



# Promoting Direct Air Capture Technology

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Strategic findings from a national survey of opinion elites (including climate elites), and a survey and focus groups among voters in potential DAC hub regions

Conducted July 2023 – February 2024



# This report presents findings and strategic recommendations from three phases of research.



National online survey of 1,269 opinion elites, including 930 climate elites



Four online focus groups with right-of-center voters who reside near the same proposed DAC hub locations



Telephone survey of 1,600 registered voters who reside near proposed DAC hub locations, including:

- The Texas and Louisiana Gulf coasts
- Kern and San Joaquin counties in California
- Western North Dakota and southern Wyoming
- Northeast Oregon and southeast Washington

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# National Survey of Opinion Elites

# National Survey of Elites: Methodology

National online survey of 1,269 opinion elites, including 930 climate elites.

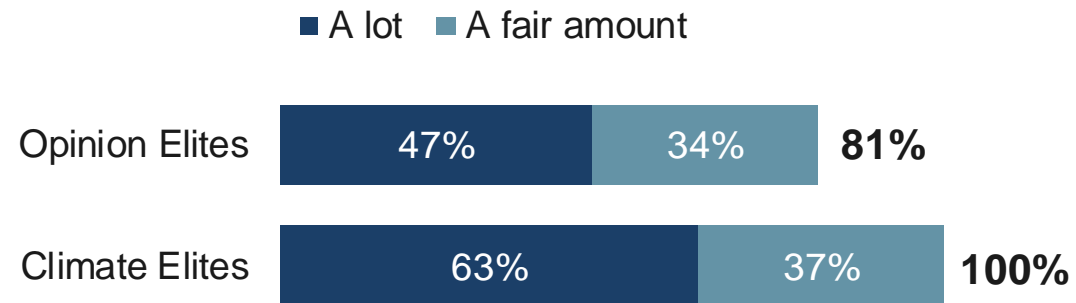
Conducted July 7-13, 2023

Credibility intervals:  
 ±2.8 percentage points for the full opinion elites sample  
 ±3.2 percentage points for the climate elites sample  
 Error is higher for subgroups of each sample

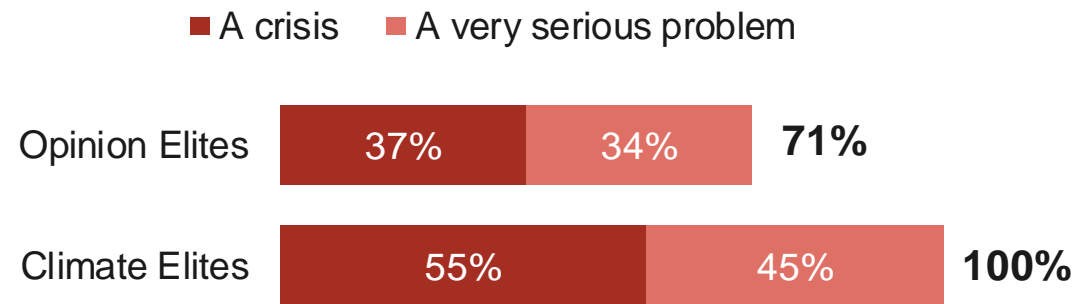
- Opinion elites** are defined as registered voters who:
- Have a 4-year college degree or more education.
  - Have a great deal or quite a bit of interest in news about current events.
  - Consume news about national events at least five days a week and do so from select outlets at least twice a week.

- Climate elites** are a subset of opinion elites who:
- Pay a lot or fair amount of attention to the issue of climate change.
  - Believe that climate change is a crisis or very serious problem.
  - **66% of opinion elites qualify as “climate elites.”**

*How much have you been paying attention to issues of climate change in the country?*



*Do you consider climate change to be...?*



# National Survey of Elites: Key Takeaways

1

Opinion elites do not need to be convinced of the importance of removing CO<sub>2</sub> from the atmosphere—three in four say we need to do more of this. But they do need to be educated about DAC specifically, as a large majority are either neutral toward it or totally unaware of the technology.

2

This limited awareness (including among climate elites) means that elites are open-minded and optimistic about DAC, but support is soft and susceptible to criticism.

3

An in-depth explanation of the technology—including its necessity in avoiding the worst impacts of climate change—significantly increases support, particularly among climate elites, Democrats, and, notably, elites who live in small towns and rural areas.

4

Key messaging points include DAC's role in remediating legacy emissions and getting to net-negative, as well its potential in job creation. Republican elites are drawn to the idea that DAC could elongate the transition away from fossil fuels so fewer people are left behind.

5

This latter point uncovers a minor tension: right-leaning elites can envision using DAC in conjunction with fossil fuels, while left-leaning elites (especially climate elites) want to see fossil fuel use ended.

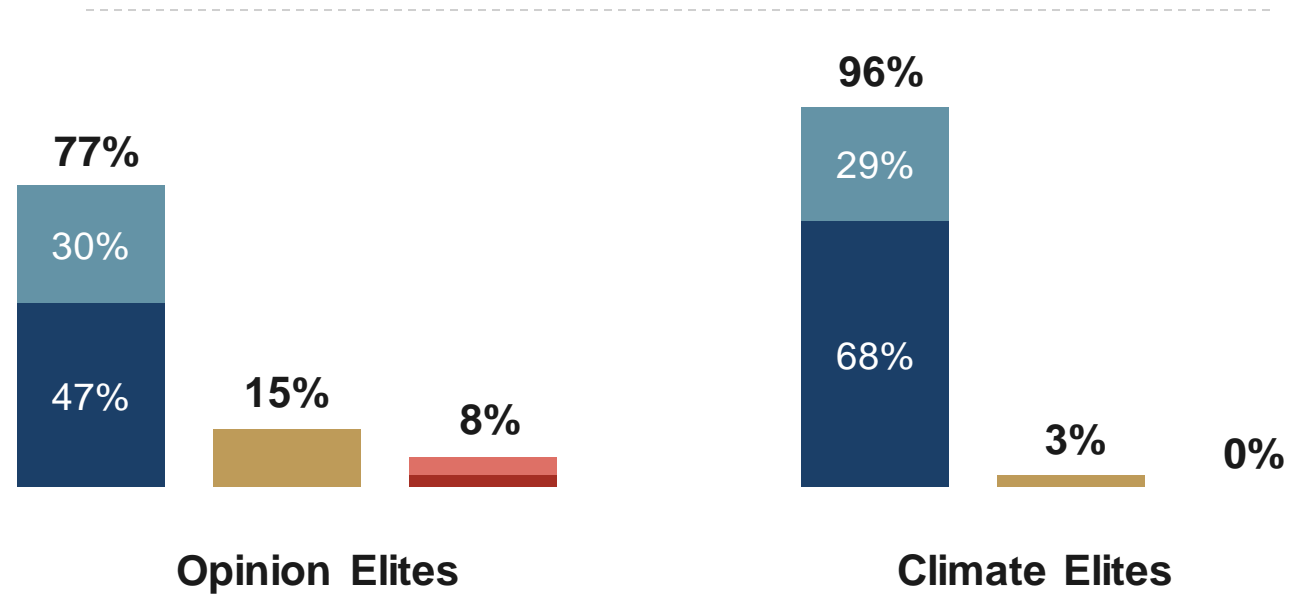
6

High cost, substantial energy requirements, and concerns around safety are among the most compelling critiques of DAC among elites. The historical absence of leaks is a fairly weak rebuttal to safety criticisms and concerns.

# There is broad consensus about the need to do more to reduce the amount of carbon dioxide in the atmosphere.

*Do you think we should be doing more, less, or the same amount to reduce the amount of carbon dioxide in the atmosphere (to fight climate change)?*

■ Much more ■ Somewhat more ■ The same amount ■ Somewhat less ■ Much less

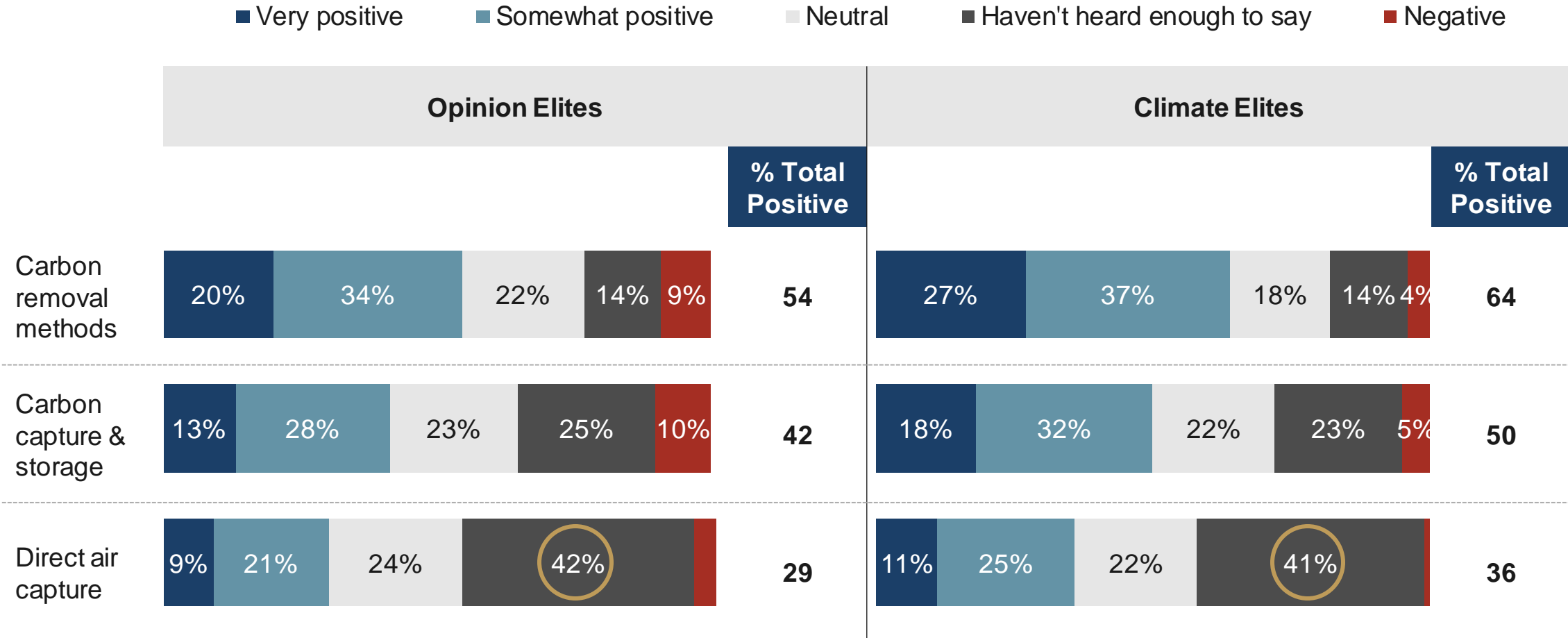


**% Total Do More Opinion Elites**

Democrats	96
Independents	78
Not very conservative Republicans	60
Very conservative Republicans	41

In a split-sample experiment, there was no meaningful difference in the results when citing the need “to fight climate change.”

# Carbon removal in general has a positive image, but pluralities are unfamiliar with DAC specifically.





# **Knowledge and Opinions of Direct Air Capture**

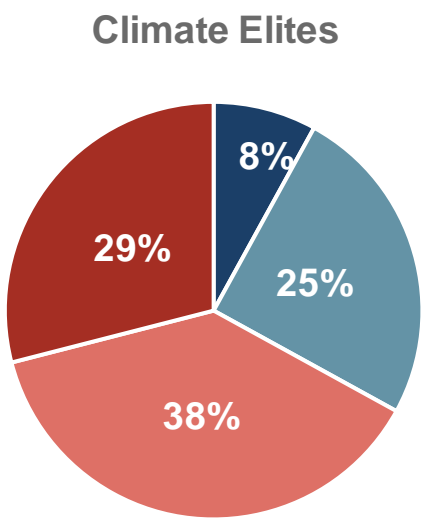
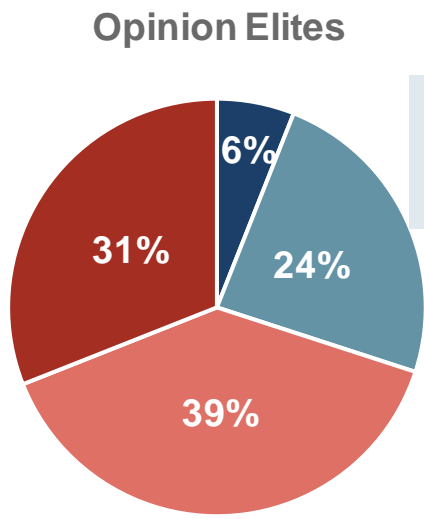
# True awareness of DAC is low, even among climate elites; younger opinion elites profess the highest awareness.

