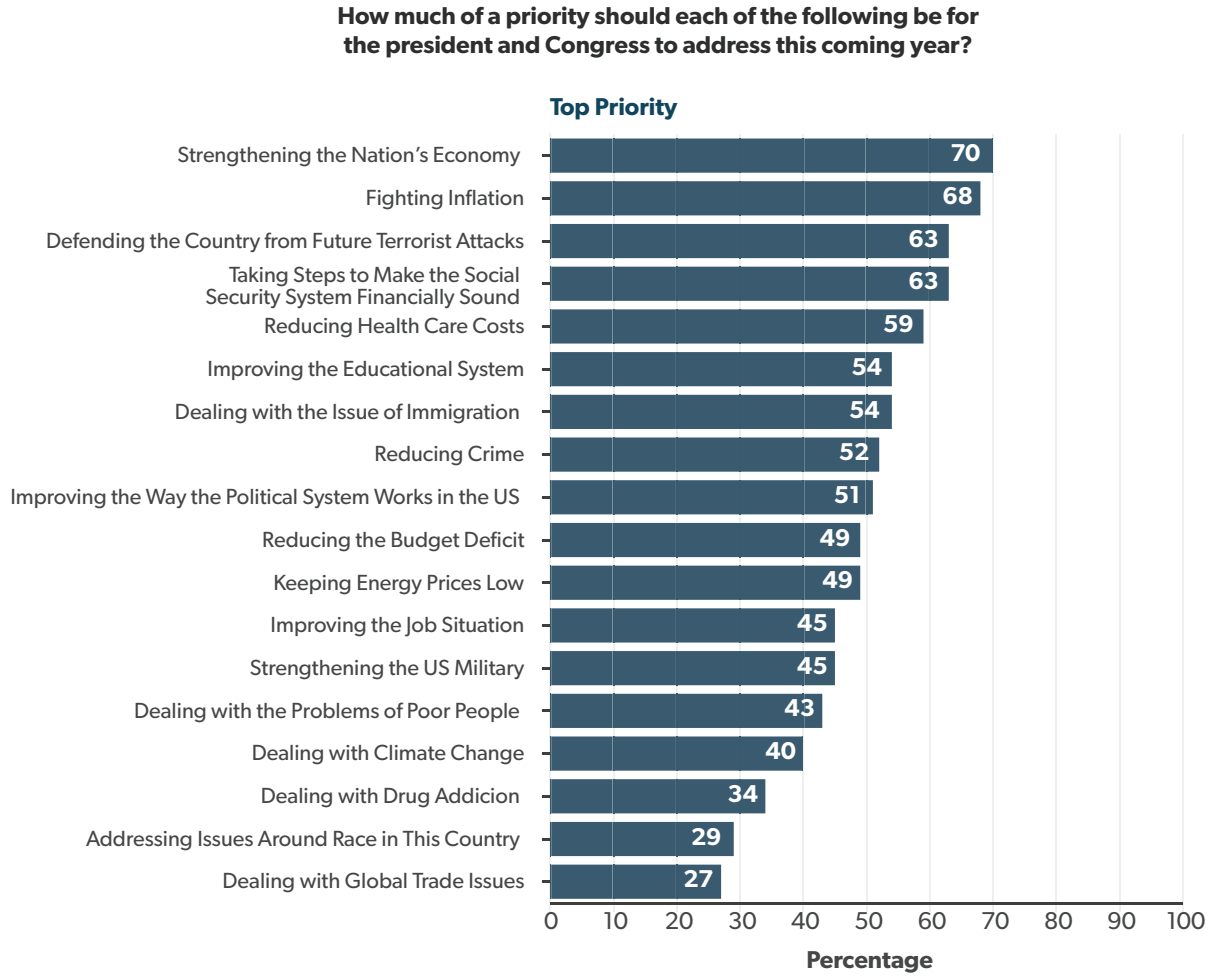
In their answers to a separate question, voters were most worried, by far, about local effects on prices from big reductions in fossil fuels and increased use of renewables. Again, worries were much more intense among working-class voters.

Unsurprisingly, given this pattern of concerns, the climate issue has very low salience to voters. Voters were asked to evaluate a list of 18 issue areas and rate their priority for the president and Congress to address in the coming year.

As a "top priority," dealing with global climate change ranked 15th out of these 18 areas (among working-class voters it was 16th), well behind strengthening the national economy, fighting inflation, defending the country from terrorist attacks, and keeping Social Security financially sound (Figure 9). It also fell behind reducing health care costs, dealing with immigration, improving the educational system, keeping energy costs low, reducing the budget deficit, reducing crime, improving how the political system works, improving the job situation, strengthening the military, and dealing with the problems of poor people. The climate issue ranked above only global trade, drug addiction, and issues around race.

