Frontier

[Capture6]

Carbon Dioxide Removal Purchase Application

Fall 2022

General Application - Prepurchase

(The General Application applies to everyone; all applicants should complete this)

Company or organization name

Capture6 Corp

Company or organization location (we welcome applicants from anywhere in the world)

Berkeley, CA and Rotorua, New Zealand

Name(s) of primary point(s) of contact for this application

Ethan Cohen-Cole Luke Shors Rahul Surana Calli Obern Lydia Le Page David Sheh

Brief company or organization description

Capture6 is a public benefit corporation expanding the environmental co-benefits of DAC

1. Project Overview[1]

a. Describe how the proposed technology removes CO_2 from the atmosphere, including as many details as possible. Discuss location(s) and scale. Please include figures and system schematics. Tell us why your system is best-in-class, and how you're differentiated from any other organization working on a similar technology.

The heart of Capture6's CDR approach is an electrochemical process that produces sodium hydroxide (NaOH) from salt and water. NaOH is extremely potent as a sorbent for direct air capture of CO2, which results in the mineralization of CO2 as sodium carbonate (Na2CO3).

In the course of developing our technology and engaging with partners and stakeholders, we have discovered multiple potential additional pathways for our process. They utilize the same core

[1] We use "project" throughout this template, but note that term is not intended to denote a single facility. The "project" being proposed to Frontier could include multiple facilities/locations or potentially all the CDR activities of your company.

technology while varying the inputs and outputs depending on the resources available. If fully realized, we can produce a variety of co-benefits that support local communities and sustainable development goals. These include (both immediately available and pending ongoing research):

- Use of brackish/saline groundwater and geothermal brine as feedstock for input into our system (potential for expansion pending further research)

- Generation of additional freshwater for drinking and agriculture from saline water sources such as seawater and brackish groundwater (pending)

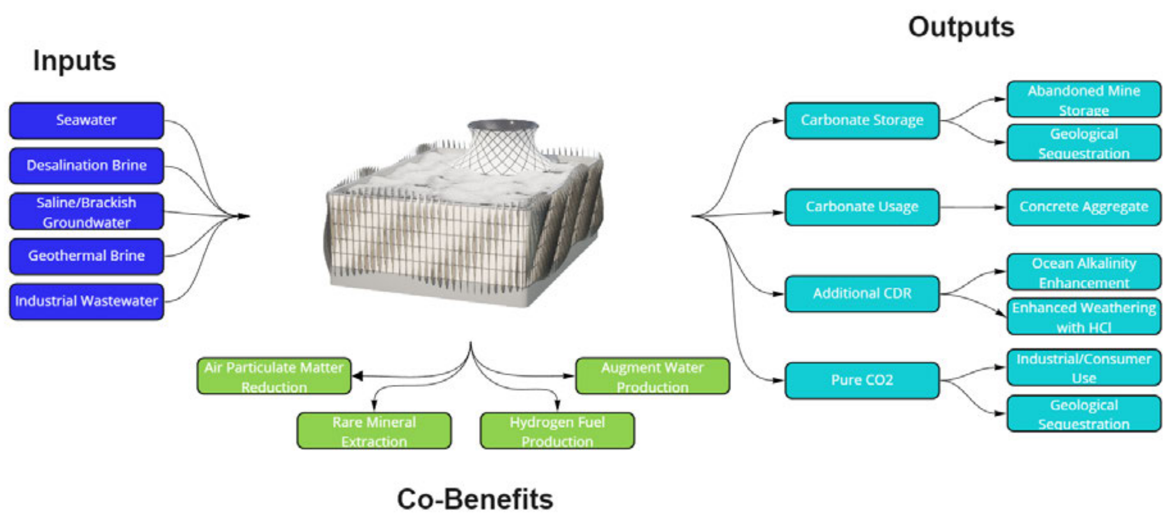
- Combination of DAC with CCS of industrial emission sources with a range of CO2 concentrations

- Mitigation of ocean acidification through the deposition of carbonates for ocean alkalinity enhancement (pending)

- Direct extraction of rare earth minerals from brine to accelerate the transition to an electrified economy

- Use of mineralized carbonates for built environments such as concrete aggregate

- Quantification of particulate matter reduced by our solvent DAC process to improve local air quality (pending)



The importance of co-benefits to CDR are two-fold:

1. Certain outputs (i.e. green hydrogen, lithium) can effectively subsidize DAC, putting them on the critical path for reducing DAC costs necessary to achieving gigaton scale.
2. Other co-benefits such as addressing water scarcity, air pollution, and ocean acidification can create local benefits in addition to jobs creation. These can help overcome community resistance to CDR that otherwise will be an obstacle for scaling by creating demand for CDR facilities.