This part of the survey is about direct air capture (also called DAC), which is a technology that removes carbon dioxide, a greenhouse gas that contributes to climate change, directly from the air and stores it thousands of feet underground.

*How much have you heard or read about direct air capture?*

■ A lot      ■ Some      ■ Just a little      ■ Nothing

	<b>% Total A lot/Some Opinion Elites</b>
18-34	42
35-49	35
50-64	24
65 and older	19

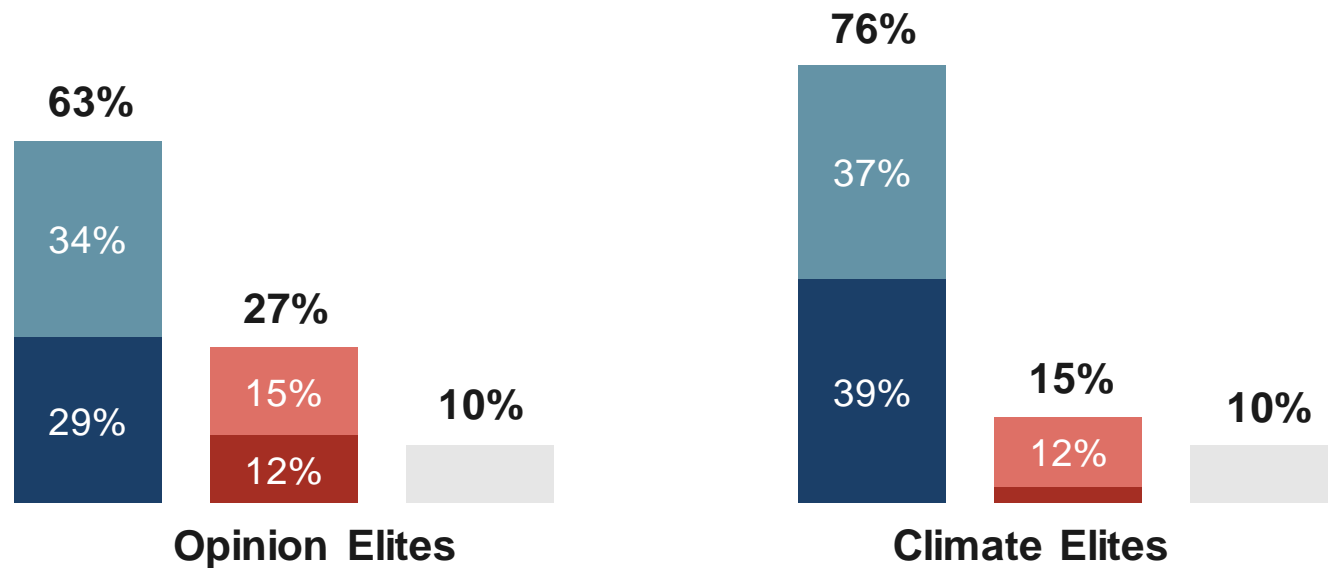


# Belief in DAC's importance in getting to net-zero is broad across the partisan spectrum, but somewhat soft.

*From what you have heard, how important do you think direct air capture is to helping the United States meet its goal for getting to net-zero carbon emissions by 2050?*

*(Net-zero carbon emissions means removing the same amount of carbon from the atmosphere as we are putting in.)*

■ Very important ■ Fairly important ■ Somewhat important ■ Not that important ■ Not sure

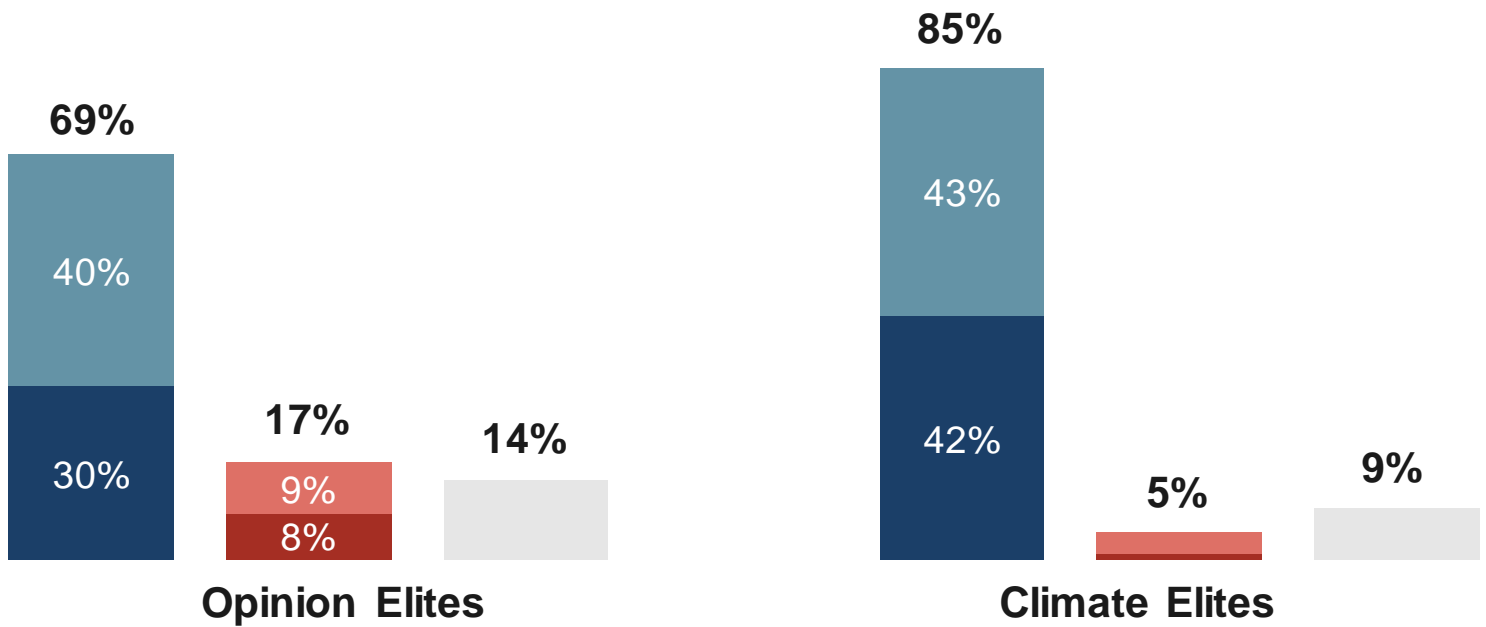


	Total Very/Fairly Important	
	Opinion Elites %	Climate Elites %
Democrats	73	76
Independents	55	67
Republicans	52	81
Heard a lot/some of DAC	74	85
Heard a little of DAC	64	77
Heard nothing of DAC	50	63

# Majorities (including of Republicans) approve of recent significant government investments in DAC.

*In the past year, the federal government has made significant investments in direct air capture here in the United States. Do you approve or disapprove of these investments?*

■ Strongly approve ■ Somewhat approve ■ Somewhat disapprove ■ Strongly disapprove ■ No opinion



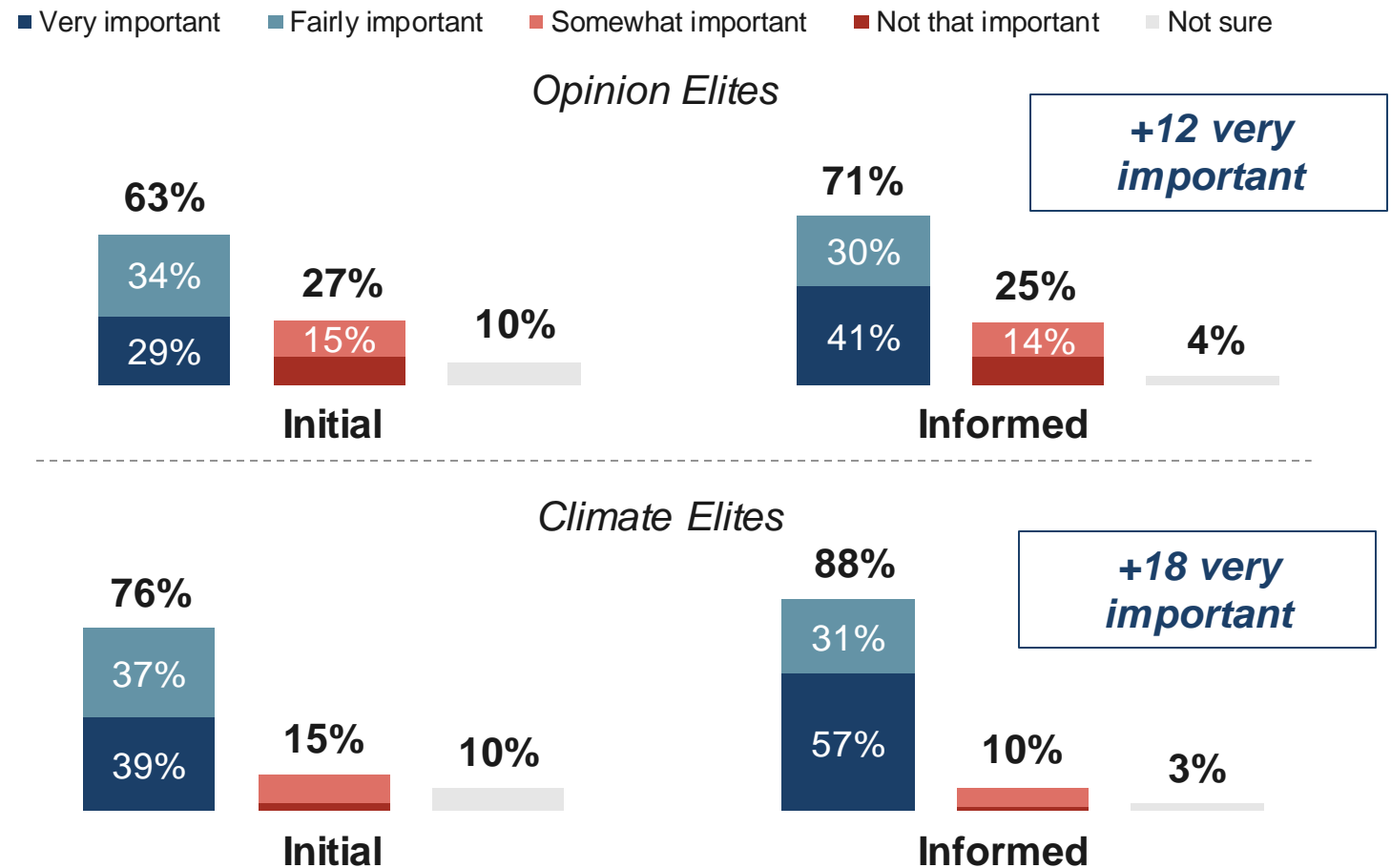
	Total Approve	
	Opinion Elites %	Climate Elites %
Democrats	85	87
Independents	66	80
Republicans	52	84

# Filling in knowledge gaps dramatically increases the perceived importance of DAC.

Direct air capture is an innovative solution that plays a role in fighting climate change by removing carbon dioxide directly from the air and storing it safely thousands of feet underground.

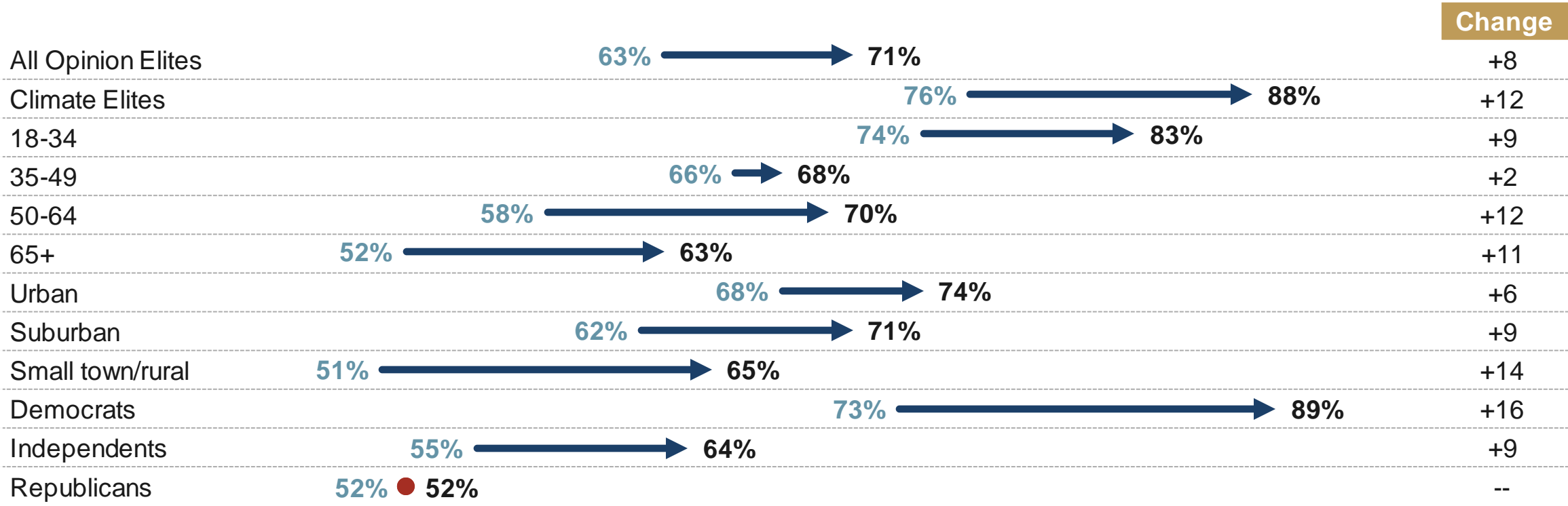
Meeting the goal of fighting climate change by getting to net-zero carbon emissions by 2050 requires transformation across almost every sector of modern life. The transition to clean energy sources is an essential part of the solution, but scientific experts from around the world agree that will not be enough. Direct air capture is essential to avoiding the worst impacts of climate change because some industries, like steel and cement manufacturing, will take longer to clean up and therefore will create some amount of carbon emissions for years to come. As global temperatures are likely to rise above international targets, we need direct air capture to reverse the harm of climate change and bring the world back to safer temperatures.

