



Promoting Direct Air Capture Hubs

Strategic findings from a survey of 1,600 registered voters in four proposed DAC hub regions



Methodology

Survey of 1,600 registered voters in four proposed DAC hub regions

Conducted October 16-30, 2023

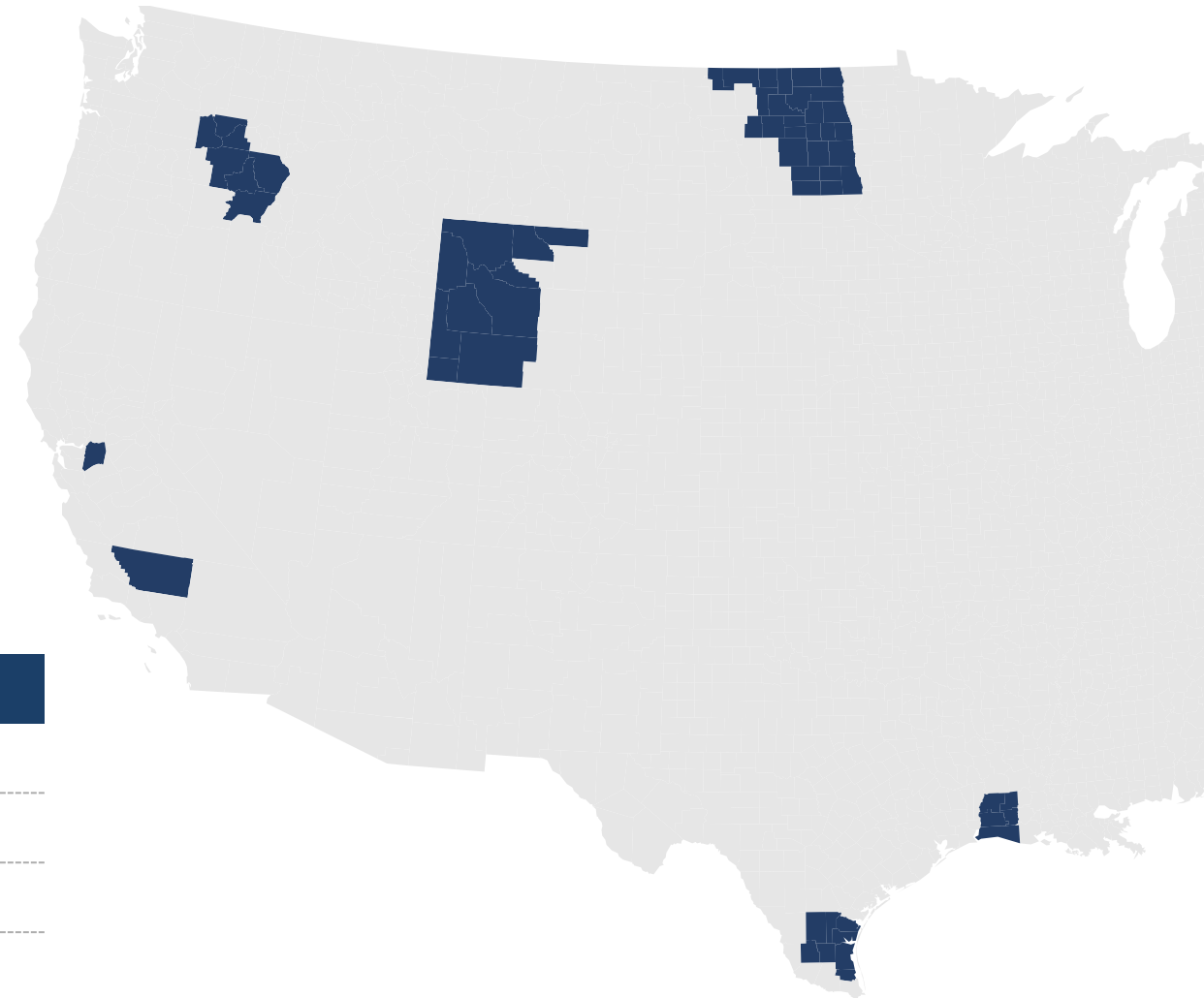
Margins of error:

±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



Total Interviews (#)

Gulf Coast TX/LA

400

Central CA

400

Northeast OR/Southeast WA

400

Western ND/Southern WY

400

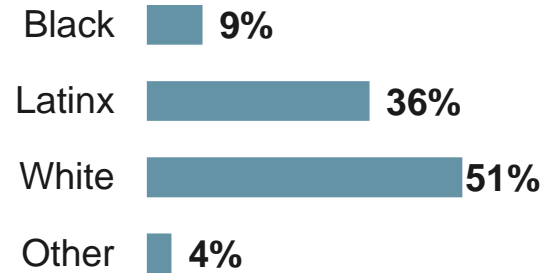
Demographic & Political Profile of Respondents

TX/LA

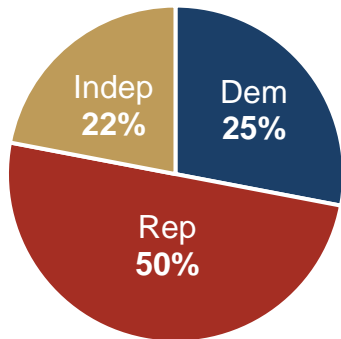
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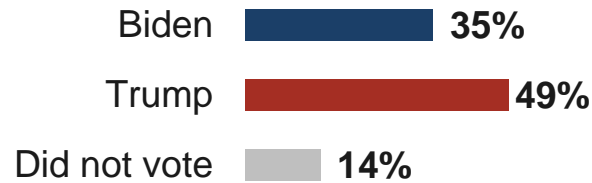
Race



