
To: *Interested Parties*
From: *Breakthrough Energy*
Date: *March 1, 2024*
Re: *Strategic findings from focus groups on direct air capture*

On January 22 and February 7, 2024, on behalf of Breakthrough Energy, Hart Research conducted four online focus groups with voters who reside near proposed direct air capture (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

Participants were screened to be politically or ideologically right-of-center. A total of 26 individuals participated in the discussions. The focus groups build upon quantitative surveys conducted in the same regions at the end of 2023. This memorandum outlines the key strategic points that emerge from the discussions—points that can be used by DAC advocates as planning for hubs develops.

Key Findings and Recommendations

1) The three most important points to make about DAC are (a) that it is a known technology that has been done for years, (b) it works, and (c) it is safe—and pointing to real world past experiences that demonstrate these three things to be true is essential. Only after those predicates have been laid should messaging turn to community benefits (economic and other).

As our polling showed, virtually no one knows anything about DAC—only a few people across the groups had heard anything about it (though, a couple of those were surprisingly knowledgeable), so, naturally, all participants had questions and wanted more information in order to decide whether having a hub in their area was a good or bad thing. The three overarching things people need to know in order to start to feel comfortable with the idea boil down to:

- *DAC has been used for years* – This is not a new-fangled technology that is being tried out for the first time in your community. It is well-developed and trusted.
- *It is effective* – The goal is to pull carbon out of the atmosphere, and it has been proven to work.

- *It 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.

For all of these points—but especially for safety—**specific past experience** is an essential part of the story. Simply asserting that DAC is safe and effective or providing accumulated statistics is wholly insufficient. Being able to provide specific details about existing DAC sites that illustrate these three points goes much further in helping people become comfortable with the idea of having such a site in their own area.

The goal of driving these three points is to proactively inoculate against fear of the unknown. Residents do not want to be vanguards of or test subjects for a “new” unknown technology.

Acknowledgment of residents’ worries is an important part of the messaging around safety specifically. Participants from each of these areas grappled with the newness (to them) and associated unknowns of the DAC concept, and in some cases they decried a history of big energy-related corporations being less than truthful about impacts on the community. Simply saying “there has never been a leak” is not enough for them; rather, they want recognition of their fears and a clear explanation of what will be done to ensure that the worst doesn’t happen. Such an empathetic approach would help allay some of their suspicions about industry representatives’ honesty and credibility.

After these key points are addressed, messaging can move on to specific benefits (jobs, economic development, and community benefits) that communities can expect from having the hub locally. But if these three areas are not the starting point, then ancillary benefits are immaterial. (We have more guidance on the community benefits piece later in this memo.)

“I don’t want to be a guinea pig anymore.” – Texas resident

“I still don’t know enough about this [DAC] to be a supporter... I would be interested in knowing more, if it was presented in a way that I didn’t feel like a guinea pig.” - Washington resident

2) Advocates should err on the side of more rather than less information, but it needs to be accessible.

Residents are obviously not scientists, and thus do not need a highly technical explanation of DAC. But basic, layperson’s information about it makes it seem less strange and scary.

- *How DAC works* – How is carbon removed from the air? How is it transported? How is it stored underground? What happens to it over time as it is stored? Straightforward, transparent answers to these questions will give residents a very basic understanding of the process and help them be more comfortable with it.

- *Why here?* – This is a complement to the “specific past experience” idea above. Focus group panelists wondered why their area was being considered for this kind of facility. Explaining what makes the area ideally suited—and, where appropriate, equating the area to locations that have existing DAC operations—can help to make the safety case in particular.

Adding credence to the “more information is better” idea is the fact that when the small number of participants with a fair amount of knowledge about DAC explained what they knew about the process (in non-technical terms) it helped make the case to the other panelists. It also helped that this information was coming from “one of them,” as opposed to the moderator or embedded in a message they were reacting to from the sponsors of the research.