How important do you think direct air capture is to help the United States meet our goal for fighting climate change by getting to net-zero carbon emissions by 2050?



# Movement toward believing DAC is an important tool in meeting emissions goals is significant across most groups, though Republicans remain more challenging.

Initial Total Important to Informed Total Important



# Pro & Opposition Message Testing

# Anti-DAC Messages Tested: Full Text

## Natural Methods

There are numerous, effective ways to remove carbon from the atmosphere naturally, including reforestation, agricultural soil management, and using sea water to dissolve carbon. Natural methods currently remove 30% of carbon emissions annually and are cheaper and safer than carbon air capture.

## Dirty & Inefficient

Direct air capture uses a lot of energy and when powered by fossil fuels, it creates more pollution than it captures. One study found that capturing one ton of carbon dioxide with coal-fired power direct air capture creates the equivalent of 3.5 tons of carbon pollution.

## Expensive

Direct air capture is incredibly expensive. Capturing just one-quarter of our nation's annual emissions would cost at least \$700 billion each year, this includes more than \$150 billion in taxpayer dollars that the government is giving to companies as tax credits.

## Safety

Moving captured carbon dioxide through pipelines to bury it deep underground is not safe. There is the potential for leaks at every point in the process. Pipelines break and injection of the carbon dioxide into storage wells can cause earthquakes, leading to leaks and threatening the safety of communities.

## Focus Should be Emissions Reduction

The window is quickly closing for us to cut carbon emissions and avoid the worst effects of climate change. We should not waste time and precious resources on this unproven technology, we should focus on what we know works-transitioning away from fossil fuels to clean, renewable energy sources.

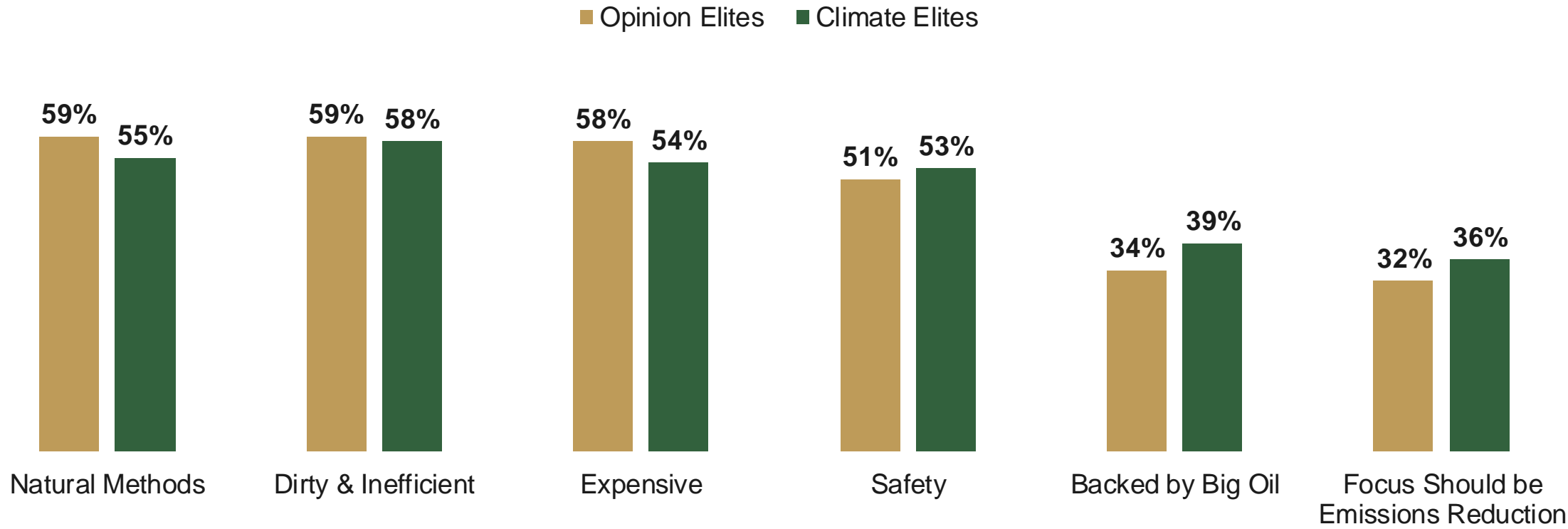
## Backed by Big Oil

Oil and gas companies are investing billions of dollars into direct air capture companies because they know it will slow the transition away from fossil fuels and encourage our continued use of oil and gas, allowing them to continue to earn billions of dollars in profits.



# Four criticisms cluster at the top in terms of being most convincing reasons not to make major investments in DAC.

*MOST convincing reasons to not make major investments in DAC (three chosen)*



# The most compelling criticisms are fairly consistent across the political spectrum; safety concerns resonate with key persuasion groups.

*Top three messages*

Democrats	Independents	Republicans
Dirty/inefficient	Dirty/inefficient	Expensive
Natural methods	Natural methods	Natural methods
Expensive		
Safety		
<b>Not sure about importance of DAC</b>	<b>Move to DAC less/not important</b>	<b>Climate Elites: No Awareness of DAC</b>
Dirty/inefficient	Dirty/inefficient	Safety
Safety	Safety	Dirty/inefficient

Among Opinion Elites and Climate Elites

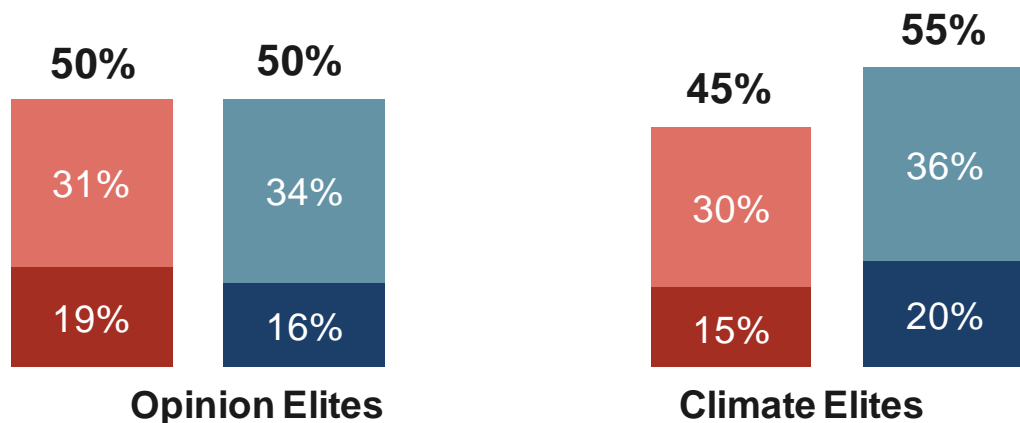
# Simply stating the fact that there have been no major leaks is insufficient in fully alleviating safety concerns.

*Which statement comes closer to your point of view?*

**STATEMENT A:** Moving captured carbon dioxide through pipelines to bury it deep underground is not safe. There is the potential for leaks at every point in the process. Pipelines break and injection of the carbon dioxide into storage wells can cause earthquakes, leading to leaks and threatening the safety of communities.

**STATEMENT B:** Storing captured carbon dioxide deep underground is one of the safest climate technologies, with over 300 million tons of carbon dioxide stored since the 1990s with zero major leaks. In certain formations, the carbon dioxide can become solid rock in as little as a few months and stay that way permanently.

■ A much closer ■ A somewhat closer ■ B somewhat closer ■ B much closer



### Opinion Elites

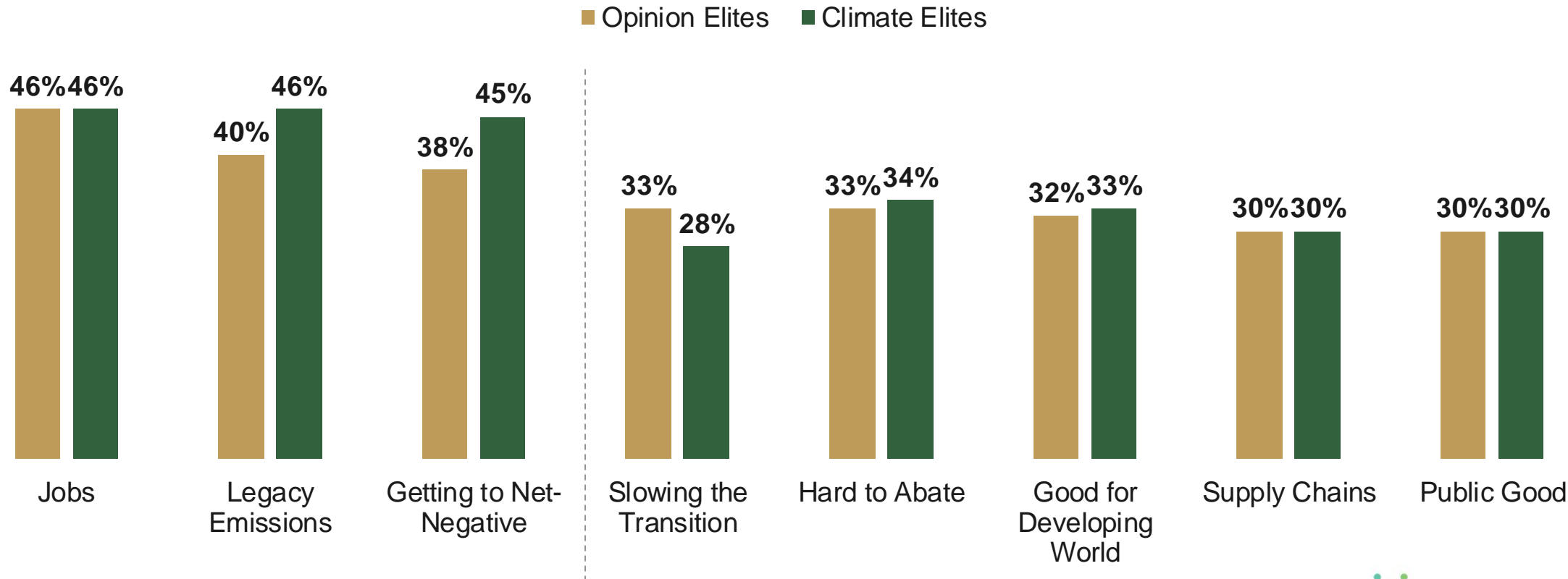
	DAC is not safe %	DAC is safe %
Men	44	56
Women	56	44
18-34	49	51
35-49	49	51
50-64	49	51
65+	52	48
Urban	50	50
Suburban	49	51
Small town/rural	52	48
No awareness of DAC	55	45

# Pro-DAC Messages Tested: Full Text

<b>JOBS</b>	If direct air capture reaches full scale it will create hundreds of thousands of good-paying jobs across the country in high-wage fields like construction, engineering, and equipment manufacturing. Jobs in cement and steel manufacturing alone could increase by 50%. A lot of these jobs could be filled by workers in the oil and gas industry, with minimum training because the skills involved are similar.
<b>GETTING TO NET-NEGATIVE</b>	The carbon pollution from the last century that humans created is still in the atmosphere. The latest science is showing it's not enough to simply stop emitting new pollution. We must also remove from the air some of that carbon from the past 100 years in order to avoid the worst effects of climate change. This is called net-negative emissions, and direct air capture is key to making it happen.
<b>LEGACY EMISSIONS</b>	To stop the worst effects of climate change, we need to remove hundreds of billions of tons of carbon dioxide that has been emitted over hundreds of years of industrialization. Direct air capture has the unique ability to remove carbon pollution from the atmosphere, as opposed to from the source of the pollution, such as factory smokestacks.
<b>HARD TO ABATE</b>	While we continue to reduce harmful carbon emissions by transitioning away from fossil fuels, scientific experts agree that direct air capture is needed to get at the hardest-to-abate emissions that are created by certain energy intensive industries that make a lot of pollution, like long-haul trucking, aviation, steel and cement manufacturing.
<b>SUPPLY CHAINS</b>	If direct air capture reaches full scale there will be significant growth in manufacturing all along the supply chain, from cement to steel, chemicals, and electricity. New demand for steel and manufacturing equipment will exceed the total current U.S. demand in these two sectors, providing economic growth and increased tax revenues for communities across the country.
<b>SLOWING THE TRANSITION</b>	Using direct air capture will allow us to continue using fossil fuels like oil and gas for a longer time while still reducing the carbon that they create. This will mean a slower and less disruptive transition to clean energy that leaves fewer people behind.
<b>PUBLIC GOOD</b>	Direct air capture is an emerging but rapidly growing industry that will one day serve the same function that waste management does today. Cleaning the atmosphere of carbon dioxide and locking it away safely for thousands of years is a public good.
<b>GOOD FOR DEVELOPING WORLD</b>	Direct air capture will be good for the developing world. The biggest world economies like in the United States and Europe have used fossil fuels for centuries to help successfully grow their economies. Countries in the developing world need a chance to catch up, but for many putting modern clean energy technologies in place is out of their price range. Direct air capture would help these countries to grow their economy while the cost of clean energy comes down by pulling from the atmosphere some of the carbon they are emitting.