Party ID

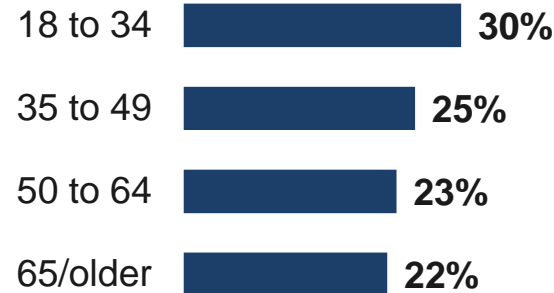


2020 Vote

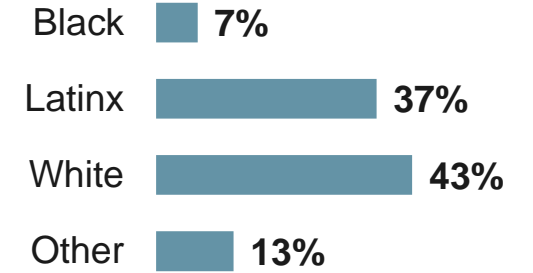


California

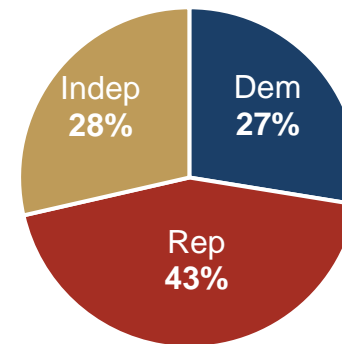
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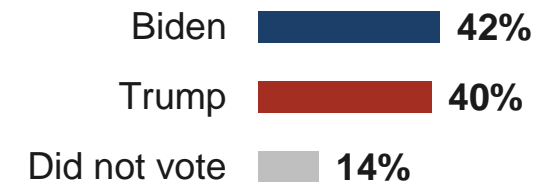
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Party ID



2020 Vote

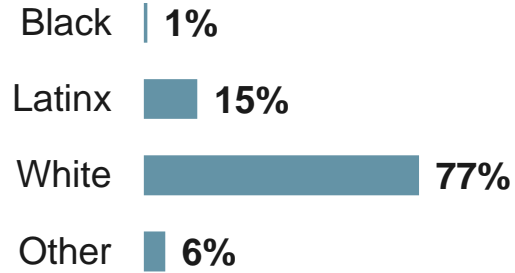
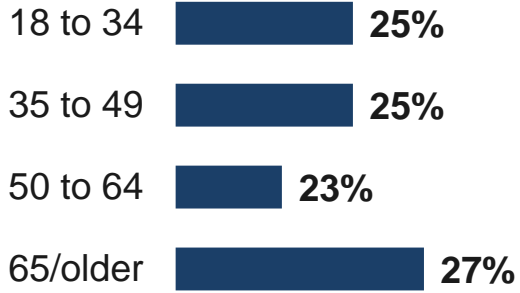


Demographic & Political Profile of Respondents

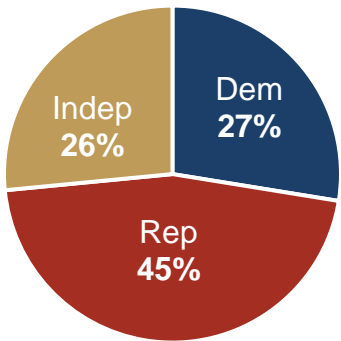
OR/WA

Age

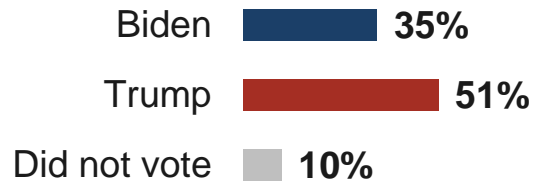
Race



Party ID



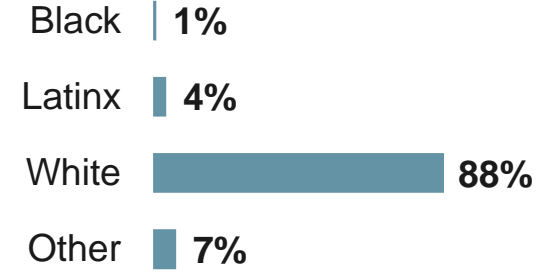
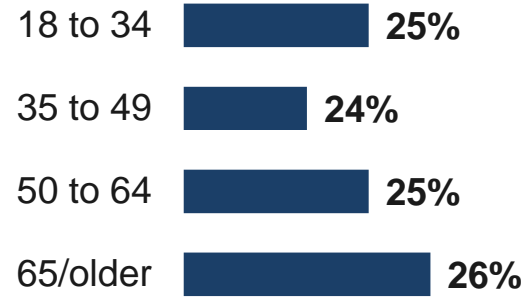
2020 Vote



