Poll Findings About Hydrogen, Geothermal, & Biofuels

Hydrogen: Attitudes & Messaging

Voters have low familiarity with hydrogen as an energy source, but are inclined to believe that it can play a role in the clean energy transition.

- Only 39% of voters have heard "some" or "a lot" about hydrogen as an energy source, while only 31% have heard at least "some" about "clean hydrogen" specifically. [Breakthrough Energy, May 2022]
- Slightly more than half of voters (53%) say that they believe hydrogen can play a "very" or "somewhat" big role in helping us meet our goals for using more clean energy and reducing climate change. An additional one-quarter (26%) admit that they aren't sure what kind of role hydrogen can play in these goals. [Breakthrough Energy, May 2022]

Clean hydrogen appeals to voters across the political spectrum when they learn about it.

- After reading a two-paragraph description of clean hydrogen that explains how clean energy sources such as wind and solar can be used to generate it and that energy generated *from* hydrogen also does not cause pollution, three-quarters of

voters (75%) say that they have a favorable attitude about clean hydrogen with just 5% unfavorable. [Breakthrough Energy, May 2022]

- Following this description, large majorities of Democrats (83%), independents (75%), and Republicans (67%) all say that they have favorable attitudes about clean hydrogen.

There is broad support for new clean hydrogen hubs.

- Roughly two-thirds of voters (67%) support creating new regional hubs for hydrogen power after reading that "some lawmakers have proposed investing $8 billion to create four new regional energy hubs to develop the production and usage of hydrogen power, a new clean energy source." [Data for Progress, Feb. 2022]
  - This proposal draws support from the overwhelming majority of Democrats (83%), as well as two-thirds of independents (67%) and around half of Republicans (49%).

The most appealing messages in favor of clean hydrogen focus on its benefits for energy independence, the clean energy transition, and climate change.

- When asked to choose the most important reasons to continue advancements in hydrogen as an energy source from several options, voters were most likely to select the statements below. [Breakthrough Energy, May 2022]
  - **[Energy Independence]** Clean hydrogen will be a 100% American-made, clean energy source, ensuring our country's energy independence
  - **[Storage for Renewables]** Because hydrogen can be stored for a long time after it is made, it is a good way to "store" energy from clean, renewable sources like wind and solar to be used when the wind isn't blowing and the sun isn't shining, and to use for energy during times of year when there are less of these resources available.
  - **[Carbon Emissions/Climate]** Energy created from clean hydrogen generates no carbon pollution at all, making it one of many potential energy sources that can help reduce carbon emissions and slow climate change.

Geothermal: Attitudes

Geothermal is one of the more popular energy sources in the country, despite low familiarity with it.

- More than one-third of voters (37%) say that the United States should be using more geothermal energy, while 25% say that the country should continue using the same amount and only 5% believe that the country should be using less. Meanwhile, about one in three (33%) admit that they don't know how much geothermal energy the U.S. should use. [Global Strategy Group, Apr. 2023]
    - Of various energy sources tested in the poll, geothermal (37%) ranks roughly on par with natural gas (39%) and clearly behind only solar (67%) and wind (62%) in the percentage of voters who want to expand its use.

Geothermal is generally perceived to be a "clean" energy source.

- In a poll of Americans living in coastal counties, 57% identified geothermal energy as a "clean" energy source while only 12% identified it as a "polluting" energy source. An additional three in ten (31%) admitted that they weren't sure. [Climate Nexus, Feb. 2022]

Biofuels: Attitudes

Voters have largely positive impressions of biofuels.