A concrete demonstration of this lack of salience is that American voters are reluctant to pay even a small amount to support climate action, and this willingness drops quickly as the proposed small costs increase (Figure 10). When asked if they would support just a $1 monthly fee on their electricity bill to fight climate change, only 47 percent say they would, while almost as many (43 percent) were opposed.

Figure 9. Congressional Priorities According to Voters



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

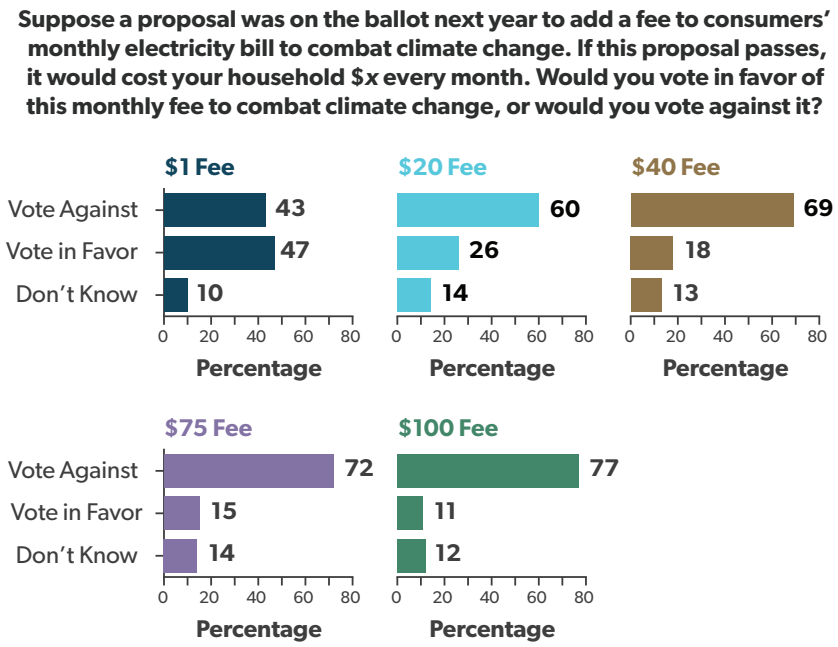
Even at this level, opposition is greater than support among working-class voters, and their support drops drastically as the amount is increased (Figure 12).

When the proposed fee is increased to $20, overall voter support plummets to 26 percent, with 60 percent opposed. At $40, support drops to 19 percent, while 69 percent are opposed; at $75, support is 15 percent, with 72 percent opposed; and at $100, the ratio is 1:7, with just 11 percent in favor of paying such a fee to combat climate change and 77 percent opposed.

Consistent with these sentiments, voters show little inclination to spend money on household items that are marketed as emissions reducing. In our survey, voter interest in electric heat pumps, electric hot water heaters and stoves, and electric vehicles is weak.

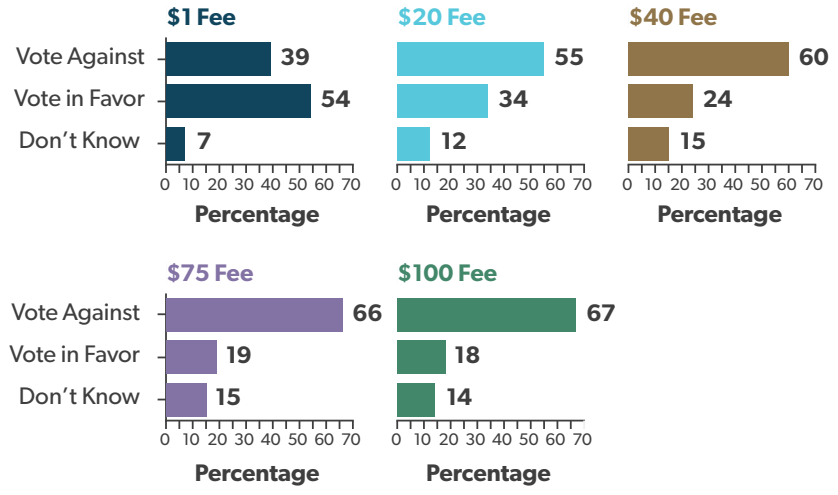
Asked whether they had given serious thought to making certain "green" changes in their home within the past 12 months, 75 percent of voters said they either had not given serious thought to installing an electric heat pump or that the device was not relevant to them. Another 67 percent said the same thing about an electric water heater, as did 61 percent about an electric stove or induction system.