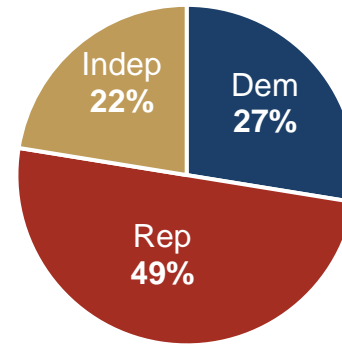
ND/WY

Age

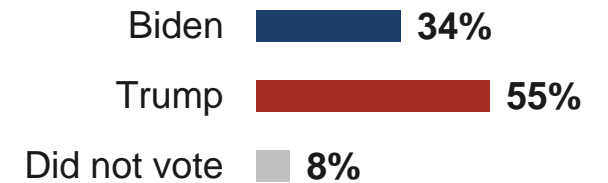
Race



Party ID



2020 Vote



Strategic 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

There is no real value in talking about climate change as the impetus for the hubs, as most hub region residents do not consider it to be a big problem. Mentioning climate change does not *hurt* opinions of the hubs, but there are more compelling points to make within people's limited attention spans.

3

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 and two very strong messages to increase negative sentiment:

- DAC uses an extraordinary amount of power, straining an already overtaxed grid.
- CO2 storage containers are prone to leaks and endanger the community.

Strategic Takeaways (cont'd)

4

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

- Job creation
- Filling development needs within the community (e.g., child care, healthcare)
- Broad based economic growth

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

Addressing safety concerns remains a challenge. Thoroughly exploring messaging and language to inoculate against it should be a top objective of the upcoming qualitative research.

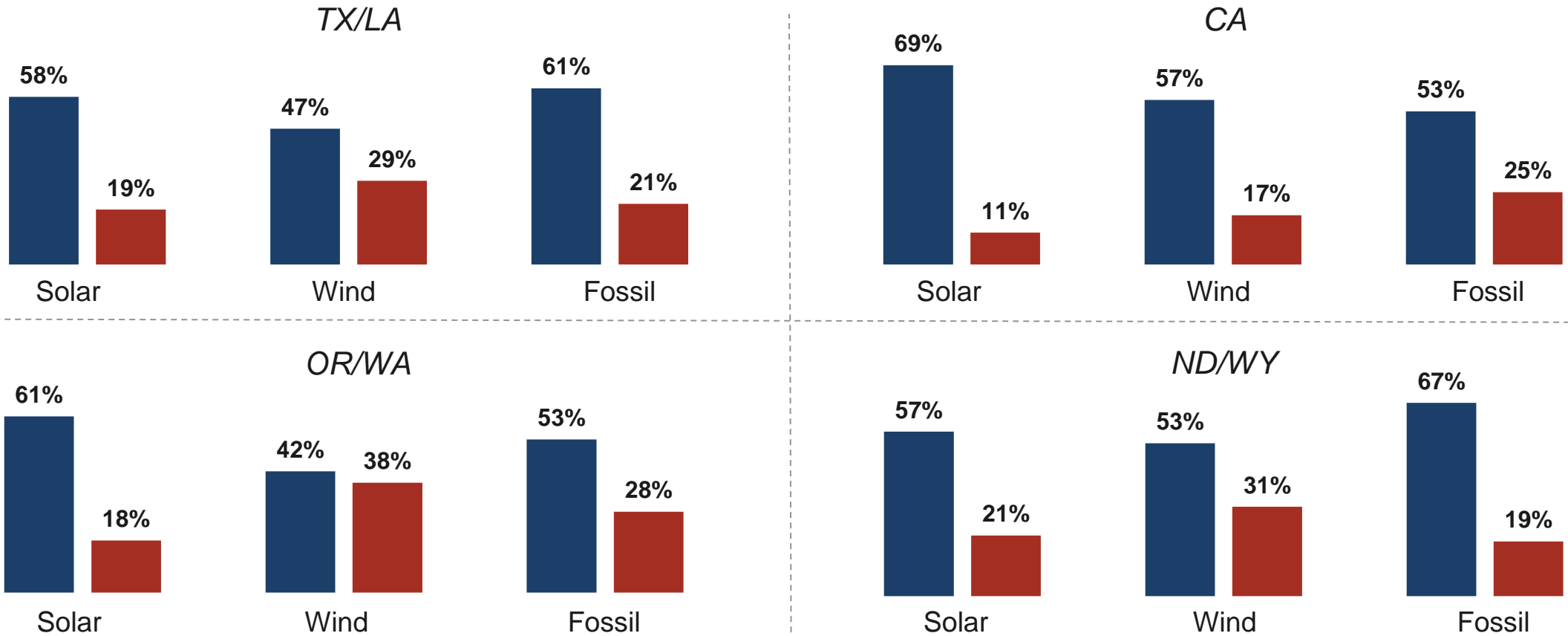
7

Voters in Northeast Oregon and Southeast Washington are consistently the most challenging. 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.