Just to illustrate how much information residents want, as well as how thoughtful they can be when it comes to issues that affect their communities, here is a sampling of the questions focus group participants said they would like answers to:

- | | |
|---|---|
| ✓ Does it create additional byproducts? | ✓ Does the community have any kind of say or advisory role? |
| ✓ Why here? | ✓ Will it affect the weather? |
| ✓ What are the energy amounts and costs involved? Will rates go up? | ✓ Are any profits put back into the community? |
| ✓ Are there long-term effects? | ✓ Will there be insurance policies and property protection for residents? |
| ✓ Where will the carbon be “transported” to? | ✓ Will we be replacing carbon with noise pollution? |
| ✓ After carbon goes in the ground, what happens to it? | ✓ Will it affect birds? |
| ✓ What does it do to ground stability? | ✓ How does it affect groundwater? |
| ✓ How is it funded? | ✓ How are they going to dig into the ground? |

3) DAC companies and advocates need to be proactive.

Given the breadth of questions residents have, it behooves DAC advocates to start work in communities as early as possible to help set a positive narrative. As noted, people *want* to understand it, and getting basic information about it (and, in fact, simply being able to express their concerns and ask questions) makes them much more inclined to have an open mind about the idea, while also making a “sci-fi” sounding technology seem less risky and more comprehensible.

This applies not only to “how it works” and “why here,” but to the criticisms of DAC as well—safety, energy use, efficacy. All three of these concerns came up organically and focus group participants

wanted answers. Even just acknowledging that they have real concerns helped participants to feel like they were being heard and like the community could conceivably be part of the conversation about the hub.

4) Independent scientists can be important endorsers of DAC's safety and efficacy, but having a range of recognizable community voices in favor will help socialize the hub idea among reluctant residents.

We tested several fictional community-based validators who could serve as voices, making the case in favor of a DAC hub: a local parent, a hub worker, a scientist, a mayor, and a teacher. In every group, the scientist—whom we cast as a geologist at a local university with no connection to the hub—was, by far, the individual from whom participants were most interested in hearing. Indeed, across all of the groups, 22 of our 26 participants chose the fictional scientist as their number one choice. They cited a few reasons for this:

- The scientist would possess the most in-depth knowledge of the technology and be able to speak authoritatively about both its efficacy and safety.
- They assume that he will have reviewed available studies about the facility and DAC process and their effects, if any, on the local environment.
- He would be **independent and unbiased** so would assess, with high credibility, both the positives and the potential negatives of DAC.

The importance of the third bullet above cannot be overstated. Participants wanted someone who was highly knowledgeable and who would tell them the truth about DAC and its potential effects on their community. The scientist's independence from the hub suggested to participants that he would be an honest broker who, unlike the other fictional validators, would receive neither direct nor indirect personal benefits from the existence of the hub. Moreover, the idea that he was an academic, *not* employed by the government, was gratifying to this right-leaning audience.

"[The scientist], because he doesn't stand to benefit. He's a neutral party, he can speak on it. And knowing that he's a geologist, that he's going to talk about the safety, I feel like that's the person who's going to allay a lot of concerns, especially if people know that he is in no way, like being compensated by the facility." – Wyoming resident

"Because [the scientist] is versed in the safety and the technology and storing carbon underground... get an unbiased answer because he doesn't work for the company. He doesn't work for the government. He doesn't work for PG&E." – California resident

"[The scientist] has no vested interest in having this plant. And so he's almost like a neutral party." – North Dakota resident

That said, the other potential messengers tested had some resonance, particularly the DAC facility worker. Even though all of the validators were “made up,” participants noted that they know people in their communities who fit these profiles, and the backstories we concocted for why each one supported the hub came across as logical and believable*. Having a similar diversity of real-life voices who can speak to what having a DAC hub in the area would mean for their lives, and even recruiting such individuals from “mature” hub communities to share their stories in new ones would go a long way to making residents more comfortable with having this new, highly technical facility nearby.