Figure 10. Voters' Attitudes Toward a Monthly Fee to Combat Climate Change



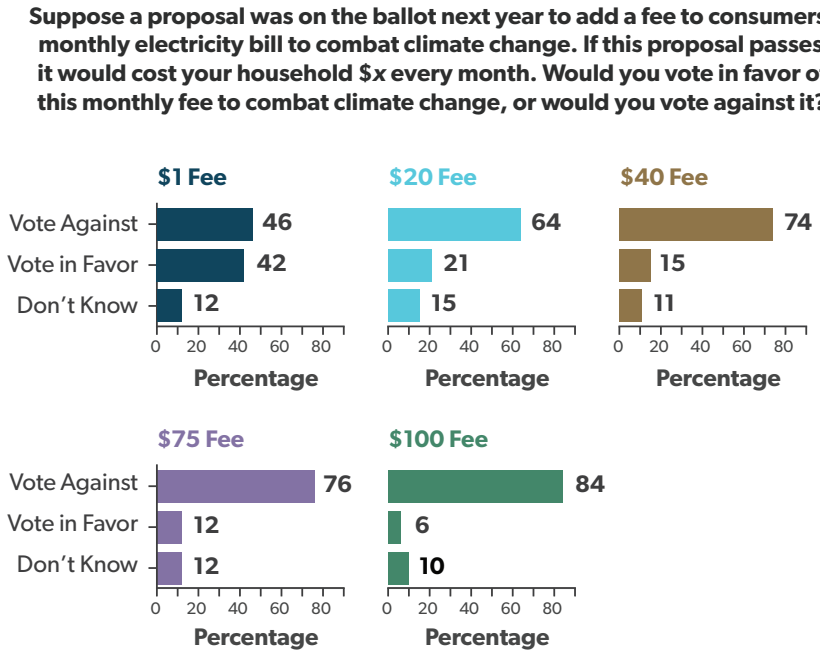
Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

Figure 11. College-Educated Voters' Attitudes Toward a Monthly Fee to Combat Climate Change



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

Figure 12. Noncollege-Educated Voters' Attitudes Toward a Monthly Fee to Combat Climate Change



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

Voters by 17 percentage points (52 percent to 35 percent) say they are opposed to phasing out new gasoline cars and trucks by 2035. Interestingly, college-educated voters are almost evenly split on this proposition, while working-class voters overwhelmingly oppose it, by 28 percentage points (Figure 13). In addition, many more voters are upset (48 percent) than excited (21 percent) by the idea of phasing out production of gas-powered cars and trucks. The margin of "upset" over "excited" was three times as high among the working class as among college-educated voters.

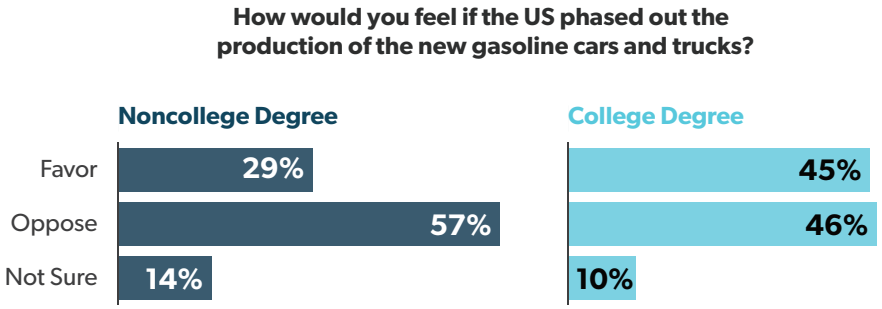
By 18 percentage points (59 percent to 41 percent), voters say they are not likely to even consider purchasing an electric vehicle as their next car. And working-class voters, by a ratio of 2:1, say they are not likely to consider such a purchase. Just 10 percent of voters overall say they now own an electric vehicle, and two-thirds of those are hybrid rather than fully electric.

None of this comports well with the standard narrative. Rather than being motivated by the climate "crisis" to place a high priority on fighting climate change—as the narrative insists they must—voters are far more interested in the cost and reliability of the energy they use and the convenience and comfort of their energy-using products. They are unwilling to sacrifice much financially to address climate change or significantly change their consumer behavior.

That's the reality. What people want—and need—is abundant, cheap, reliable energy. Therefore, if what you are advocating appears to have little to do with that goal and in some ways undermines it, no amount of rhetoric about a roasting planet and no amount of effort to tie every natural disaster to climate change is likely to generate the support needed for what is sure to be a lengthy energy transition.