Current Landscape

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

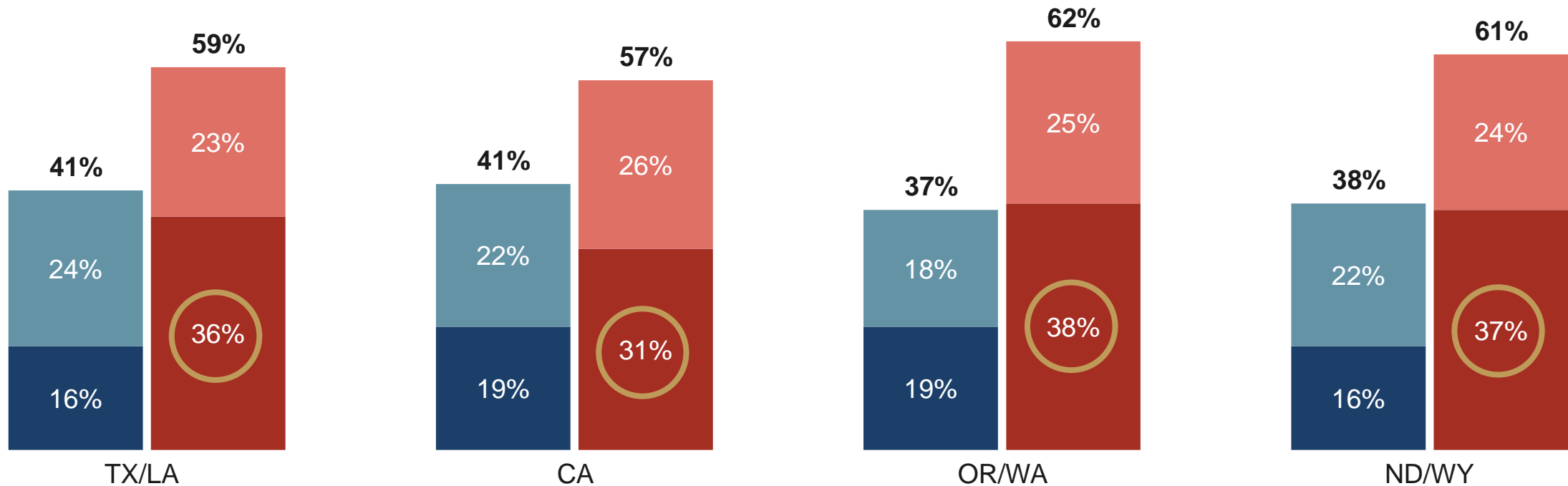
■ Total Positive ■ Total Negative



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

Climate change is a...?

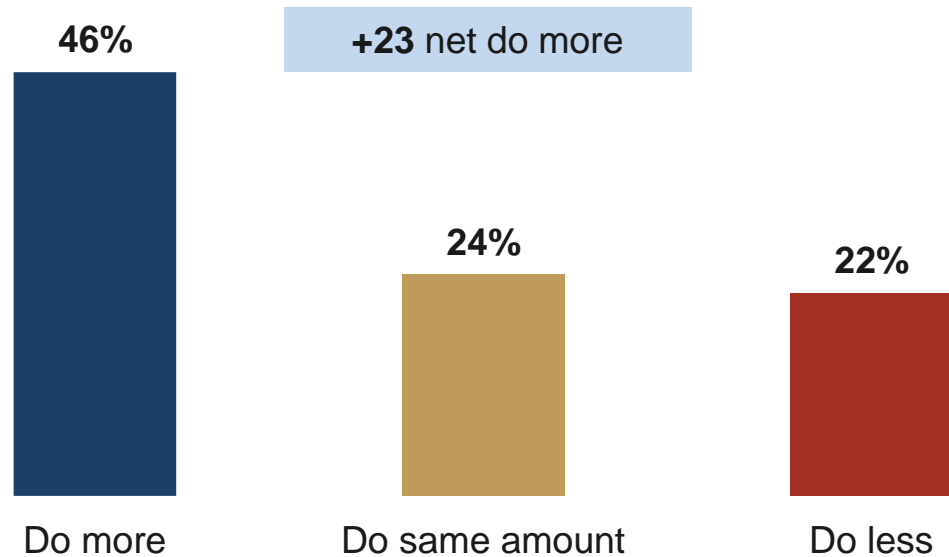
■ A crisis ■ A very serious problem ■ A somewhat serious problem ■ Not a serious problem



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

All Regions

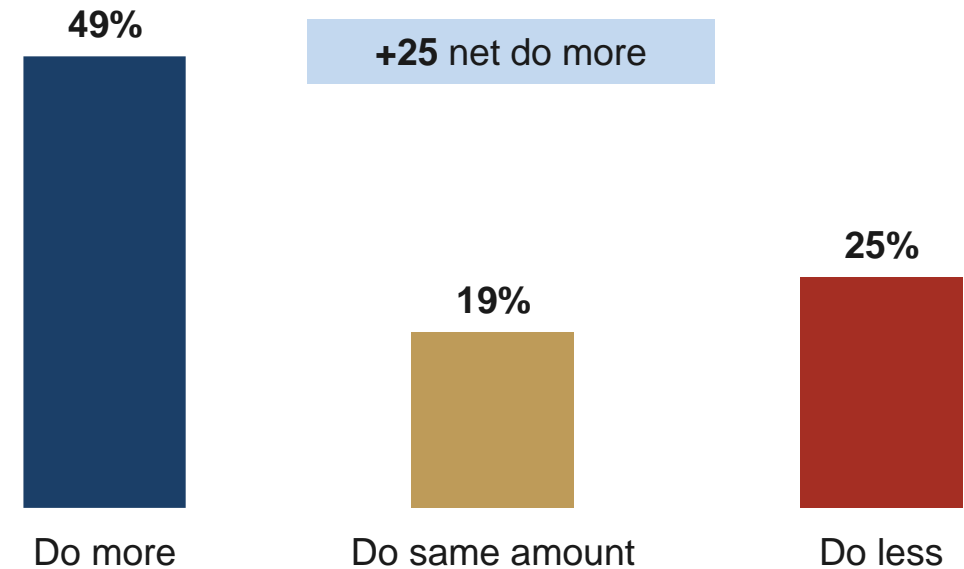
*Do you think we should be doing more, less, or the same amount to reduce the amount of carbon dioxide in the atmosphere? **