- Nearly seven in ten voters (69%) say that they have favorable attitudes about "biofuels, such as ethanol produced from grasses and corn." Meanwhile, just 15% feel unfavorably about biofuels and 15% are unable to give an opinion. [Climate Nexus, Mar. 2022]

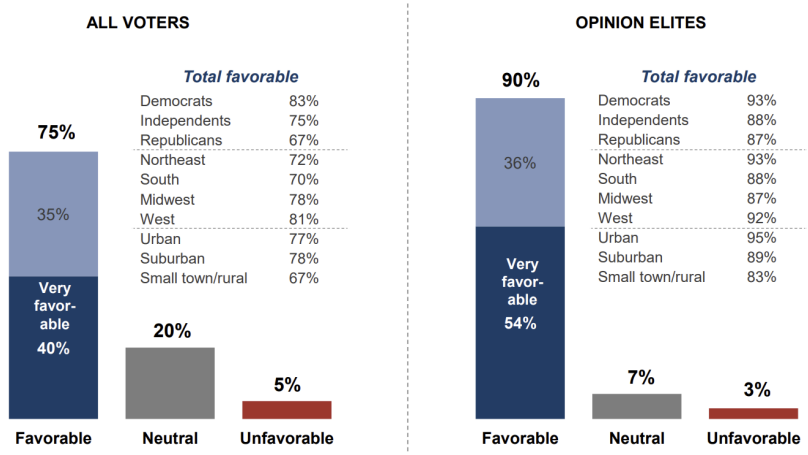
Charts

With just a brief, neutral description, voters and elites express favorable feelings toward clean H2.

Initial Informed Feelings toward Clean H2

INITIAL DESCRIPTION OF CLEAN H2:
"Hydrogen is a substance that is in most things, including plants, water, and natural gas. When hydrogen is burned in ideal conditions, it generates energy in the form of heat, with only water as a by-product. While the energy created *from* hydrogen is clean, the process to produce it today mostly uses fuels, such as methane, which generates carbon pollution that contributes to climate change.

But it is possible to use clean energy sources such as wind and solar instead of fossil fuels to create what we call **clean hydrogen**–both the process of generating it and the energy created from it do not create carbon pollution. Clean hydrogen can be used to reduce carbon pollution from some of the most challenging industries, including heavy manufacturing, aviation, long-haul trucking, and agriculture."



Breakthrough Energy, May 2022

Storage for renewables, energy independence, and carbon reduction provide a strong messaging triumvirate for clean H2.

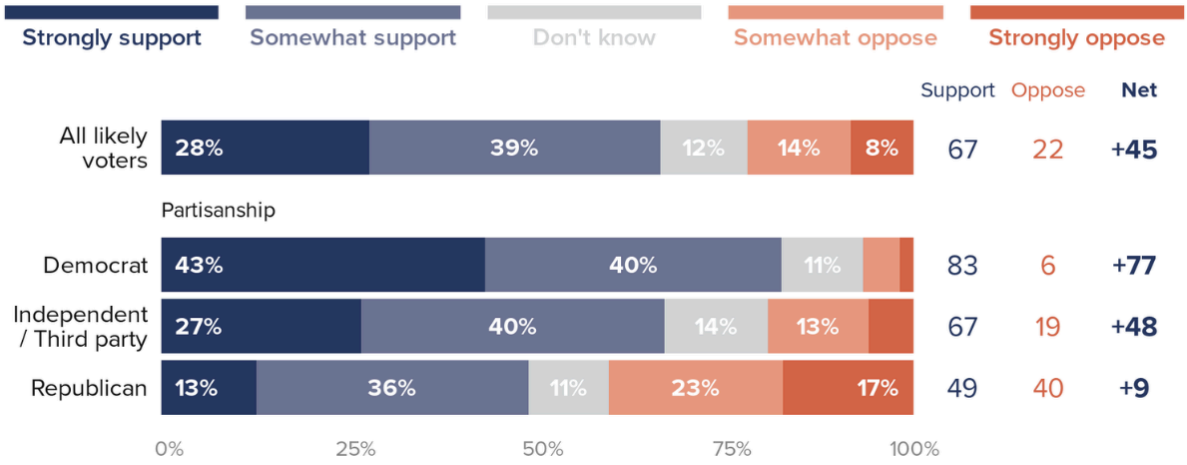
Three Most Important Reasons to Continue Advancements in Hydrogen as an Energy Source		All Voters	Opinion Elites
ENERGY INDEPENDENCE	Clean hydrogen will be a 100% American-made, clean energy source, ensuring our country's energy independence.	**60%**	**56%**
STORAGE FOR RENEWABLES	Because hydrogen can be stored for a long time after it is made, it is a good way to "store" energy from clean, renewable sources like wind and solar to be used when the wind isn't blowing and the sun isn't shining, and to use for energy during times of year when there are less of these resources available.	**59%**	**56%**
CARBON EMISSIONS/CLIMATE	Energy created from clean hydrogen generates no carbon pollution at all, making it one of many potential energy sources that can help reduce carbon emissions and slow climate change.	**54%**	**53%**
GLOBAL LEADER/EXPORTS	Countries around the globe are looking to replace the natural gas they get from Russia and the oil they get from the Middle East. The United States has the potential to be a clean hydrogen global leader, exporting billions of dollars of clean hydrogen each year.	45%	46%
CHALLENGING INDUSTRIES	Clean hydrogen is not a silver bullet, but it has enormous potential for use in certain energy intensive industries that create a lot of pollution, like long-haul trucking, airlines and aviation, steel manufacturing, and agriculture. Clean hydrogen holds a lot of promise to vastly reduce the amount of climate pollution these industries create.	42%	44%
FUTURE/R&D	Clean hydrogen is expensive now, but all new technologies start out that way. With more research we can bring down the cost and tap into the tremendous potential of clean hydrogen to revolutionize our economy while protecting communities from harmful carbon pollution for generations to come.	41%	43%
FUTURE/ DEPLOYMENT	Clean hydrogen may be expensive now, but all new technologies start out that way. As we build more production and find more ways to use it, we can bring the cost down and tap into the tremendous potential of clean hydrogen to revolutionize our economy while protecting communities from harmful carbon pollution for generations to come.	39%	46%