There are signs that some climate advocates have recognized that the narrative is out of step with the broader public's views. Jody Freeman, a counselor for energy and climate change for President Obama, observes, "There's no way around it: The left strategy on climate needs to be rethought. We've lost the

Figure 13. Voters' Position on Phasing Out Gasoline Cars



Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: *N* = 3,093.

culture war on climate, and we have to figure out a way for it to not be a niche leftist movement."[33]

Our findings suggest that climate change policy, in the end, must be embedded in and subordinate to the goal of energy abundance and prosperity. In other words, as energy abundance is pursued, efforts to mitigate climate change should be undertaken within those boundary conditions, rather than climate change being pursued as the paramount goal and with energy abundance limited by pursuit of those goals. The approach recommended by the narrative has things exactly backward.

It's time to replace the narrative with something that makes scientific, political, and economic sense. We suggest this: Climate change is a serious problem, but it won't be solved overnight. As we move toward a clean-energy economy with an all-of-the-above strategy, energy must continue to be cheap, reliable, and abundant. That means fossil fuels, especially natural gas, will continue to be an important part of the mix. Climate policy will be much more effective if it works in the direction of public opinion, rather than against it.

Simple. And also true.

About the Authors

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Appendix A

Table A1. Voters' Ranking of Energy Sources

		Overall Ranking Based on Combined First and Second Places				
		Wind	Solar	Coal	Natural Gas	Nuclear
All		3	1	5	2	4
Age	18–29	2	1	5	3	4
	30–44	2	1	5	3	4
	45–54	2	1	5	3	4
	55–64	3	1	5	2	4
	65+	3	2	5	1	4
Gender	Man	4	1	5	2	3
	Woman	2	1	4*	3	5*
Education	Less Than College Degree	3	1	5	2	4
	College Degree or Higher	2	1	5	3	4
Race	White	3	1	5	2	4
	Black	2	1	5	3	4
	Hispanic	2	1	5	3	4
	Other	2	1	5	3	4
Married	Yes	3	1	5	2	4
	No	2	1	5	3	4
Child Under Age 18	Yes	2	1	5	3	4
	No	3	1	5	2	4
Employed	Full-Time	2	1	5	3	4
	Not Full-Time	3	1	5	2	4
Union Household	Yes	3	1	5	2	4
	No	3	1	5	2	4
	Not Sure	2	1	5	3	4
Income	Less Than $50,000	3	1	5	2	4
	$50,000–$100,000	3	1	5	2	4
	Above $100,000	2	1	5	3	4
Party Identification	Democrat	2	1	5	3	4
	Independent	2	1	5	3	4
	Republican	5	3	4	1	2
Ideology	Liberal	2	1	5	3	4
	Moderate	2	1	5	3	4
	Conservative	5	3	4	1	2
Biden Job	Approve	2	1	5	3	4
	Disapprove	5	2	4	1	3
	Not Sure	2	1	5	3	4
2020 Vote	Biden	2	1	5	3	4
	Trump	5	3	4	1	2
	Other	2	1	5	4	3

Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.
Note: * Rounded weighted figures were tied. As a tiebreaker, we un-rounded the data.

Table A2. Voters' Energy Supply Views

		Which Comes Closest to Your View?		
		We need a rapid green transition to end the use of fossil fuels and replace them with fully renewable energy sources, regardless the costs	We need an "all-of-the -above" strategy that provides abundant and cheap energy from multiple sources, including oil and gas, renewables, and advanced nuclear power	We need to stop the push to replace domestic oil and gas production with unproven green energy projects that raise costs and undercut jobs
All		22%	55%	23%
Age	18–29	33%	52%	14%
	30–44	33%	53%	14%
	45–54	18%	59%	23%
	55–64	18%	54%	27%
	65+	13%	55%	32%
Gender	Man	22%	55%	22%
	Woman	22%	54%	24%
Education	Less Than College Degree	19%	54%	27%
	College Degree or Higher	28%	55%	17%
Race	White	20%	55%	25%
	Black	33%	54%	13%
	Hispanic	25%	57%	18%
	Other	29%	52%	20%
Married	Yes	21%	53%	26%
	No	24%	57%	19%
Child Under Age 18	Yes	29%	54%	17%
	No	21%	55%	25%
Employed	Full-Time	25%	56%	19%
	Not Full-Time	21%	54%	25%
Union Household	Yes	24%	51%	25%
	No	21%	56%	23%
	Not Sure	26%	53%	21%
Income	Less Than $50,000	22%	55%	23%
	$50,000–$100,000	22%	54%	24%
	Above $100,000	27%	54%	19%
Party Identification	Democrat	37%	56%	7%
	Independent	30%	54%	17%
	Republican	7%	53%	40%
Ideology	Liberal	42%	53%	5%
	Moderate	22%	59%	19%
	Conservative	6%	51%	43%
Biden Job	Approve	37%	57%	7%
	Disapprove	11%	53%	36%
	Not Sure	29%	63%	7%
2020 Vote	Biden	36%	58%	6%
	Trump	7%	51%	42%
	Other	36%	51%	13%

Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.