* 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?** ***



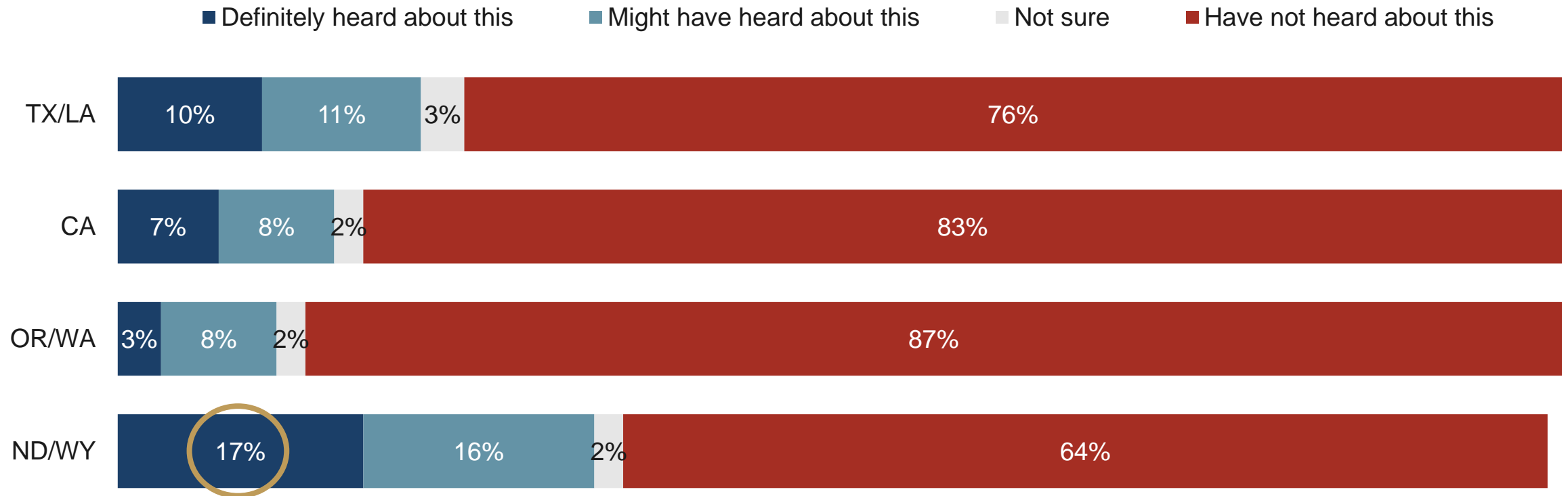
** Asked of half sample B.

This finding is consistent across all four regions.

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.

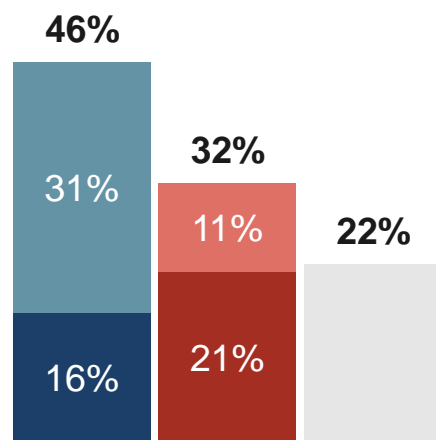
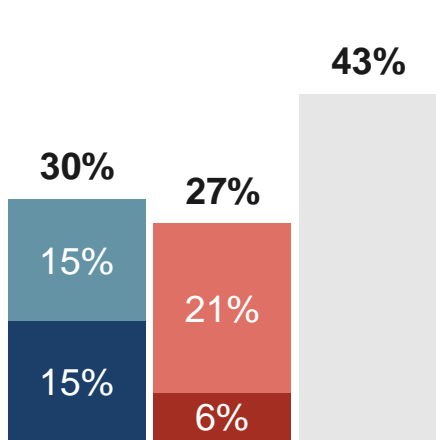
■ Strongly approve
 ■ Somewhat approve
 ■ Somewhat disapprove
 ■ Strongly disapprove
 ■ Not sure

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?