Our core process is ready to build at scale, as it is a re-configuration of equipment and materials from the water treatment industry with decades of proven performance and mature supply chains. To be poised to deploy large future projects that realize the full potential of co-benefits for an equitable transition, we are establishing an R&D facility. This facility will enable a dedicated team of scientists and engineers to develop pathways to deliver these co-benefits and solutions to problems exacerbated by climate change. This approach makes Capture6 able to deploy megaton facilities in places that are least responsible for yet most affected by the climate crisis, if local communities are on board. Because the global ecosystem is complex, we believe that a key path to decarbonization is to intermix CO_2 removal with current industrial processes and community resource requirements. By doing so, we can not only remove CO_2 from the atmosphere but contribute to the decarbonization of other activities.

b. What is the current technology readiness level (TRL)? Please include performance and stability data that you've already generated (including at what scale) to substantiate the status of your tech.

The International Energy Agency categorizes liquid solvent DAC at TRL 6, and we believe this applies to our system. Our hydroxide solvent is functionally similar to hydroxides that are planned for deployment at large scale, and our mineralization approach is grounded in basic chemistry. The equipment for our facilities are already widely in use for water treatment plants with decades of proven performance. Overall there are few technology barriers in our ability to scale to megaton and beyond.

c. What are the key performance parameters that differentiate your technology (e.g. energy intensity, reaction kinetics, cycle time, volume per X, quality of Y output)? What is your current measured value and what value are you assuming in your nth-of-a-kind (NOAK) TEA?

See confidential addendum

d. Who are the key people at your company who will be working on this? What experience do they have with relevant technology and project development? What skills do you not yet have on the team today that you are most urgently looking to recruit?

Capture6 was founded by Dr. Ethan Cohen-Cole and Dr. Luke Shors. Ethan has designed, sold and implemented technical projects over 20 years in banking, finance and economics with teams of 50+ people and $5m+ budgets. Luke is a past fellow at Harvard's Center on Energy and the Environment, and has managed numerous multimillion dollar projects and research efforts for clients such as the OECD, EPRI, the World Bank and USAID.

Our team is comprised of experts with diverse backgrounds in chemical, mechanical, and process engineering, science, academia, finance, policy, community and stakeholder engagement, marketing, strategy, business development, and innovation development and commercialization.

e. Are there other organizations you're partnering with on this project (or need to partner with in order to be successful)? If so, list who they are, what their role in the project is, and their level of commitment (e.g., confirmed project partner, discussing potential collaboration, yet to be approached, etc.).

Partner	Role in the Project	Level of Commitment
OEM Partner	Equipment, EPC, operations and maintenance	Confirmed project partner with signed MOU agreement
Energy Partner	Brownfield site, technical support, and interconnection	Confirmed project partner with signed MOU agreement
Consultant A	Potential LCA consultant	LOI pending (NDA discussions ongoing)
Consultant B	Potential NEPA/LCA consultant	LOI pending (NDA discussions ongoing)
Consultant C	Potential NEPA consultant	LOI pending (NDA discussions ongoing)
Consultant D	Ocean MRV consultant	NDA signed

f. What is the total timeline of your proposal from start of development to end of CDR delivery? If you're building a facility that will be decommissioned, when will that happen?

We have begun development and expect that the R&D center will operate for a minimum of 10 years, and may be improved and expanded during the course of operation.

g. When will CDR occur (start and end dates)? If CDR does not occur uniformly over that time period, describe the distribution of CDR over time. Please include the academic publications, field trial data, or other materials you use to substantiate this distribution.

See confidential addendum

h. Please estimate your gross CDR capacity over the coming years (your total capacity, not just for this proposal).