# Job creation, dealing with legacy emissions, and getting to net-negative are the most convincing points in making the case for DAC with elites.

*BEST reasons in favor of direct air capture (three chosen)*



# Legacy emissions, net-negative, and jobs are key themes for base and “swing” audiences.

*BEST reasons in favor of direct air capture*

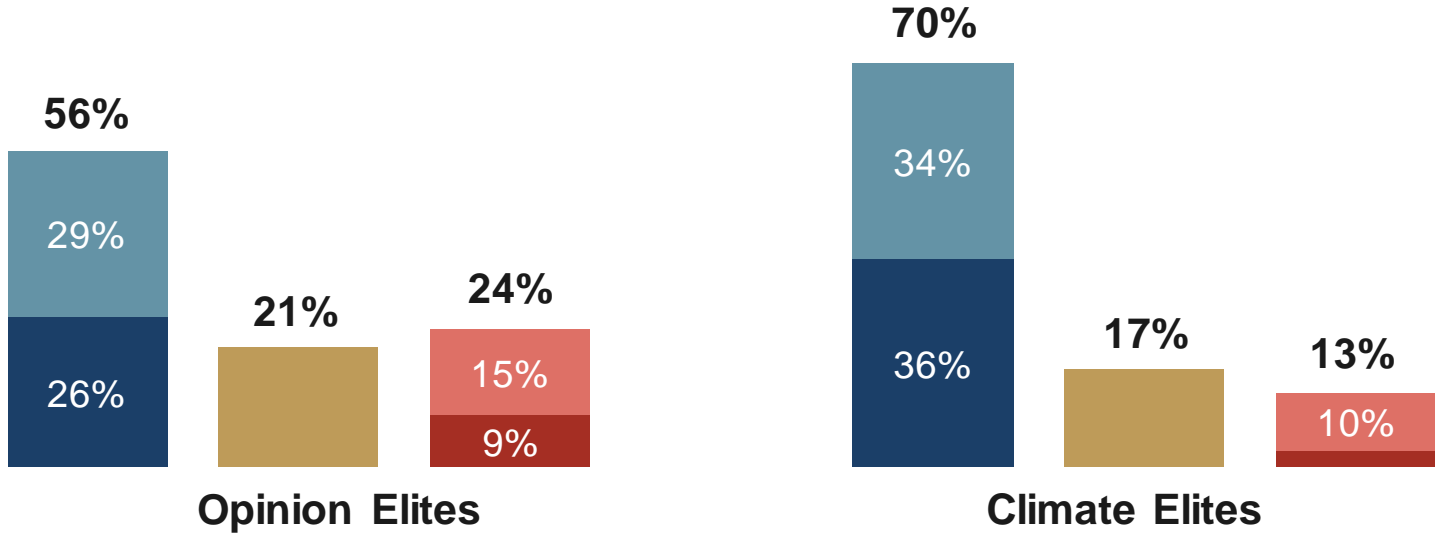
Climate change is a crisis	Move to positive feelings on DAC	Not sure about importance of DAC	Climate Elites: No Awareness of DAC
Legacy emissions	Jobs	Legacy emissions	Getting to net-negative
Getting to net-negative	Legacy emissions	Jobs	Legacy emissions

Democrats	Independents	Republicans
Legacy emissions	Jobs	Jobs
Jobs	Getting to net-negative	Slowing the transition

# After messaging on both sides of the issue, majorities see the value of government investments in DAC; support is solid among climate elites and softer among opinion elites.

*How important do you think it is that the federal government makes investments in direct air capture?*

■ Very important ■ Fairly important ■ Just somewhat important ■ Not that important ■ Not important at all



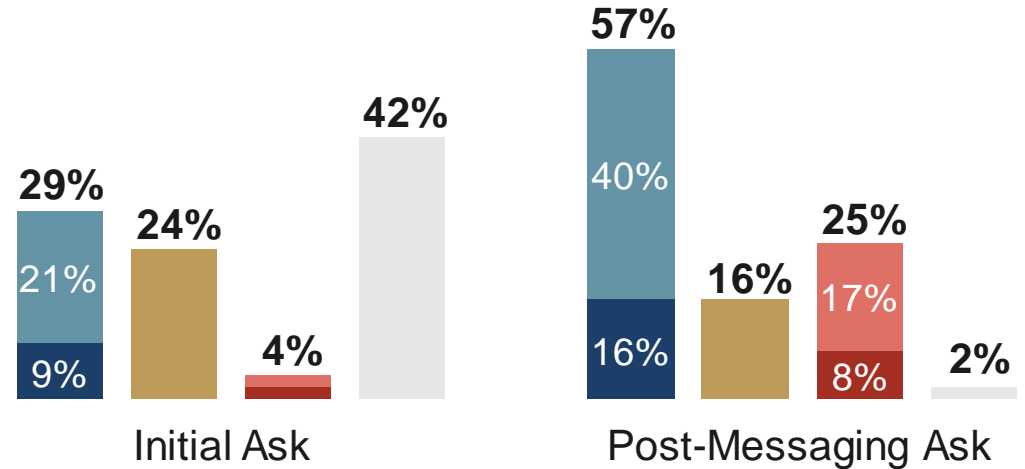
	Total Very/Fairly Important	
	Opinion Elites %	Climate Elites %
Democrats	68	70
Independents	50	62
Republicans	43	74

# After messaging on both sides, positive feelings toward DAC increase significantly.

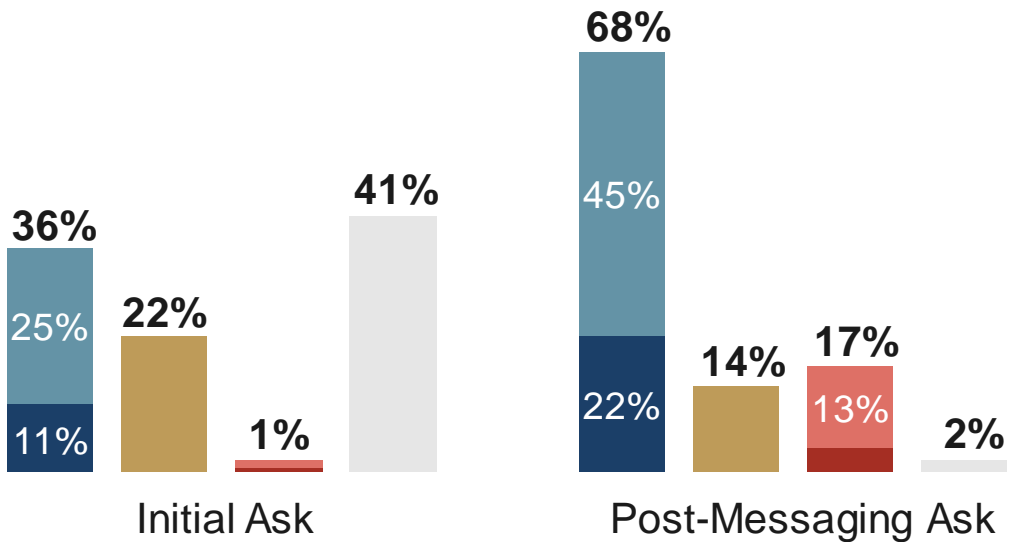
*After everything we've covered in this survey, please rate your feelings toward direct air capture.*

■ Very Positive   ■ Somewhat Positive   ■ Neutral   ■ Somewhat Negative   ■ Very Negative   ■ No opinion

### All Opinion Elites



### Climate Elites





# Strategic Recommendations for Communication with Opinion Elites

**1** Elites are open-minded about DAC, but awareness about the technology is very low. A significant part of making the case about the promise of this technology is filling the substantial knowledge gap with information about what DAC is and the role it can play in avoiding the worst impacts of and reversing the harm of climate change.

**2** Proactively inoculating against safety concerns should also be a part of communication to educate and inform elites about DAC. This is especially true among those with the lowest levels of awareness, who are susceptible to opponents' criticisms that transporting captured carbon dioxide through pipelines and storing it deep underground is not safe.

**3** The most effective approach to making the case for major investments in direct air capture to elite audiences is two-pronged.

- Climate-related messaging that emphasize DAC's unique ability to remove legacy emissions from the atmosphere and its use as a critical tool to getting to net-negative carbon emissions. *(This message could also serve as an effective defense against the criticism that DAC is "dirty.")*
- Economic messaging that specifically focuses on the hundreds of thousands of high-wage jobs in fields like construction and engineering that will be created across the country when DAC reaches full scale.

# **Survey of and Focus Groups with Voters in Potential DAC Hub Regions**

# Survey and Focus Group Methodology

**Telephone survey** of 1,600 registered voters in proposed DAC hub regions

Conducted October 16-30, 2023

	Total Interviews (#)
Gulf Coast TX/LA	400
Central CA	400
Northeast OR/Southeast WA	400
Western ND/Southern WY	400

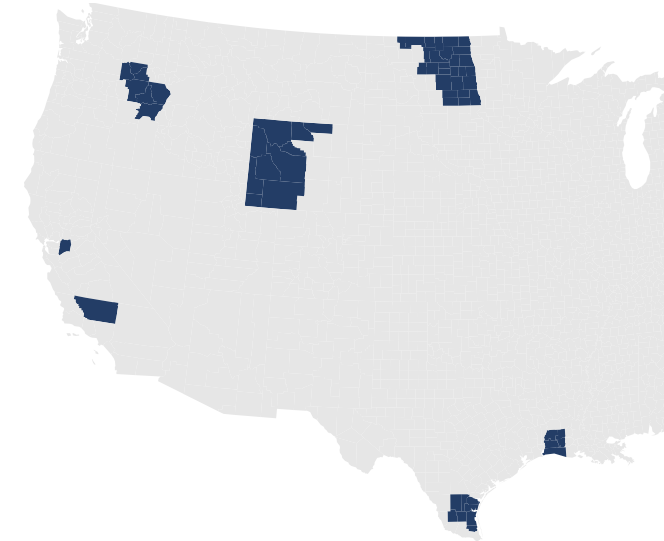
Margins of error:

±2.45 percentage points for the total sample

±4.9 percentage points for each regional sample

±6.0 percentage points when comparing regional samples

Error is higher for subgroups of each sample



**4 online focus groups** with right-of-center voters who reside near proposed DAC hub locations:

- The Texas and Louisiana Gulf coasts
- Kern and San Joaquin counties in California
- Western North Dakota and southern Wyoming
- Northeast Oregon and southeast Washington

Conducted January 22 and February 7, 2024

# DAC Hub Regions: Key Takeaways

1

Residents of these hub regions view both clean energy sources and fossil fuels favorably. Communications about the hubs can speak positively about the former without fear of antagonizing people, but likewise, there is little upside in denigrating the latter.

2

At first blush, many residents like what they hear about the hubs. But knowledge is low, opinions are “soft,” and hub opponents have substantial runway to fan concerns and negative sentiments.