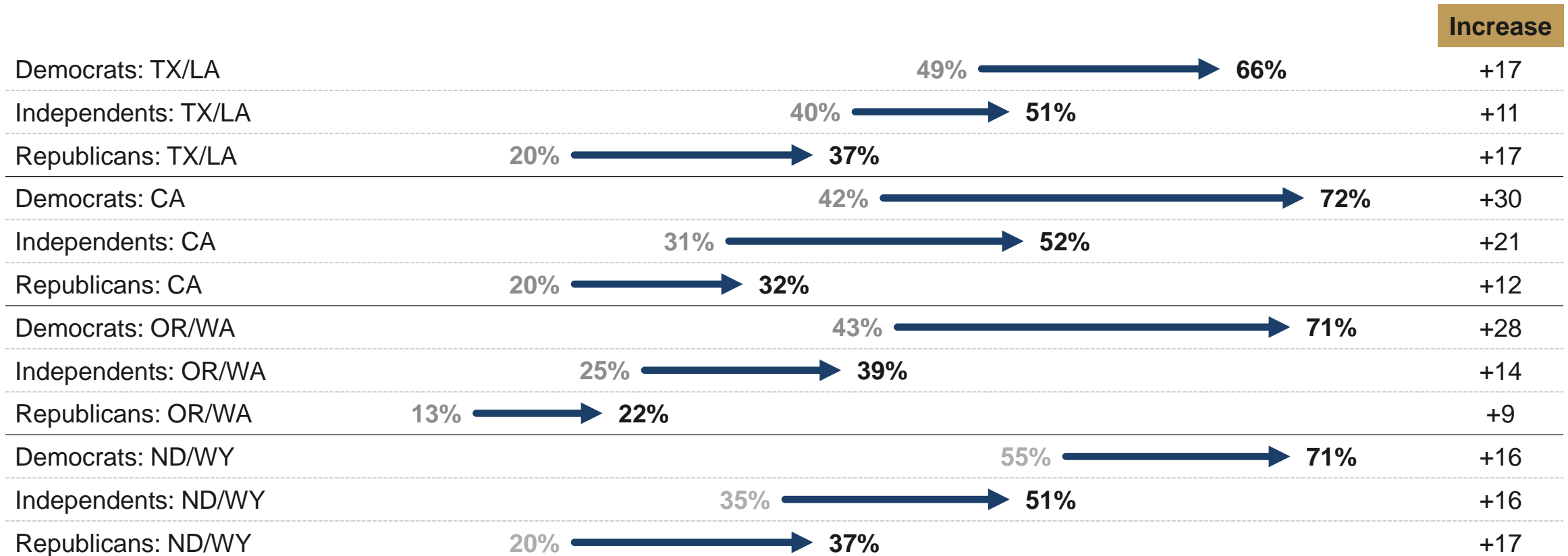


	Initial Approval %	Informed Approval %	Increase
TX/LA	31	47	+16
CA	30	49	+19
OR/WA	25	40	+15
ND/WY	33	50	+17

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



Top-of-mind benefits focus on job creation and less pollution; drawbacks focus on concerns about the environmental impact and the cost (including increased taxes).

Benefits

A good solution
Will create jobs
Cleaner air quality, less pollution
Will slow climate change
Don't know enough about the technology

Drawbacks

Carbon is essential for plants, plant trees instead
Concerned about its safety, health risks
Cost implications, increase taxes
Concerned about underground storage, gas leaks
Environmental impact
Nonsense, another get rich scheme
Will not make a difference, waste of money
Not energy efficient
Don't know enough about the technology

Message Testing

We tested five DAC hub benefits statements and four criticisms

Messages Espousing the Benefits of DAC hubs

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*

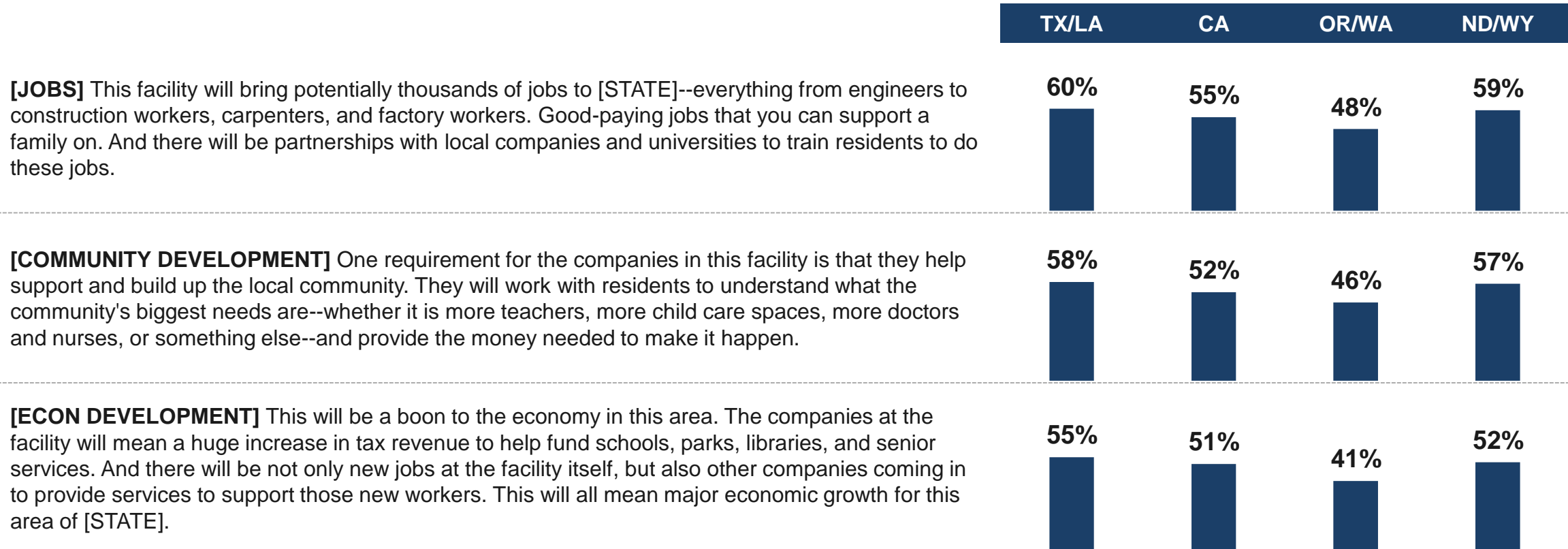
We have seen the effects of climate pollution more and more recently, whether it is extreme heat, bigger wildfires, more damaging floods, or stronger hurricanes. The direct air capture facility in [STATE] is at the forefront of doing something about this. What is learned here will be used around the 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.