Year	Estimated gross CDR capacity (tonnes)
2023	500
2024	1,000
2025	276,000
2026	1,000,000
2027	5,000,000

2028	10,000,000
2029	20,000,000
2030	30,000,000

i. List and describe at least three key milestones for this project (including prior to when CDR starts), that are needed to achieve the amount of CDR over the proposed timeline.

See confidential addendum

j. What is your IP strategy? Please link to relevant patents, pending or granted, that are available publicly (if applicable).

See confidential addendum

k. How are you going to finance this project?

See confidential addendum

l. Do you have other CDR buyers for this project? If so, please describe the anticipated purchase volume and level of commitment (e.g., contract signed, in active discussions, to be approached, etc.).

See confidential addendum

m. What other revenue streams are you expecting from this project (if applicable)? Include the source of revenue and anticipated amount. Examples could include tax credits and co-products.

See confidential addendum

n. Identify risks for this project and how you will mitigate them. Include technical, project execution, ecosystem, financial, and any other risks.

Risk	**Mitigation Strategy**
Project development risk	We bring together a wide range of stakeholders through contractual agreements and partnerships to execute on our projects, such as energy developers, OEM/EPCs, mine owners, community voices, etc. Developing such a coalition requires building trust and delivering value propositions

	that address what matters most to each stakeholder, i.e., improving the livelihoods of local communities through environmental co-benefits and job creation, providing economic incentives for partners to collaborate, and adding to the supply of affordable high quality CDR credits for offtakers.
Technology & execution risk	Our OEM partner provides performance guarantee for the vast majority of the process, including financial compensation in the event of failed delivery.
Financial risk	Risk of price shocks is mitigated through advance negotiation of long-term agreements for power, raw materials, operations, and maintenance.

2. Durability

a. Describe how your approach results in permanent CDR (> 1,000 years). Include citations to scientific/technical literature supporting your argument. What are the upper and lower bounds on your durability estimate?

> Mineralized carbonates will be deposited and sealed inside shafts of underground mines with no contact to the atmosphere. An operational mine requires significant active ventilation to provide sufficient air flow into deep shafts. In our storage solution, a combination of increased air pressure at depth, and the lack of active ventilation and multiple entrances for cross ventilation results in a subterranean environment with very limited air exchange, as evident from stagnant air found in caves. Sealing the mine further prevents air from entering or exiting the mine. The process of sealing includes engineering multiple chambers for redundancy and severing hydrogeological connections with aquifers. Once stored in former mines and sealed from the atmosphere, mineralized carbonates remain stable on timescales of 10^4-10^5 years, with the upper bound not well constrained (Lackner, *Science*, 2003). This is in the absence of major disturbances such as extreme seismic activity, acute flooding, etc.
>
> For other projects located at different sites we plan to leverage this R&D center to develop similar storage and sequestration solutions for mineralized solids, including filling and restoring open surface mines and geological sequestration in deep saline aquifers and/or basaltic formations, in collaboration with research partners including a national research laboratory.

b. What durability risks does your project face? Are there physical risks (e.g. leakage, decomposition and decay, damage, etc.)? Are there socioeconomic risks (e.g. mismanagement of storage, decision to consume or combust derived products, etc.)? What fundamental uncertainties exist about the underlying technological or biological process?

> See confidential addendum

3. Gross Removal & Life Cycle Analysis (LCA)

a. How much GROSS CDR will occur over this project's timeline? All tonnage should be described in **metric tonnes** of CO_2 here and throughout the application. Tell us how you calculated this value (i.e., show your work). If you have uncertainties in the amount of gross CDR, tell us where they come from.

Gross tonnes of CDR over project lifetime	10,000 tonnes over 10 years
Describe how you calculated that value	Our R&D center is expected to produce an average of 1,000 tonnes CDR per year, and will operate for a minimum of 10 years to develop pathway innovations. Due to periodic reconfiguration for research purposes and learning we expect to operate intermittently and the facility is sized to produce 1,000 tonnes removal at approximately 50% capacity.

b. How many tonnes of CO_2 have you captured and stored to date? If relevant to your technology (e.g., DAC), please list captured and stored tons separately.