Table A3. Voters' Energy Strategy Views

		Energy Strategy Goal	
		Phase out the use of oil, coal, and natural gas completely, relying instead on renewable energy sources such as wind and solar power only	**Use a mix of energy sources including oil, coal, and natural gas along with renewable energy sources**
All		29%	71%
Age	18–29	43%	57%
	30–44	38%	62%
	45–54	28%	72%
	55–64	23%	77%
	65+	18%	82%
Gender	Man	28%	72%
	Woman	29%	71%
Education	Less Than College Degree	26%	74%
	College Degree or Higher	33%	67%
Race	White	26%	74%
	Black	38%	62%
	Hispanic	37%	63%
	Other	31%	69%
Married	Yes	27%	73%
	No	31%	69%
Child Under Age 18	Yes	33%	67%
	No	28%	72%
Employed	Full-Time	33%	67%
	Not Full-Time	27%	73%
Union Household	Yes	29%	71%
	No	28%	72%
	Not Sure	42%	58%
Income	Less Than $50,000	28%	72%
	$50,000–$100,000	29%	71%
	Above $100,000	32%	68%
Party Identification	Democrat	48%	52%
	Independent	36%	64%
	Republican	9%	91%
Ideology	Liberal	53%	47%
	Moderate	29%	71%
	Conservative	8%	92%
Biden Job	Approve	46%	54%
	Disapprove	14%	86%
	Not Sure	48%	52%
2020 Vote	Biden	46%	54%
	Trump	9%	91%
	Other	41%	59%

Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.

Table A4. Voters' Energy Values

		What Is Most Important to You About the Energy You Consume?				
		Power Is Available When I Need It	The Cost of Energy I Use	The Effect on the Climate	The Effect on US Energy Security	Something Else
All		36%	37%	19%	6%	1%
Age	18–29	35%	31%	26%	9%	0%
	30–44	32%	33%	25%	8%	2%
	45–54	34%	43%	16%	5%	2%
	55–64	39%	40%	17%	3%	2%
	65+	39%	40%	13%	6%	1%
Gender	Man	37%	37%	17%	7%	1%
	Woman	35%	38%	20%	5%	2%
Education	Less Than College Degree	35%	41%	17%	6%	1%
	College Degree or Higher	37%	32%	23%	7%	1%
Race	White	37%	38%	17%	6%	1%
	Black	32%	34%	26%	7%	1%
	Hispanic	32%	40%	22%	6%	0%
	Other	31%	34%	23%	7%	4%
Married	Yes	37%	37%	17%	7%	1%
	No	34%	38%	21%	5%	1%
Child Under Age 18	Yes	31%	35%	22%	11%	1%
	No	37%	38%	18%	5%	1%
Employed	Full-Time	35%	34%	22%	8%	1%
	Not Full-Time	36%	40%	17%	5%	2%
Union Household	Yes	39%	37%	18%	5%	1%
	No	36%	39%	18%	6%	1%
	Not Sure	32%	24%	28%	14%	2%
Income	Less Than $50,000	32%	43%	18%	6%	2%
	$50,000–$100,000	36%	36%	19%	7%	1%
	Above $100,000	41%	30%	21%	7%	1%
Party Identification	Democrat	32%	31%	30%	6%	1%
	Independent	32%	37%	19%	6%	6%
	Republican	40%	44%	7%	7%	1%
Ideology	Liberal	33%	29%	32%	4%	1%
	Moderate	34%	37%	21%	6%	2%
	Conservative	40%	45%	5%	8%	1%
Biden Job	Approve	31%	31%	31%	6%	1%
	Disapprove	40%	43%	9%	7%	1%
	Not Sure	38%	32%	26%	3%	2%
2020 Vote	Biden	33%	30%	30%	5%	1%
	Trump	40%	45%	7%	7%	1%
	Other	28%	41%	24%	6%	1%

Source: AEI Energy/Climate Survey, conducted by YouGov, September 20–26, 2024.

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