“I think these five people are somebody we know...I can name a person [in my community] in any one of these scenarios.” – Texas resident

5) There is no silver bullet for addressing concerns about DAC hubs’ energy consumption, but a couple of messaging points can help reduce worries somewhat.

Panelists assumed that DAC operations require a substantial amount of energy—questions came up early in the conversations for how this would be dealt with. It should be noted that by the end of each focus group participants were not completely satisfied that a hub in their area would have minimal impact on energy; nor, however, does this appear to be a dealbreaker for them. That said, three key (and interrelated) questions about this must be addressed in public communications:

- *Is the input needed to power DAC facilities “worth” the results—i.e., does DAC pull out of the air more carbon than it creates?* Average people are knowledgeable enough about energy production to know that it results in carbon emissions, but they do *not* know enough (or anything) about DAC to understand what its net carbon benefit is. An explanation of this net benefit, along with a description of how it is achieved, can take this concern largely off the table.
- *Will it further strain the already overtaxed grid?* This is a region-specific concern—the massive grid problems that Californians and Texans have experienced in recent years have made them wary about significant energy use, while participants in the upper Plains and Pacific Northwest were largely unconcerned. Explaining that hub facilities will generate much of their own energy from renewable sources helps answer their questions to some degree. But the assurance that the facilities will bear the cost of needed grid upgrades did little to alleviate their concerns, because, they said, the grid in their area is already in need of significant improvements, so upgrading it to accommodate the hub’s additional energy needs would simply bring it back to the untenable status quo. As with the carbon question above, residents need to believe that there will be a net benefit in grid modernization so that they do not feel that the community’s needs are being subordinated to those of a private industrial facility.

* See the appendix of this memo for the narratives we created for each messenger.

- *Will it cause my electric rates to go up?* Participants in every group raised this question, and it was clear (from these discussions and from many other focus groups we have done on similar topics) that residents are highly sensitive to changes in their utility costs. Because the answer to this question is situation- and location-specific we did not attempt to address it in the discussions. But DAC advocates should be aware that it is very much on people's minds and if rumors of rate increases take hold in a community it will appreciably complicate messaging to residents about the hub's benefits.

6) Messaging that touts community benefits should be detailed and specific to that community and only be used if the benefits are significant.

Focus group panelists find it entirely credible that there would be benefits to their community, but generalized benefits sound less tangible and more like just telling people what they want to hear. For example:

- *Job creation* – The language of “potentially thousands of jobs” (which we tested in the focus groups) is not specific enough. How many and what kinds of jobs? And for whom?
- *Economic development* – Similarly, “boon to the local economy” is vague. What does that look like? What are specific projections for this community?
- *Community input* – How are community voices heard? Is there a board set up?

People are willing to accept that these types of benefits are legitimate and achievable, but they want explicit information about them to know they are real.

They also want to know that the benefits will have a meaningful impact on the community. The message we tested around helping “fill community needs” was generally second tier, beneath job and economic development messaging. However, this may be in part because the examples given (funding a Boys and Girls Club; providing free bicycles to low-income kids) come across as insignificant and, to a large extent, less relevant to their communities. Providing aid related to core community needs—like health care, education, or senior care—would suggest to residents that DAC companies truly want to be a part of the community and are willing to make a real investment in its improvement.

“I think that the increase in tax revenue is certainly nice, it would be great. And helping the funds with parks, libraries, senior services, specially out in these areas, a lot of the money gets spent on the west side of the state.” – Oregon resident

7) A few other recommendations around messaging and language emerged from the focus group conversations.