The most compelling benefits--across the hub regions--focus on jobs, community, and economic development.

% Very/Pretty important benefit



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

DAC Hub Criticisms

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.

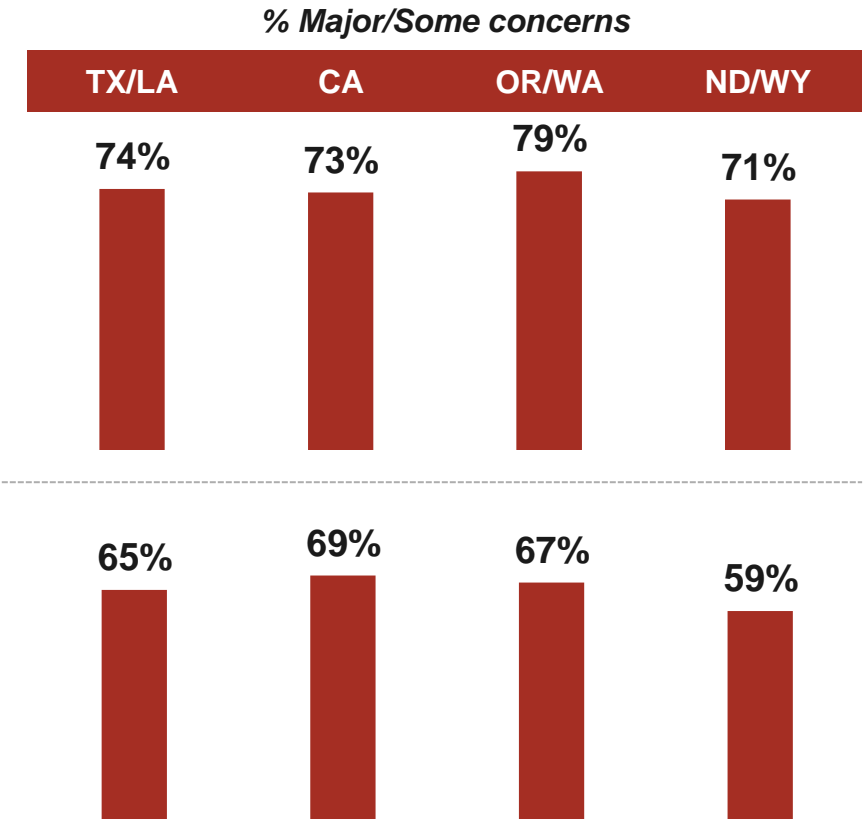
Encourage Oil Use**

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 powerful, and more compelling than any benefit tested.

[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.

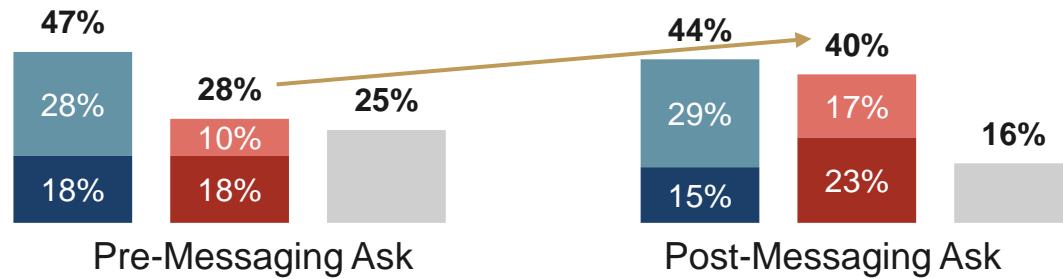


Across the regions, these are also the most concerning criticisms across all demographic groups and among voters whose initial opinions about the hubs are soft.

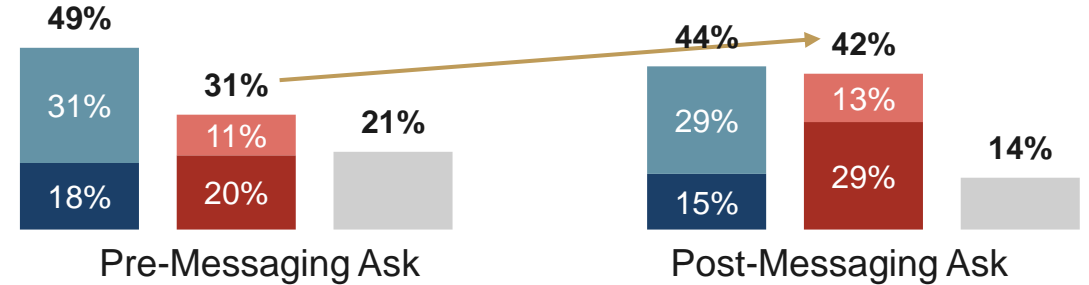
Post messaging, hubs maintain support, though opposition grows. OR/WA ends up in the red.