3

Safety, efficacy, and energy use are serious concerns. Proactively addressing them is critical to effectively making the case for the hubs.

4

The benefits of DAC pack less of a punch, but three are consistently the strongest across regions:

- Local job creation (including job training for the kinds of jobs that will be created)
- Needed community investments in things like healthcare, schools, and childcare
- Broad based economic growth of their community

# DAC Hub Regions Survey: Key Takeaways (cont'd)

5

There is value across a range of audiences in combining job creation and pollution reduction benefits, though Republicans (the biggest DAC skeptics) prefer an unadorned jobs message.

6

Community outreach early in the process will pay substantial dividends, as residents in potential hub localities have a number of questions they want answered.

7

Trusted validators include:

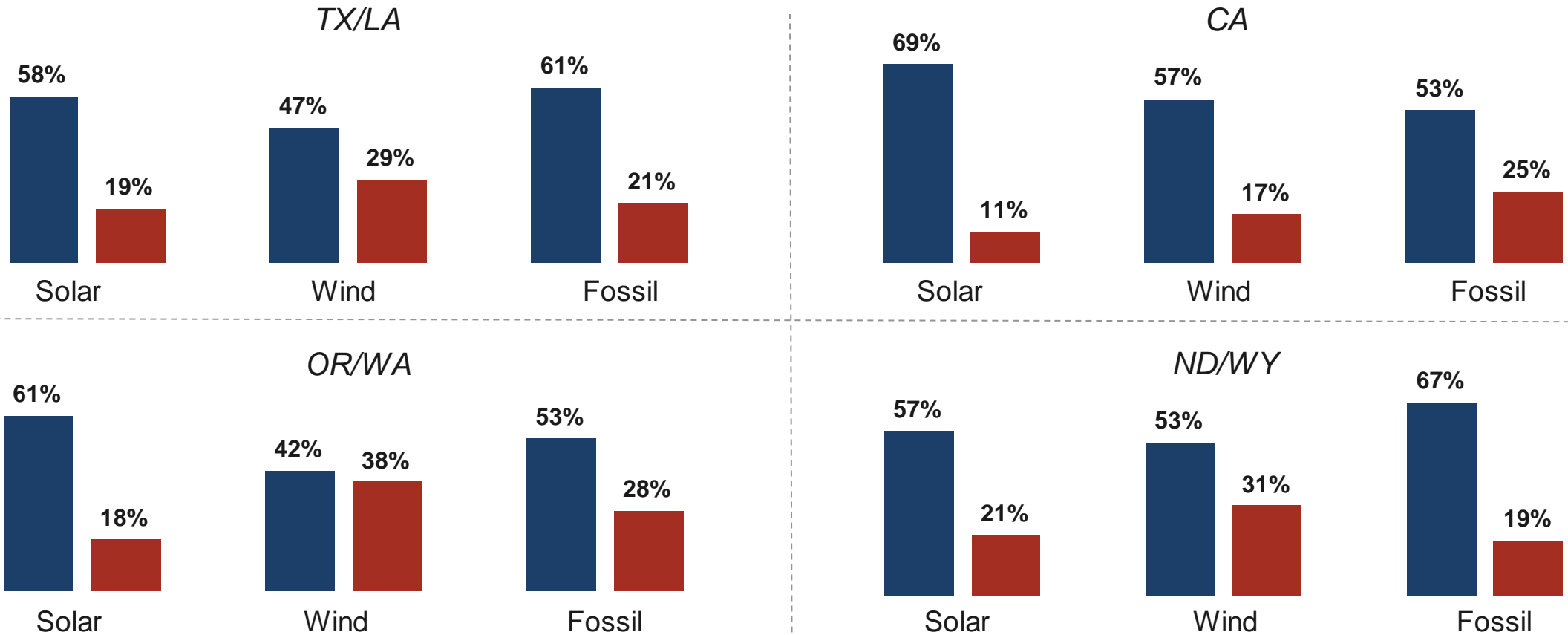
- Independent experts who are in no way connected to the hub operations
- Voices within their own communities (such as local hub workers and trainees)
- Residents and experts from areas that have existing DAC facilities – their longer-term experiences with DAC can help make the case that their own community will benefit and not be harmed by having a hub.

8

Voters in Northeast Oregon and Southeast Washington are consistently the most challenging. In the survey, they begin with the lowest approval (40%) and after messaging on both sides of the issue, nearly half disapprove of building a hub in their area.

# Positive feelings far outweigh negative feelings toward all energy sources (with the exception of wind energy in OR/WA).

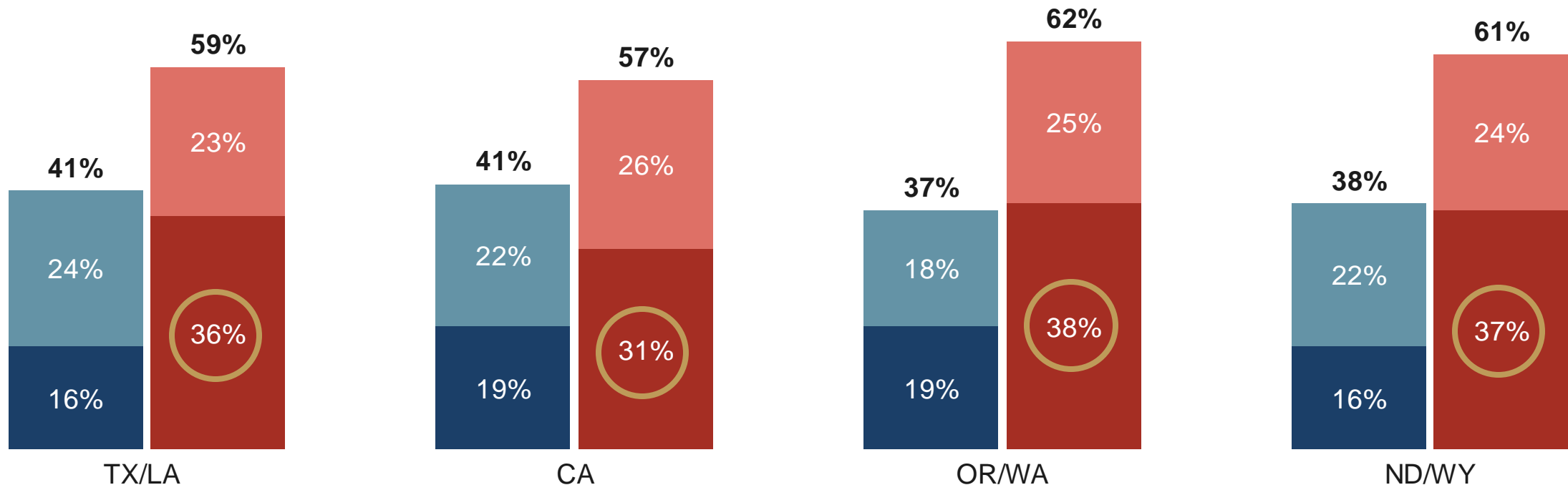
■ Total Positive ■ Total Negative



# Majorities of voters across these regions do not consider climate change to be a very serious problem.

Climate change is a...?

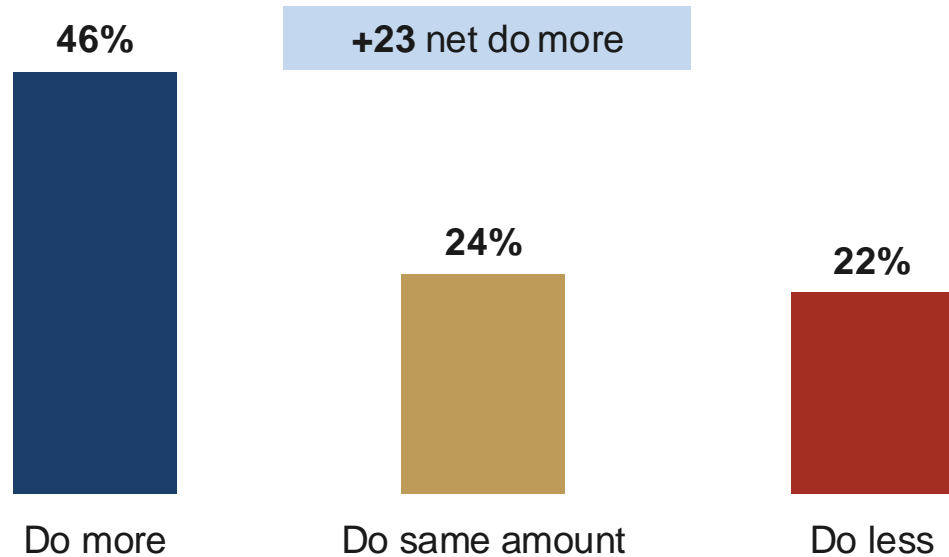
■ A crisis    ■ A very serious problem    ■ A somewhat serious problem    ■ Not a serious problem



# Still, there is recognition of the need to reduce CO2, and citing climate change does not weaken that sentiment.

All Regions

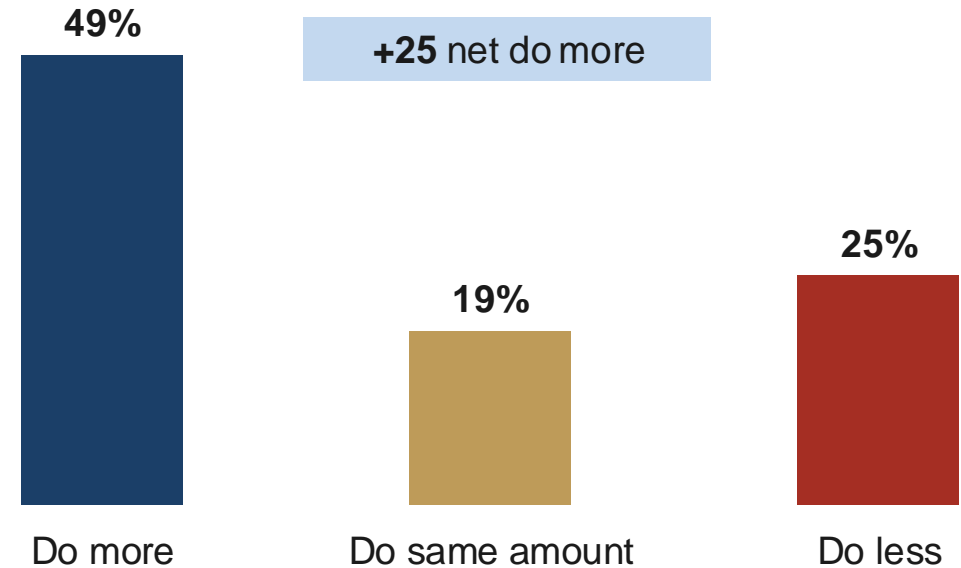
*Do you think we should be doing more, less, or the same amount to reduce the amount of carbon dioxide in the atmosphere? \**



\* Asked of half sample A.

All Regions

*Do you think we should be doing more, less, or the same amount to reduce the amount of carbon dioxide in the atmosphere **to fight climate change?** \*\**



\*\* Asked of half sample B.

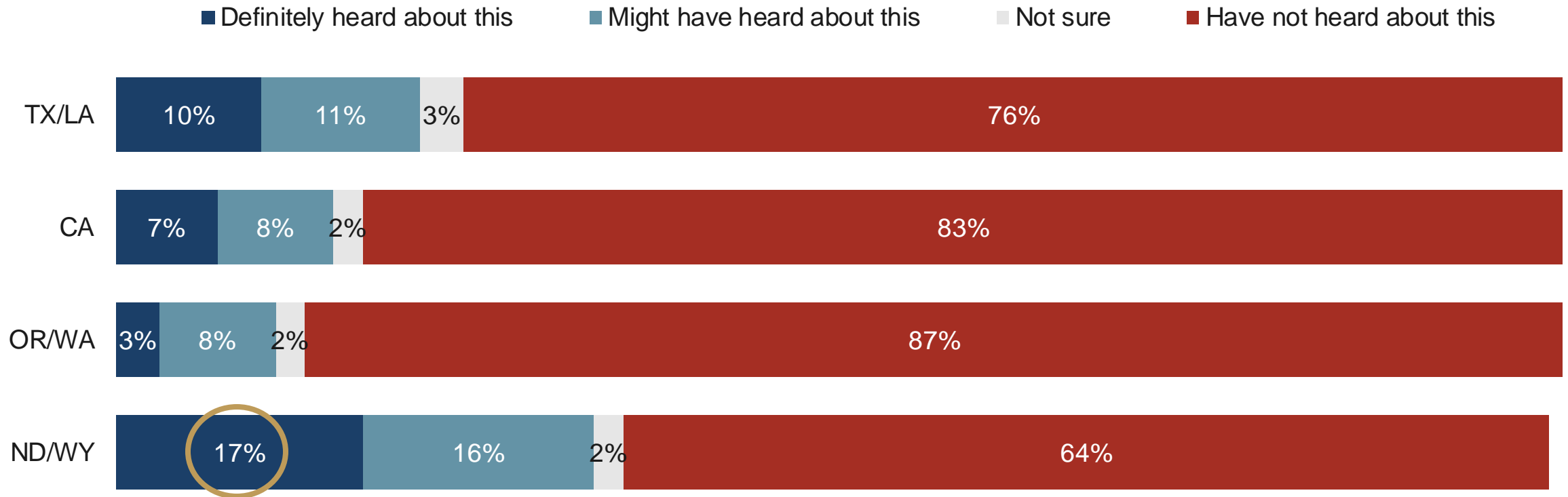
This finding is consistent across all four regions.