A couple other considerations should play into communication plans:

- ***DO talk about jobs for local residents.*** Even though we find in many other focus groups that people have become inured to promises of job creation, the DAC panelists found it entirely credible that hubs would produce jobs. However, some assumed that these jobs would be too technical and/or would be filled by out-of-towners moving in. Thus, any efforts to recruit and train locals for jobs in the facility provide an important talking point. For example, participants in North Dakota and Wyoming know how dependent their communities are on oil and gas jobs—and they know that those jobs are disappearing. They got it right away that a DAC hub could help fill the gap.
- ***DO feel free to talk about climate and clean air.*** Addressing climate change was not front and center in the DAC description that we tested and was not introduced explicitly until we got to the messaging discussion later in the group where it was included among one of the messages we tested. But even though these groups were among residents from conservative areas, and all participants were right-of-center politically (including a few who could be characterized as far right), that climate message generated very little pushback. Rather, its focus on countering the “effects of climate pollution” in the form of extreme heat, wildfires, floods, and hurricanes was seen as compelling by multiple participants. Even some of the more conservative panelists were of the opinion that “we have to do something” about these climate effects and/or poor air quality. They do not want to be on the hook to pay for it, they do not want it addressed by some opaque “experimental” process, but they recognize that we need to try new things and can be persuaded to keep an open mind that DAC may be part of the solution.

“The local people who already live here will get trained and build to support their families, and it will improve the economy, the local economy, the local taxation, to support all the infrastructure and parks and libraries and senior services.” – California resident

“We [in Texas] are one of the states that are seeing a lot of extreme heat and bigger wildfires, floods, and hurricanes. I think it makes sense as to why we’d be doing it [DAC] around this area. If what we will be doing here will be used around the world to help deal with climate change and make a better future for our children, I choose it.” – Texas resident

“[The climate message] is based on truth. You know, we have seen the effects of climate pollution, we have seen stronger winds and more damaging floods and everything. And [DAC] will help it.” – North Dakota resident

“Most of the employment here is from people working in mines. There is a lot of pollution, you get a lot of clouds that cause problems with people’s breathing. If you want a good job that pays well enough to get by, you have to work at one of the mines around here. Having something that is good for the environment and didn’t pollute that was an energy source would be great. That would be a great opportunity for people in this area.” (Wyoming resident)

There are also a few pitfalls to be wary of:

- ***DON’T oversell DAC’s role in addressing climate.*** This monition is an addendum to the climate point above. Participants were willing to consider that DAC is *part* of the solution but were alert to any suggestion that it would solve climate problems itself. We recognize that DAC advocates would never imply, let alone claim, that this is the case. However, focus groups panelists intuited that the discussions were designed to learn how to gain their buy-in for this technology, and so wanted us to know that they believe other factors—with which they are more familiar or comfortable—are just as, and probably more, important in their eyes in addressing climate change. Among other things, participants mentioned increased use of nuclear power, continued use of hydroelectric (in the Pacific Northwest), and simply reducing carbon emissions in general. Folding these and other clean energy and climate mitigation strategies into the DAC “pitch” to residents would help them understand that they are not being sold a bill of goods or a panacea.
- ***DON’T use “wobble room” language in resident communications.*** We understand that the answer to a question is very often “it depends;” this is not a problem as long as residents feel they are being dealt with in a transparent matter. But proactively including tentative language in messaging causes audiences to view those messages as prevaricating, resulting in them disregarding a central point that might otherwise be compelling. For instance, focus group participants called out the jobs message that we tested for saying the hub would result in “potentially” thousands of jobs; some noticed that we said that hubs “often” produce their own clean energy from renewable sources. Trust for corporate entities is low already; this kind of hedging does not help matters and winds up weakening important core points.
- ***DON’T underestimate the affinity Pacific Northwesterners have for the local ecology.*** Participants in each region mentioned concerns about how DAC would affect the environment in their area, but those in Washington and Oregon were especially adamant about this. Several mentioned they had moved to the area expressly to get away from development, and they have an abiding regard for the natural beauty around them. The idea that the facility would develop and “build up” the infrastructure of the area was viewed as much more of a strike against the hub than a point in its favor. Any approach to residents in this region should be made with this affinity in mind.