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

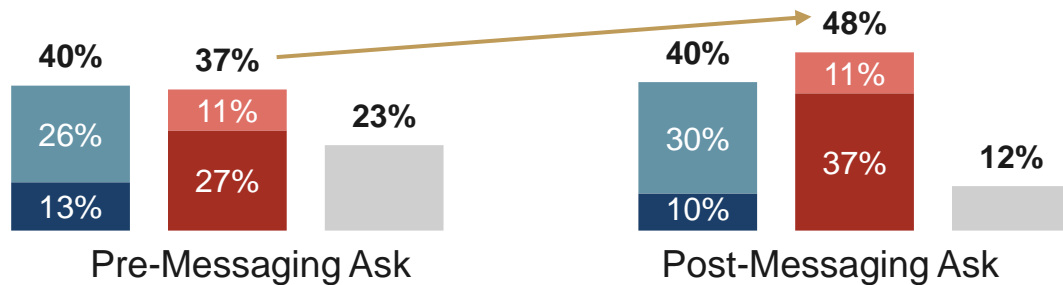
TX/LA



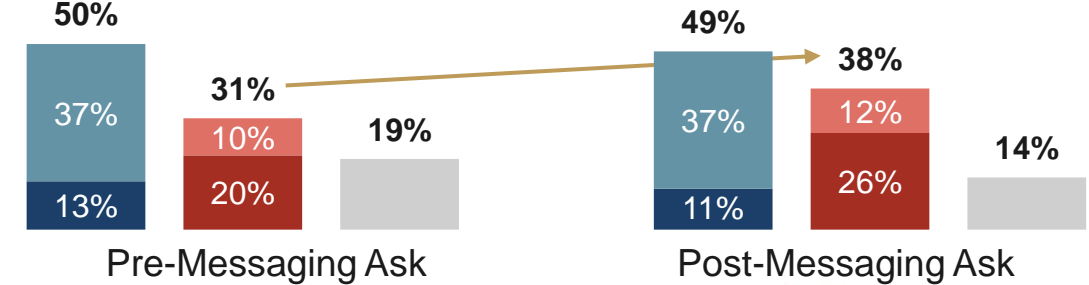
CA



OR/WA



ND/WY



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

Post-messaging ask

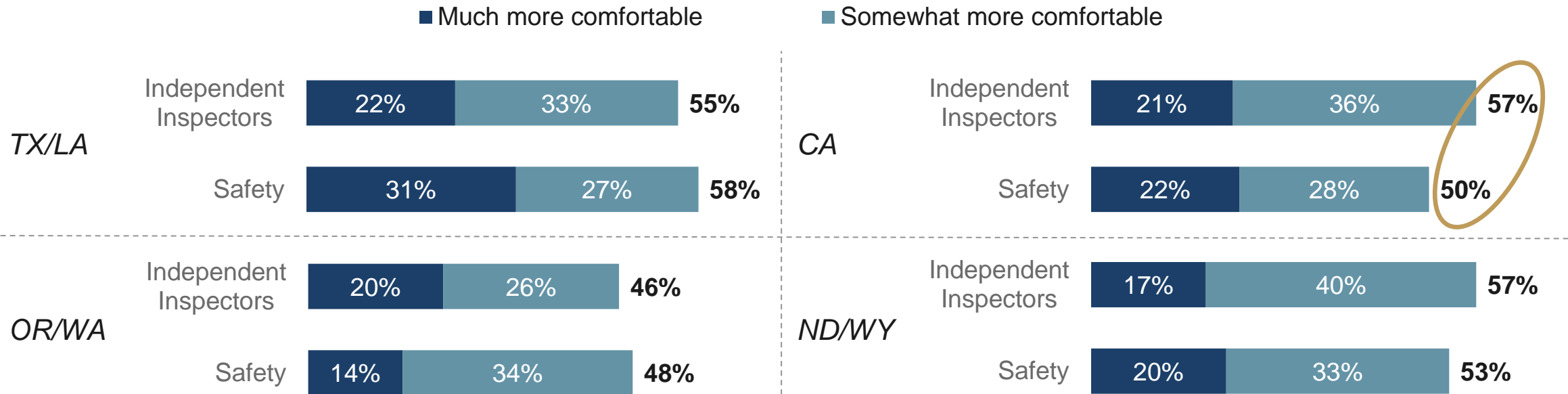
TX/LA	Approve %	OR/WA	Approve %
Democrats	64	Democrats	68
Independents	45	Independents	43
Republicans	37	Republicans	21
18-34	51	18-34	42
35-49	43	35-49	36
50-64	45	50-64	45
65 and older	40	65 and older	38
CA	Approve %	ND/WY	Approve %
Democrats	68	Democrats	70
Independents	40	Independents	56
Republicans	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

Citing DAC's history of safety modestly increases comfort, though citing independent inspections only helps in CA.

[Independent Inspectors] Storing carbon dioxide deep underground is proven to be safe. It is closely monitored and regulated and **there are strict requirements that its safety must be verified by independent inspectors.** We've been storing carbon dioxide underground since the 1990s without there ever having been a leak or any evidence that it causes earthquakes. It is a reliable, proven, and safe process.*

[Safety] Storing carbon dioxide deep underground is proven to be safe. It is closely monitored and regulated and has been done since the 1990s without there ever having been a leak or any evidence that it causes earthquakes. It is a reliable, proven, and safe process. **

Does this make you feel much more comfortable with the idea of storing carbon dioxide from direct air capture underground?



* Asked of half sample A.

** Asked of half sample B.