0

c. If applicable, list any avoided emissions that result from your project. For carbon mineralization in concrete production, for example, removal would be the CO_2 utilized in concrete production and avoided emissions would be the emissions reductions associated with traditional concrete production. Do not include this number in your gross or net CDR calculations; it's just to help us understand potential co-benefits of your approach.

At expected operational capacity, our project will produce ~950 tons of hydrochloric acid (HCl) per year. The use of this reduced-carbon HCl in industries such as the manufacturing of textiles, rubber, food, leather, batteries, etc. will reduce carbon impact in the broader economy. The emission factor for HCl ranges between 1.20 to 0.89 kg-CO_2 equivalent, which when used in industrial processes avoids a total of between 845 to 1,140 tons CO2 per year. Initially the "green HCl" is sold at below market price however once local market demand is saturated we plan to neutralize HCl by using it as a catalyst for enhanced weathering of ultramafic minerals. Research and development into HCl-catalyzed enhanced weathering will be conducted in this R&D center.
This R&D center will further focus on development of co-benefits that will further avoid emissions, such as hydrogen fuel and rare earth minerals that support decarbonization of the transportation sector.

d. How many GROSS EMISSIONS will occur over the project lifetime? Divide that value by the gross CDR to get the emissions / removal ratio. Subtract it from the gross CDR to get the net CDR for this project.

Gross project emissions over the project timeline *(should correspond to the boundary conditions described below this table)*	1,000 tonnes over 10 years

Emissions / removal ratio *(gross project emissions / gross CDR–must be less than one for net-negative CDR systems)*	0.10
Net CDR over the project timeline *(gross CDR - gross project emissions)*	9,000 tonnes over 10 years

e. Provide a process flow diagram (PFD) for your CDR solution, visualizing the project emissions numbers above. This diagram provides the basis for your life cycle analysis (LCA). Some notes:

- The LCA scope should be cradle-to-grave
- For each step in the PFD, include all Scope 1-3 greenhouse gas emissions on a CO_2 equivalent basis
- Do not include CDR claimed by another entity (no double counting)
- For assistance, please:
    - Review the diagram below from the CDR Primer, Charm's application from 2020 for a simple example, or CarbonCure's for a more complex example
    - See University of Michigan's Global CO_2 Initiative resource guide
- If you've had a third-party LCA performed, please link to it.

See confidential addendum

f. Please articulate and justify the boundary conditions you assumed above: why do your calculations and diagram include or exclude different components of your system?

See confidential addendum

g. Please justify all numbers used to assign emissions to each process step depicted in your diagram above. Are they solely modeled or have you measured them directly? Have they been independently measured? Your answers can include references to peer-reviewed publications, e.g. Climeworks' LCA paper.

See confidential addendum

4. Measurement, Reporting, and Verification (MRV)

Section 3 above captures a project's lifecycle emissions, which is one of a number of MRV considerations. In this section, we are looking for additional details on your MRV approach, with a particular focus on the ongoing quantification of carbon removal outcomes and associated uncertainties.

a. Describe your ongoing approach to quantifying the CDR of your project, including methodology, what data is measured vs modeled, monitoring frequency, and key assumptions. If you plan to use an existing protocol, please link to it. Please see Charm's bio-oil sequestration protocol for reference, though note we do not expect proposals to have a protocol at this depth at the prepurchase stage.

See confidential addendum

b. How will you quantify the durability of the carbon sequestered by your project discussed in 2(b)? If direct measurement is difficult or impossible, how will you rely on models or assumptions, and how will you validate those assumptions? *(E.g. monitoring of injection sites, tracking biomass state and location, estimating decay rates, etc.)*

See confidential addendum

c. This tool diagrams components that we anticipate should be measured or modeled to quantify CDR and durability outcomes, along with high-level characterizations of the uncertainty type and magnitude for each element. We are asking the net CDR volume to be discounted in order to account for uncertainty and reflect the actual net CDR as accurately as possible. Please complete the table below. Some notes:

- In the first column, list the quantification components from the Quantification Tool relevant to your project (e.g., risk of secondary mineral formation for enhanced weathering, uncertainty in the mass of kelp grown, variability in air-sea gas exchange efficiency for ocean alkalinity enhancement, etc.).
- In the second column, please discuss the magnitude of this uncertainty related to your project and what percentage of the net CDR should be discounted to appropriately reflect these uncertainties. Your estimates should be based on field measurements, modeling, or scientific literature. The magnitude for some of these factors relies on your operational choices (i.e., methodology, deployment site), while others stem from broader field questions, and in some cases, may not be well constrained. We are not looking for precise figures at this stage, but rather to understand how your project is thinking about these questions.
- See this post for details on Frontier's MRV approach and a sample uncertainty discount calculation and this Supplier Measurement & Verification Q&A document for additional guidance.