“We’ve got these private organizations that are going to work hand in hand with the government, who’s really getting paid here? There’s been too many things in

our area where there's been these things that were proposed that were supposed to be good for our community, good for the environment, and then in the end, it comes out that so-and-so was doing this deal with so-and-so and I want complete transparency.” – Texas resident

The Bottom Line: We came away from these discussions cautiously optimistic about increasing residents' comfort with having a DAC hub in their area, but with an eye toward what is realistic and achievable in this regard. Safety concerns are real and questions abound for what hosting such a facility would mean for their communities. But the discussions proved that it is possible to get naturally skeptical individuals to a place where, even if they are not wildly supportive of the idea, they at least have an open mind about it and are willing to entertain the notion that it could be a positive thing. The key will be to remember that they know nothing about this technology or process and in the absence of information to the contrary they will assume that its benefits are limited and its drawbacks are manifold. If advocates proactively address questions about DAC's history, efficacy, and safety it will go a long way to addressing the “unknown unknowns” that worry residents and will take some of the wind out of organized opposition's sails.

“After the whole two hours [of the focus group], learning about it, discovering more, and what DAC actually is and talking it through actually helped me understand it a little bit better. And I would say that it made me a little bit more for it.” – Texas resident

“More information, just having more information and understanding that a little bit better allowed me to see the value in it. ... I went from knowing nothing about it to knowing something to knowing a little bit more.” – California resident

“We do have to come to a point to try and learn as much as we can and to take it for what it is and not carry on misbeliefs or not trusting things. And it does seem like in the two hours, after showing us things about DAC, I didn't know what DAC was...I want to keep an open mind and I want to trust, and I want to have transparency. I feel like this is a step towards transparency.” – Texas resident

Appendix: Messenger Narratives

Participants were read the following “stories” about fictional members of a community that has a DAC facility nearby.

Carol Johnson

Resident of the town the DAC facility is in; she grew up in the area and lives there now with her husband and kids. Talks about:

- Friends and neighbors of hers who have gotten good jobs working at the DAC facility
- How the facility has had a great impact on the economy in town—her friends getting jobs, but also new businesses opening up to provide services to the facility, which has meant even more jobs available.
- And also new restaurants and shops opening up, because the town’s economy is growing.
- And best of all, it has meant improvements to her kids’ school because the DAC companies are providing funding for a new afterschool program and improvements to the playground.

Michael Simpson

Scientist and geology professor at a local college. He doesn’t have any personal connection to the DAC facility, but he talks about:

- How his review of all of studies done about DAC through the years have shown that DAC is a safe process and is highly effective at removing carbon dioxide from the atmosphere. The geology of the area is particularly well-suited to DAC.
- That there have been no leaks, and certainly no earthquakes or other problems that the facility has caused and it’s not had any negative effects on the local environment.

Doug Campbell

A worker at the DAC facility

- He doesn’t have a background in engineering or science, but he took courses at the local community college. The courses were paid for by the DAC company, and because he did well he had an automatic job when he finished school.
- And it’s a good paying job, it has really good benefits, and it means that he’s completely confident he’ll be able to support his family.
- And, speaking of which, he and his wife were just able to put a downpayment on a townhome with the money they saved up after he’d been in the job for a couple of years.

Susan Phillips

She’s the mayor of the town the facility is in. She’s been the mayor for several years, so she knows what the town was like both before and after the facility opened.

- She talks about some of the same things as Carol Johnson: the new job opportunities that came with the facility, the new businesses opening up.

-
- Also how the companies involved have been good community partners, making sure local leaders were kept in the loop while the facility was being built and still today while it is in operation.
 - And how she's impressed with the investments the companies have made in the community. Not only the afterschool program at the school, but also paying for upgrades to the roads going in and out of town and a few big donations to the local hospital that allowed it to have some upgrades.

Michelle Garcia

She teaches third grade at the school that Carol's kids attend.

- She also talks about that afterschool program and how good it has been for the kids, as well as donations of school supplies the DAC companies have made. Which has been great for Michelle because she hasn't had to pay out of her own pocket for those supplies like she did before.
- A number of her students have parents who work at the facility. When she's met the parents during parent-teacher conferences she's noticed that a lot of them talk about how much they like their job and how it's been really good for their family.