# **Awareness and Opinions About Direct Air Capture Hubs**

# Residents' awareness of DAC hubs potentially being built in their area is very low.

*Direct air capture facilities or hubs are being built at several locations throughout the country. Have you heard or read anything about a direct air capture facility or hub being built in this area?*



# Providing additional information about the DAC hub significantly increases approval of building a facility in their area.

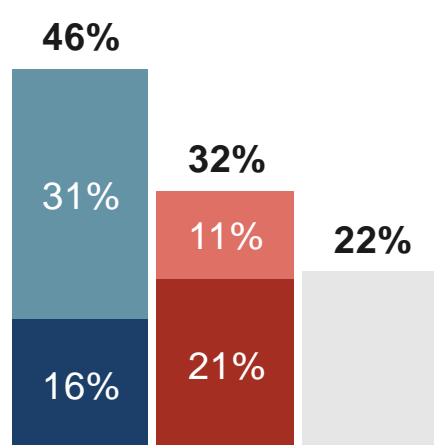
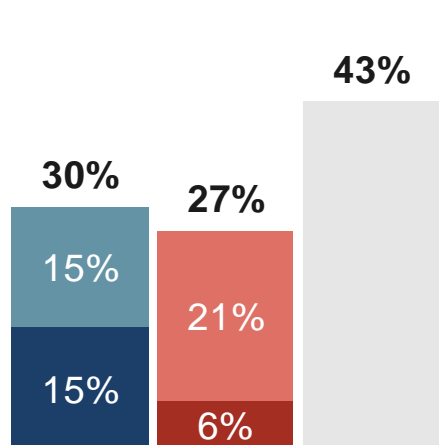
■ Strongly approve   
 ■ Somewhat approve   
 ■ Somewhat disapprove   
 ■ Strongly disapprove   
 ■ Not sure

*Do you approve or disapprove of building a direct air capture facility here in this area?*

This project would bring together multiple direct air capture companies within the same large facility, or hub. The facility does everything in the entire process, from removing carbon dioxide from the air, to processing it and storing it deep underground. Doing all this within the same facility allows companies to share expertise and infrastructure like roads, pipelines, and the technology, so that they can work together to improve the process, allowing us to use the direct air capture technology sooner and at a lower cost.

## All Regions

*Having heard this, would you say you approve or disapprove of building a direct air capture facility or hub right here in this area?*

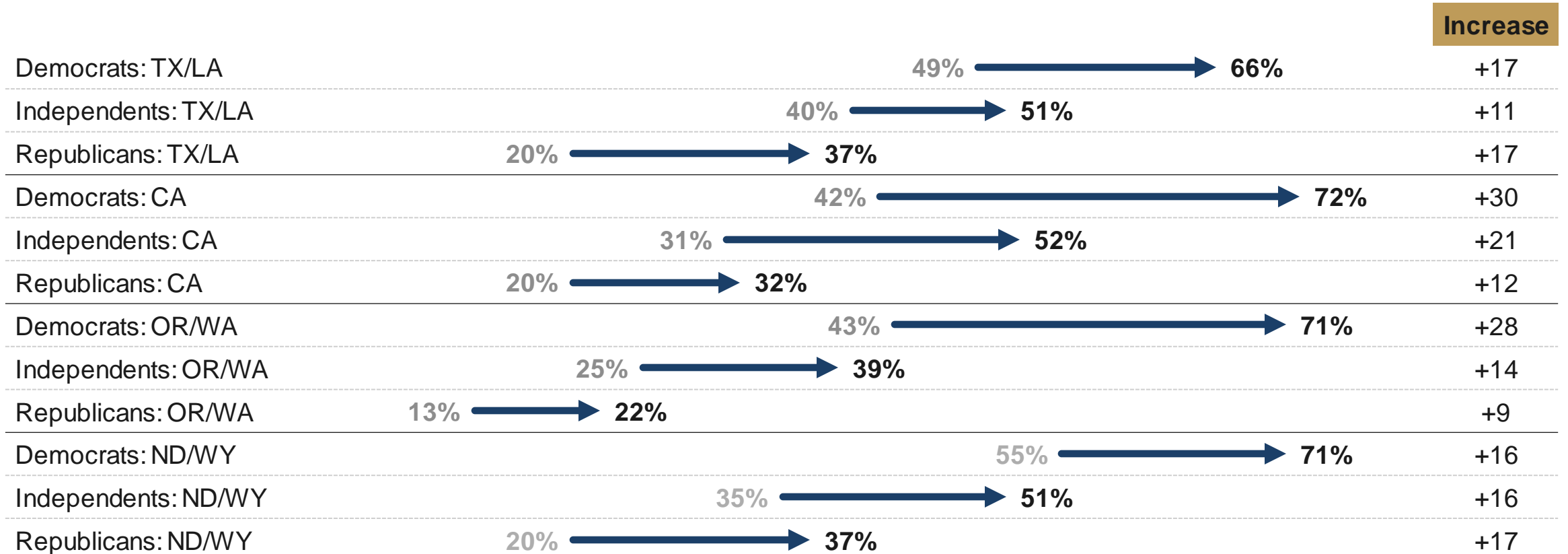


	Initial Approval %	Informed Approval %	Increase
TX/LA	31	47	<b>+16</b>
CA	30	49	<b>+19</b>
OR/WA	25	40	<b>+15</b>
ND/WY	33	50	<b>+17</b>

**In all regions, younger voters and Democrats are more likely to approve of building the DAC hubs.**

# Approval increases across the political spectrum in all regions, but Republicans and Independents (to a lesser extent) remain skeptical.

Initial Approval to Informed Approval



# Pro & Opposition Message Testing

# DAC Hub Criticisms Tested: Full Text

## Power Usage

Direct air capture facilities use an extraordinary amount of energy, and our power grid is already badly strained. This facility will make it even worse. It will increase local energy prices and increase the chances of blackouts, especially during times of peak power usage.

## Safety

Moving captured carbon dioxide through pipelines to bury it deep underground is not safe. There is the potential for leaks at every point in the process. Pipelines break and injecting carbon dioxide into storage underground can cause earthquakes, leading to leaks and threatening the safety of the community.

## Big Oil Companies\*

The companies involved in this new facility are the same big oil and gas companies that have taken advantage of this community for decades, polluting the environment and harming people's health. Their history shows they cannot be trusted to do what's best for the residents here.

## Anti-Climate

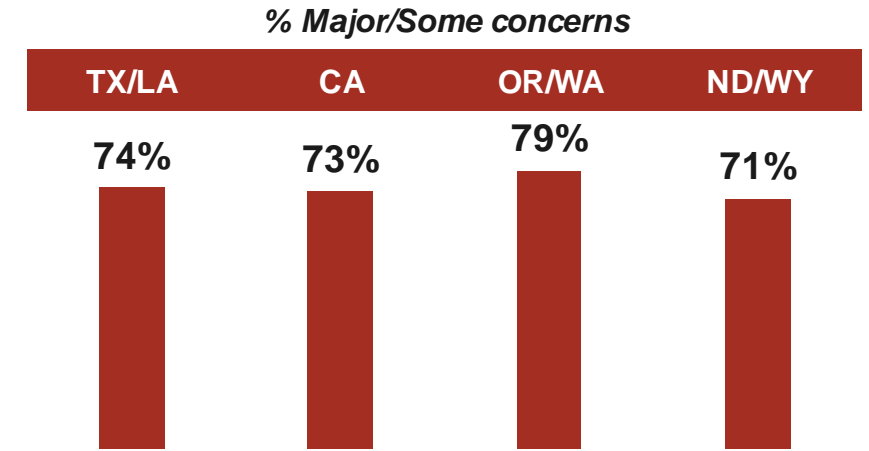
Direct air capture is based on climate change hysteria. The earth's climate has changed many times over thousands of years and the idea that it is changing now in a way that threatens our survival is overblown and alarmist. Building huge fans to suck up carbon is a waste of money and time.

## Encourage Oil Use\*\*

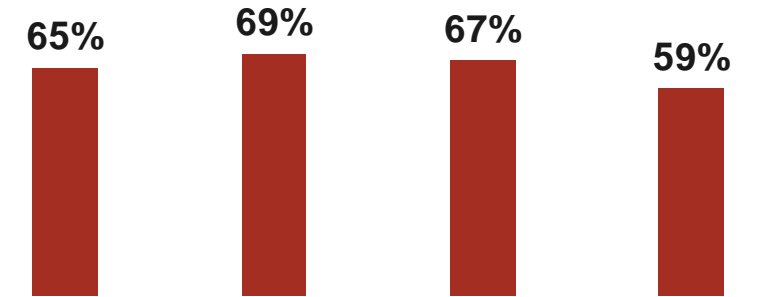
Direct air capture is just an excuse to continue using fossil fuels. It can never remove as much carbon from the air as burning fossil fuels creates, but the facility in [STATE] and those elsewhere will give people the false impression that this is a solution. One oil CEO said that it 'gives our industry a license to continue to operate for eighty years.'

# Criticisms focused on power usage and safety are compelling with a wide range of voters.

**[POWER USAGE]** Direct air capture facilities use an extraordinary amount of energy, and our power grid is already badly strained. This facility will make it even worse. It will increase local energy prices and increase the chances of blackouts, especially during times of peak power usage.



**[SAFETY]** Moving captured carbon dioxide through pipelines to bury it deep underground is not safe. There is the potential for leaks at every point in the process. Pipelines break and injecting carbon dioxide into storage underground can cause earthquakes, leading to leaks and threatening the safety of the community.



Across the regions, these are also the most concerning criticisms across all demographic groups and among voters whose initial opinions about the hubs are soft.

# DAC Hub Benefits Tested: Full Text

## Jobs

This facility will bring potentially thousands of jobs to [STATE]--everything from engineers to construction workers, carpenters, and factory workers. Good-paying jobs that you can support a family on. And there will be partnerships with local companies and universities to train residents to do these jobs.

## Community Development

One requirement for the companies in this facility is that they help support and build up the local community. They will work with residents to understand what the community's biggest needs are--whether it is more teachers, more child care spaces, more doctors and nurses, or something else--and provide the money needed to make it happen.

## Econ Development

This will be a boon to the economy in this area. The companies at the facility will mean a huge increase in tax revenue to help fund schools, parks, libraries, and senior services. And there will be not only new jobs at the facility itself, but also other companies coming in to provide services to support those new workers. This will all mean major economic growth for this area of [STATE].

## Environmental Justice

Residents of lower-income communities are often trapped in a cycle where the same industry that pollutes their air and water also provides their main source of employment. The direct air capture facility is an opportunity for residents of [STATE] to use the skills they've learned at their old oil and gas jobs in an industry that actually cleans up the environment.

## Developing New Climate Tech\*

We have seen the effects of climate pollution more and more recently, whether it is extreme heat, bigger wildfires, more damaging floods, or stronger hurricanes. The direct air capture facility in [STATE] is at the forefront of doing something about this. What is learned here will be used around the world to help deal with climate change and make a better future for our children.

## New tech/Mineral Storage\*\*

We have seen the effects of climate pollution more and more recently, whether it is extreme heat, bigger wildfires, more damaging floods, or stronger hurricanes. The direct air capture facility in [STATE] is at the forefront of doing something about this. This region has unique geology to store carbon dioxide and this new technology can be used around the world.

*\*Developing new climate technology was tested in TX/LA, CA, and ND/WY*

*\*\*New tech/mineral storage was tested in OR/WA*

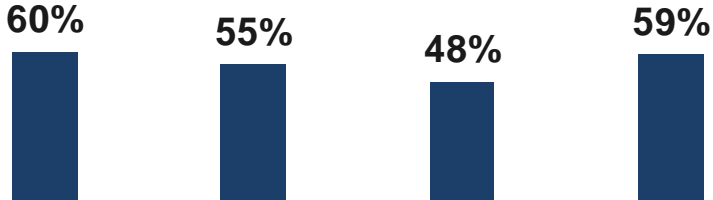


# Job creation, community, and economic development are the top benefits across the regions; however, they are less compelling than the top concerns.