Quantification component Include each component from the Quantification Tool relevant to your project	**Discuss the uncertainty impact related to your project** Estimate the impact of this component as a percentage of net CDR. Include assumptions and scientific references if possible.
Storage	As described in the MRV overview the mass of metered output from our DAC process can be measured and quantified directly.
Leakage	Direct observation of the storage site can be accomplished with geotechnical sensors and satellite/aerial imagery to identify any potential early signs of fugitive emissions.
Materials	We will obtain independent third party LCA verification of the inputs, equipment, and infrastructure for projects.

Energy	Whenever possible we partner with stranded renewable assets that have difficulty transmitting to markets. See confidential addendum.
Secondary impacts of energy demand	In many cases we can act as the primary offtaker to catalyze the development of new renewable projects that serve an entire region. See confidential addendum.
Storage monitoring and maintenance	CO_2 is mineralized as stable carbonates prior to sub-surface storage, and monitored through a combination of sensors and imagery.

d. Based on your responses to 4(c), what percentage of the net CDR do you think should be discounted for each of these factors above and in aggregate to appropriately reflect these uncertainties?

> See confidential addendum

e. Will this project help advance quantification approaches or reduce uncertainty for this CDR pathway? If yes, describe what new tools, models or approaches you are developing, what new data will be generated, etc.?

> Through geological storage of mineralized carbonates in abandoned mines we intend to implement monitoring solutions that will provide evidence to substantiate this pathway as an alternative to sequestering supercritical CO_2 in Class VI wells.
> Furthermore we will engage in research with academic partners to quantify the impact of ocean alkalinity enhancement through the dispersal of carbonates. This is anticipated to generate observational data including impact to aragonite saturation levels, oceanic carbonate systems, ocean acidification, and local marine environments that will in turn inform the advancement of OAE VCL.

f. Describe your intended plan and partners for verifying delivery and registering credits, if known. If a protocol doesn't yet exist for your technology, who will develop it? Will there be a third party auditor to verify delivery against that protocol or the protocol discussed in 4(a)?

> See confidential addendum

5. Cost

We are open to purchasing high-cost CDR today with the expectation the cost per tonne will rapidly decline over time. The questions below are meant to capture some of the key numbers and assumptions that you are entering into the separate techno-economic analysis (TEA) spreadsheet (see step 4 in Applicant Instructions). There are no right or wrong answers, but we would prefer high and conservative estimates to low and optimistic. If we select you for purchase, we'll work with you to understand your milestones and their verification in more depth.

a. What is the levelized price per net metric tonne of CO_2 removed for the project you're proposing Frontier purchase from? This does not need to exactly match the cost calculated for "This Project" in the TEA spreadsheet (e.g., it's expected to include a margin), but we will be using the data in that spreadsheet to consider your offer. Please specify whether the price per tonne below includes the uncertainty discount in the net removal volume proposed in response to question 4(d).

See confidential addendum

b. Please break out the components of this levelized price per metric tonne.

See confidential addendum

c. Describe the parameters that have the greatest sensitivity to cost (e.g., manufacturing efficiencies, material cost, material lifetime, etc.). For each parameter you identify, tell us what the current value is, and what value you are assuming for your NOAK commercial-scale TEA. If this includes parameters you already identified in 1(c), please repeat them here (if applicable). Broadly, what would need to be true for your approach to achieve a cost of $100/tonne?

See confidential addendum

d. What aspects of your cost analysis are you least confident in?

See confidential addendum

e. How do the CDR costs calculated in the TEA spreadsheet compare with your own models? If there are large differences, please describe why that might be (e.g., you're assuming different learning rates, different multipliers to get from Bare Erected Cost to Total Overnight Cost, favorable contract terms, etc.).