Breakthrough Energy, May 2022

Voters Support Federal Investments to Accelerate Clean Hydrogen Production

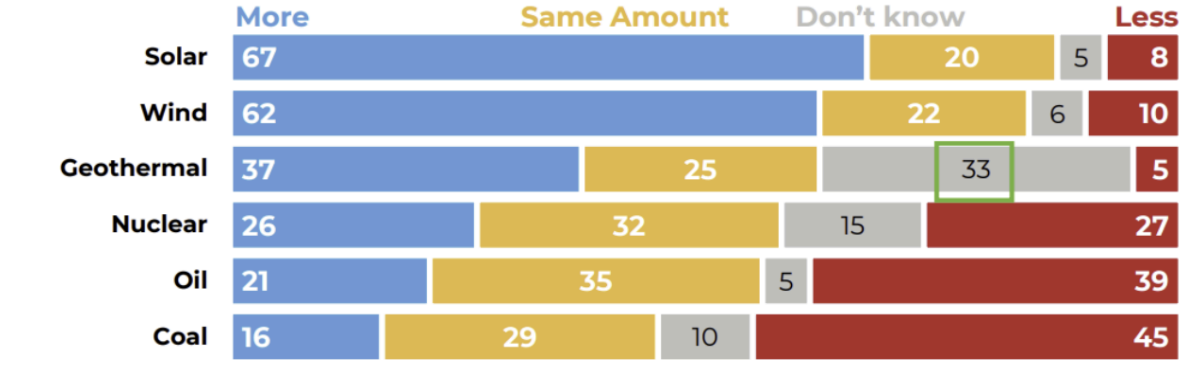
Some lawmakers have proposed investing $8 billion to create four new regional energy hubs to develop the production and usage of hydrogen power, a new clean energy source.

Do you support or oppose this proposal?



Data for Progress, Feb. 2022

Do you think the U.S. should be using more, less, or about the same amount of each?



Global Strategy Group, Apr. 2023

Additional Resources

Public Opinion on Climate: The State of Play in 2023 (Global Strategy Group, Apr. 2023)

American Voters Overwhelmingly Support Investments in Clean Hydrogen (Breakthrough Energy, May 2022)

Voters Support Federal Investments to Reduce Pollution From the Manufacturing Sector (Data for Progress, Feb. 2022)