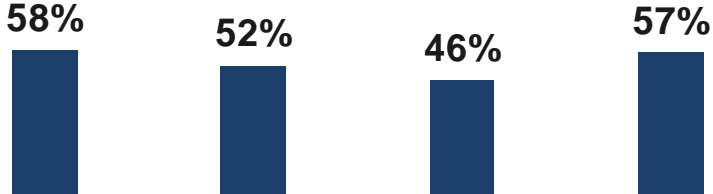
**[JOBS]** This facility will bring potentially thousands of jobs to [STATE]--everything from engineers to construction workers, carpenters, and factory workers. Good-paying jobs that you can support a family on. And there will be partnerships with local companies and universities to train residents to do these jobs.

*% Very/Pretty important benefit*

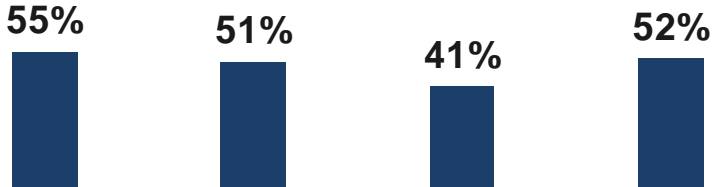
TX/LA	CA	OR/WA	ND/WY
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**[COMMUNITY DEVELOPMENT]** One requirement for the companies in this facility is that they help support and build up the local community. They will work with residents to understand what the community's biggest needs are--whether it is more teachers, more child care spaces, more doctors and nurses, or something else--and provide the money needed to make it happen.



**[ECON DEVELOPMENT]** This will be a boon to the economy in this area. The companies at the facility will mean a huge increase in tax revenue to help fund schools, parks, libraries, and senior services. And there will be not only new jobs at the facility itself, but also other companies coming in to provide services to support those new workers. This will all mean major economic growth for this area of [STATE].



Across the regions, these are also the most compelling pro-hub messages among voters whose initial opinions about the hubs are soft.

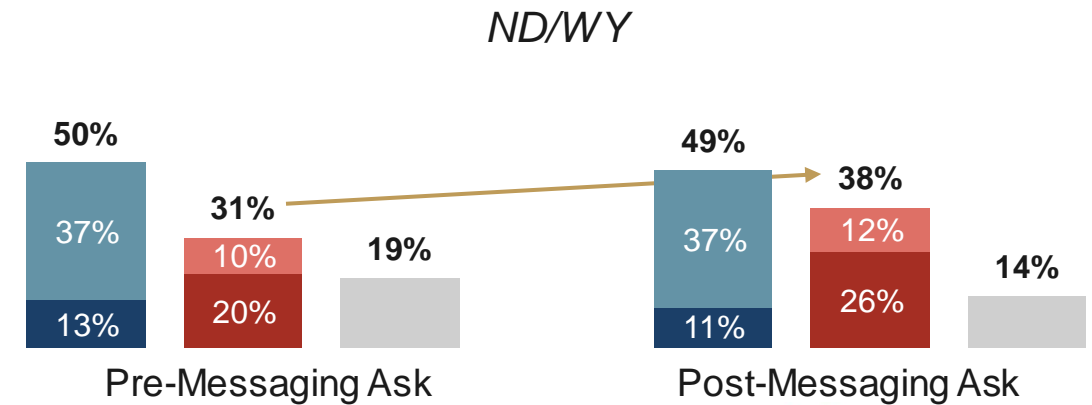
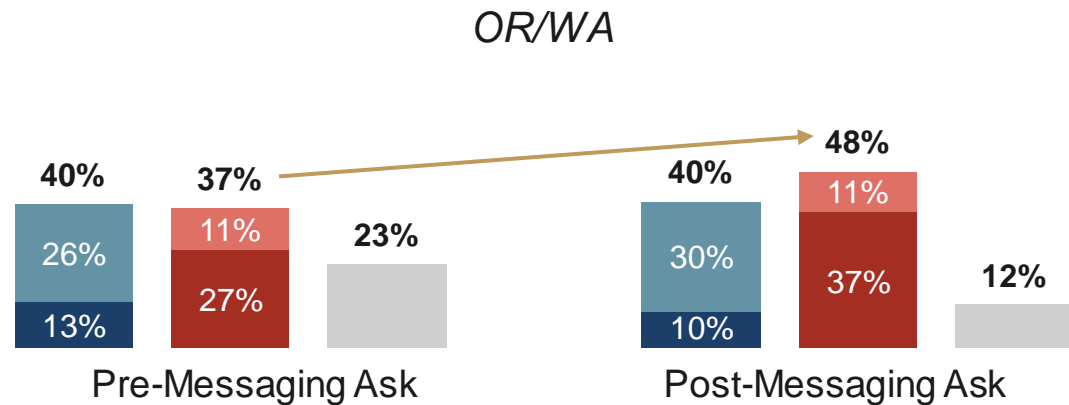
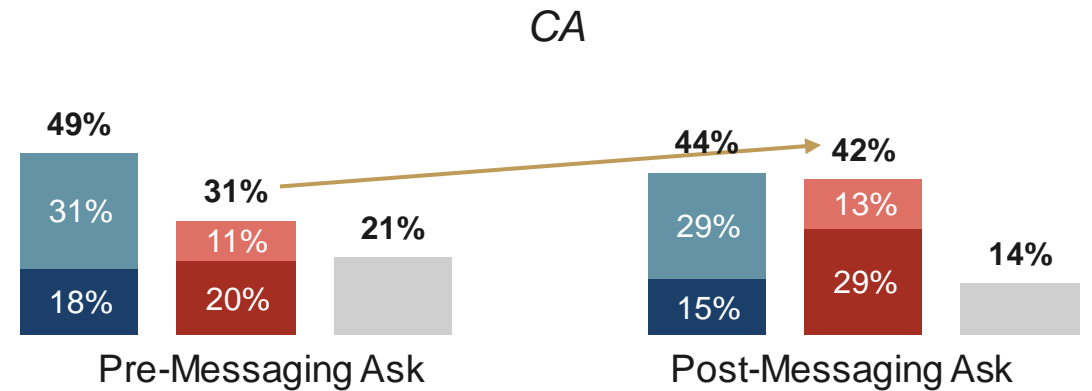
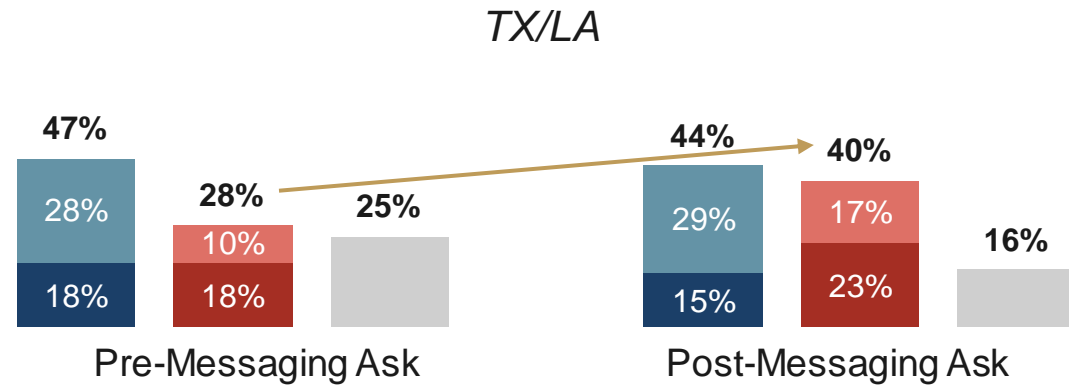
# Pairing jobs and air/water pollution reduction is highly compelling to Democrats; Republicans prefer a straight jobs message.

*% top two most important benefits*

	All Regions %	Democrats %	Indep %	Republicans %
It will create jobs AND clean up air and water pollution in low-income communities	35	51	37	25
It will bring thousands of good-paying jobs to [STATE]	29	23	29	31
It will help address the effects of climate pollution, like extreme heat and floods	23	50	23	9
It will raise money to fund services and drive economic growth in this area	18	15	17	19
It will build up child care, healthcare, or other needs the community has	15	18	16	12
None are important	20	5	16	31

# Post messaging, hubs maintain support, though opposition grows. OR/WA ends up in the red.

■ Strongly approve   ■ Somewhat approve   ■ Somewhat disapprove   ■ Strongly disapprove   ■ Not sure



# Younger voters and Democrats are the strongest supporters of the hubs.

*Post-messaging ask*

<b>TX/LA</b>	<b>Approve %</b>	<b>OR/WA</b>	<b>Approve %</b>
Democrats	64	Democrats	68
Independents	45	Independents	43
Republicans	37	Republicans	21
18-34	51	18-34	42
35-49	43	35-49	36
50-64	45	50-64	45
65 and older	40	65 and older	38
<b>CA</b>	<b>Approve %</b>	<b>ND/WY</b>	<b>Approve %</b>
Democrats	68	Democrats	70
Independents	40	Independents	56
Republicans	31	Republicans	33
18-34	54	18-34	62
35-49	44	35-49	47
50-64	36	50-64	43
65 and older	41	65 and older	44

# **Strategic Recommendations for Communication in Potential DAC Hub Localities**

# Three Threats: Safety, Efficacy, and Energy Use of Direct Air Capture Hubs

Safety and efficacy concerns about DAC serve as significant impediments to voters embracing the possibility of a new DAC hub being built where they live. Issues about energy consumption are not top-of-mind, but once inserted into the conversation (often by the one or two focus group participants who knew a fair amount about DAC), they resonate strongly.

To more deeply explore different approaches to addressing these concerns, four focus groups in potential DAC hub regions were conducted with right-of-center voters.

Skepticism about DAC technology and whether it really works as DAC advocates claim it does are persistent refrains, especially among conservative audiences.

Safety concerns about the dangers of carbon dioxide transport and storage are paramount and strike a chord with a broad swath of the electorate. They override positive feelings about potential DAC hub benefits, and if left unaddressed, opposition efforts to sow seeds of fear and distrust will stick.

Once raised, concerns about energy usage amplify concerns about taxing the already strained electrical grid and the prospect of increasing electric bills.

# Proactively making the case that DAC is safe and effective is critical.

Three important points to proactively make the case:

1

***DAC has been used for years*** – This is not a new technology that is being tried out for the first time in your community. It is well-developed, time-tested, and trusted.

2

***DAC is effective*** – The goal is to pull carbon out of the atmosphere, and it has been proven to work. We have ample evidence to demonstrate that.

3

***DAC is safe*** – There has never been a safety issue or leak in any of the places where DAC facilities have operated and there have been no negative consequences for local ecology.



- ✓ Real world, specific examples are essential to making each of these points in a convincing way.
- ✓ Simply asserting that DAC is safe or that there has never been a leak is insufficient.
- ✓ They want to know where it's been used, for how long, and that it's been leak/accident free.

After these key points are addressed, messaging can pivot to specific benefits that are compelling: local jobs, economic and community development.

# There is no silver bullet to addressing concerns about energy use, but addressing three points directly can help minimize worries.

Responses to these concerns should be tailored to the community and provide details that are as concrete as possible.

1

Will the new DAC facility put added strain on our already overtaxed electrical grid?

*(This is a regional concern in localities where grid outages have been a problem.)*

2

Will the new DAC facility cause my electric rates to increase?

3

Does DAC create more carbon pollution than it removes?



# Community outreach early in the process is key.

In addition to safety, efficacy, and energy use, residents have a number of questions they want answered.

How does direct air capture actually work?

Why are you putting the facility here in our community?

Who is paying for this?

How will it affect our local environment (from birds to groundwater to noise pollution)?

How will it affect our local community (traffic and congestion, construction and pipelines)?

What is it going to cost us/will it increase taxes?

Will we have input on the community investments?

**The information that is conveyed about safety, efficacy, energy use, and these additional questions must be:**

- ✓ Accessible and easy to understand.
- ✓ Specific to the local community and the operations of the new DAC facility being built there.

# Independent experts and local voices can be trusted validators.



Scientific experts can be important credible endorsers, but they must be independent, that is:

- Not affiliated with the new DAC hub or the companies operating it
- Not affiliated with any of the entities funding it, **including the government**



A range of voices that will realize the benefits can also serve as important validators, including people from communities where DAC facilities already exist:

- People who have received job/skills training
- Employees who have secured good-paying jobs at the facility
- People who have benefited from community investments (teachers, hospital administrators, etc.)

# Additional Communication Recommendations in Potential DAC Hub Localities

**1**

When touting job creation, be specific about the kinds of jobs that will be created, the training that will be provided for local residents (for example, if there is a partnership with a local college) and provide at least a good estimate of the number of jobs that will be created. Phrases like “potentially thousands of jobs will be created” are met with skepticism.

**2**

Similarly, when touting community investments, be specific and ensure there is a process for community input on what the priorities for these investments will be.

**3**

Don't shy away from emphasizing the benefits of reducing pollution and poor air quality. This is not the main entry point, but residence in these localities support efforts to reduce pollution and ensure their communities have clean air to breathe and clean water to drink.

**4**

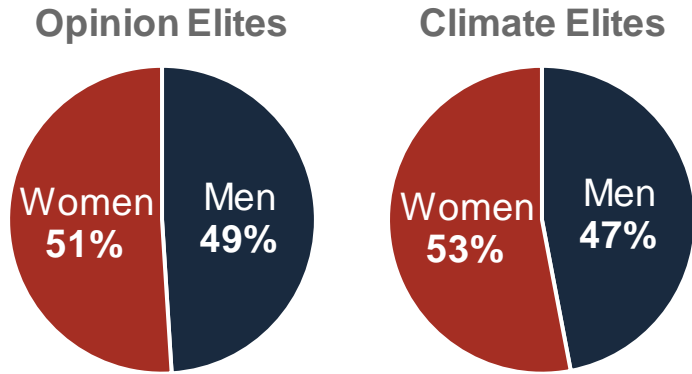
However, do not oversell DAC's role in addressing climate change. Right-of-center voters, many of whom are skeptical that climate change is a “crisis,” are willing to view DAC as *part of the solution*. These voters are more likely to accept messaging that avoids language they would view as climate hyperbole.

# **Appendix**

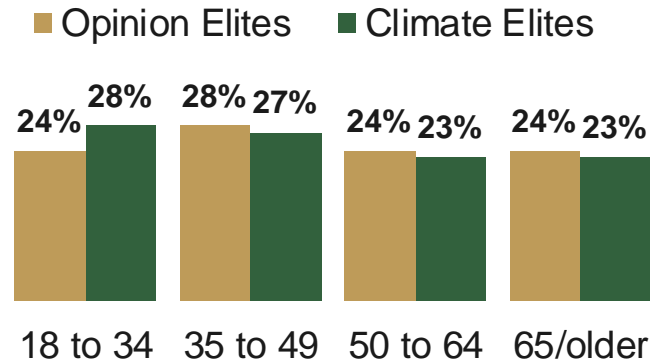
## **Demographic & Political Profiles of Survey Samples**

# Demographic & Political Profile of National Elites

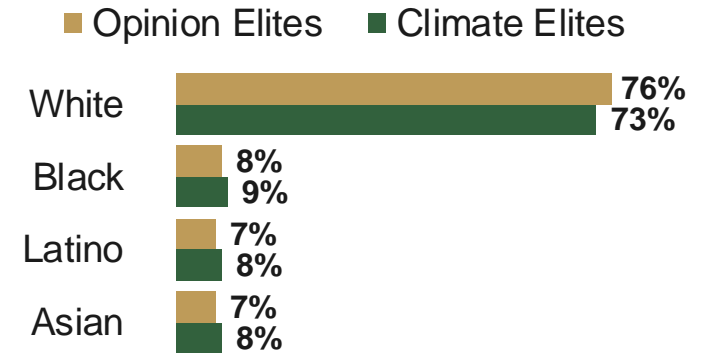
## Gender



## Age

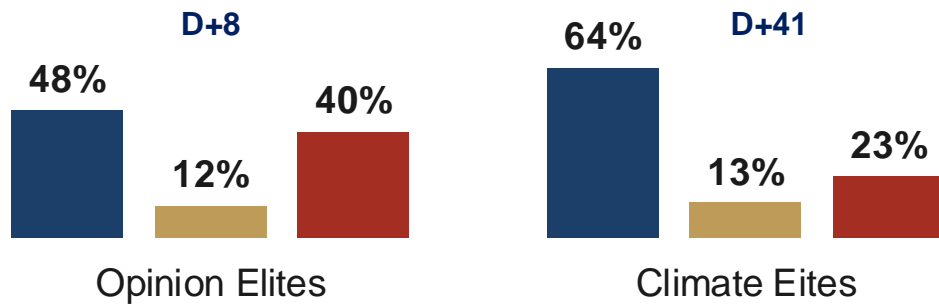


## Race



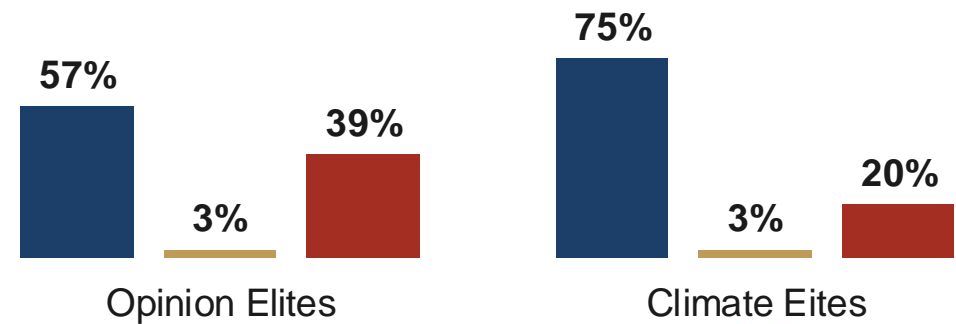
## Party ID

■ Democrat ■ Independent ■ Republican



## 2020 Vote

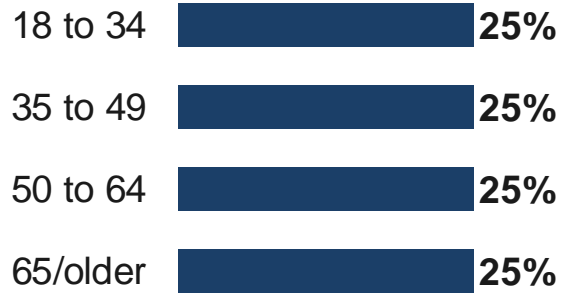
■ Joe Biden ■ 3rd Party ■ Donald Trump



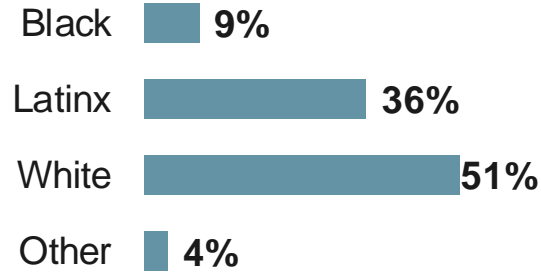
# Demographic & Political Profile of Voters Near Proposed DAC Hubs

TX/LA

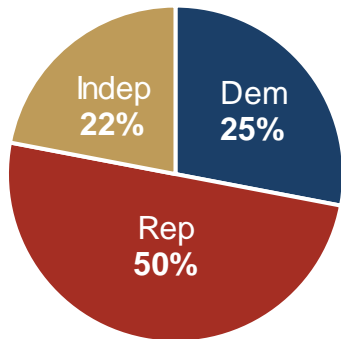
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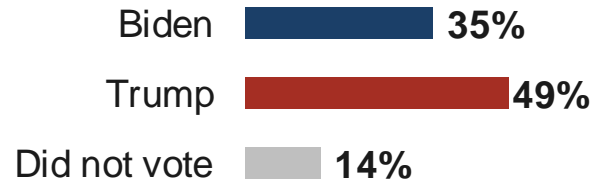
Race



Party ID

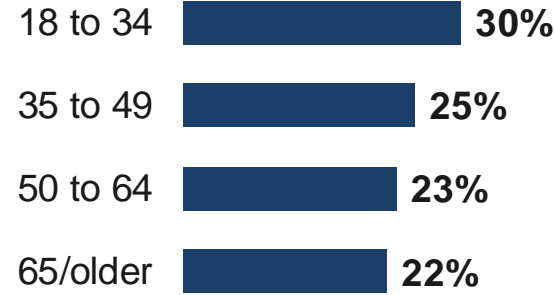


2020 Vote

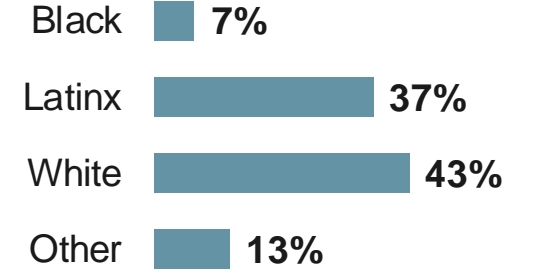


California

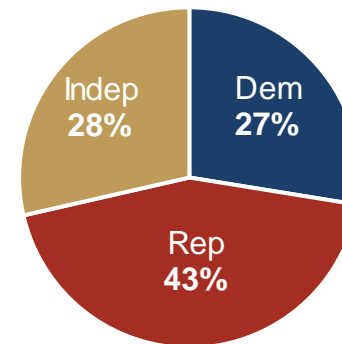
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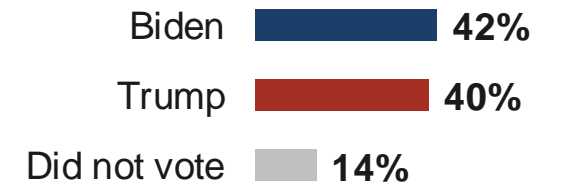
Race



Party ID



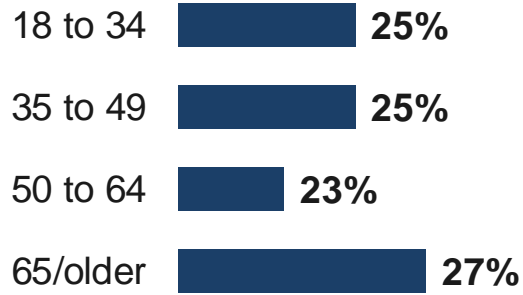
2020 Vote



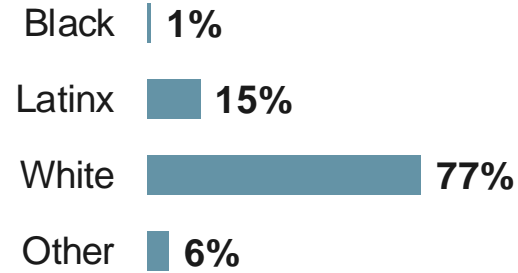
# Demographic & Political Profile of Voters Near Proposed DAC Hubs

OR/WA

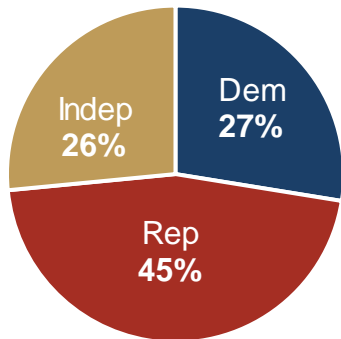
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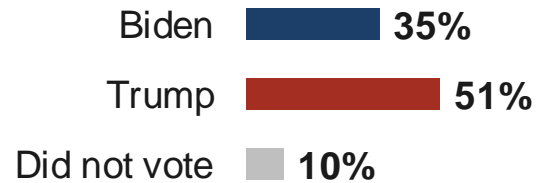
Race



Party ID

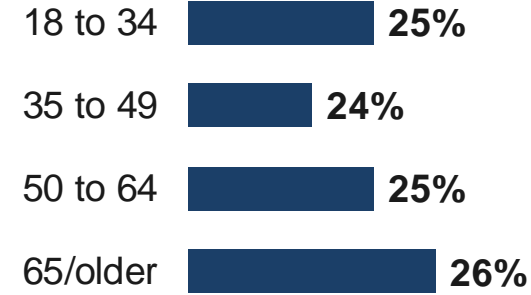


2020 Vote

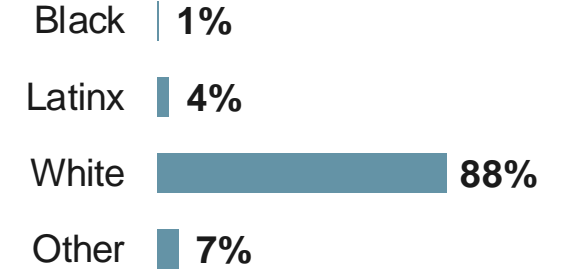


ND/WY

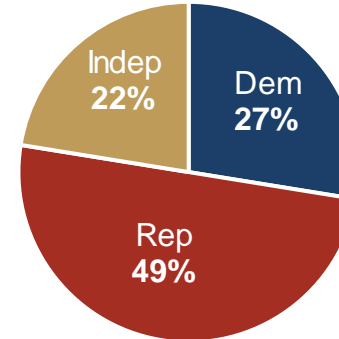
Age



Race



Party ID



2020 Vote