See confidential addendum

f. What is one thing that doesn't exist today that would make it easier for you to commercialize your technology? (e.g., improved sensing technologies, increased access to X, etc.)

See confidential addendum.

6. Public Engagement

In alignment with Frontier's Safety & Legality criteria, Frontier requires projects to consider and address potential social, political, and ecosystem risks associated with their deployments. Projects with effective public engagement tend to:

- Identify key stakeholders in the area they'll be deploying

- Have mechanisms in place to engage and gather opinions from those stakeholders, take those opinions seriously, and develop active partnerships, iterating the project as necessary

The following questions help us gain an understanding of your public engagement strategy and how your project is working to follow best practices for responsible CDR project development. We recognize that, for early projects, this work may be quite nascent, but we are looking to understand your early approach.

a. Who have you identified as relevant external stakeholders, where are they located, and what process did you use to identify them? Please include discussion of the communities potentially engaging in or impacted by your project's deployment.

Community members, local officials, and businesses near the facility are the most relevant external stakeholders, to ensure the groups feel comfortable and represented having a facility nearby. As part of our work, we will look at Census data to understand the diversity of the community, historical injustices, and connections with climate justice. We are working with local non-profit organizations, foundations, carbon removal coalitions, and universities to identify these stakeholders and form a coalition. We will include these stakeholders in a governance process (e.g. coalition) to ensure their voices are reflected in the facility plans and operations. We are also speaking with local unions and trade associations to hear their feedback about wage, labor, and supply chain concerns. This input will be vital to engage the community and minimize negative impacts. We are also identifying community events as opportunities to engage with the public, such as farmers markets and town halls.

b. If applicable, how have you engaged with these stakeholders and communities? Has this work been performed in-house, with external consultants, or with independent advisors? If you do have any reports on public engagement that your team has prepared, please provide. *See Project Vesta's community engagement and governance approach as an example and Arnestein's Ladder of Citizen Participation for a framework on community input.*

We are in discussions with an external consultant who advised Project Vesta on their community engagement approach to create a similar process for Capture6. This report will be created in collaboration with consultants and advisors for future implementation. Stakeholders will include public entities, private businesses, non-profit organizations, Indigenous groups, and members especially from marginalized communities.

c. If applicable, what have you learned from these engagements? What modifications have you already made to your project based on this feedback, if any?

N/A

d. Going forward, do you have changes to your processes for (a) and (b) planned that you have not yet implemented? How do you envision your public engagement strategy at the megaton or gigaton scale?

N/A

7. Environmental Justice[2]

As a part of Frontier's Safety & Legality criteria, Frontier seeks projects that proactively integrate environmental and social justice considerations into their deployment strategy and decision-making on an ongoing basis.

a. What are the potential environmental justice considerations, if any, that you have identified associated with your project? Who are the key stakeholders? Consider supply chain impacts, worker compensation and safety, plant siting, distribution of impacts, restorative justice/activities, job creation in marginalized communities, etc.

> To build our facility, we must ensure we do no harm and that the costs of our facility are not borne by marginalized communities. To address this, we plan to develop a coalition of key stakeholders, including state and local governments, diverse community groups, trade and labor unions, and Indigenous representatives. The coalition will ensure stakeholders can participate and communicate with each other and the public. We will listen to community concerns, reflect that feedback in our plans, and address any concerns with economic and social impacts through a community benefit agreement. We plan to employ a diverse workforce from around the facility through a local hiring process and offer competitive pay and benefits, and hope to to create an upskilling and apprenticeship program for community members to benefit from the green economy. We are also researching community benefit agreements from the renewable energy sector to inform and create our own agreement to codify these benefits. The agreement and coalition will be revisited consistently to ensure we are delivering on our promises. Capture6 is dedicated to fostering a just transition through this facility and ensuring the delivery of these benefits.

b. How do you intend to address any identified environmental justice concerns and / or take advantage of opportunities for positive impact?

> Communities of color and low-income backgrounds have suffered from environmental injustices in the past - air and water pollution, toxic waste, fossil fuel facilities and highways in their neighborhoods. Capture6 is dedicated to creating positive impacts for marginalized communities.
>
> We will address environmental justice concerns by gathering information and feedback in advance from listening sessions, the coalition of stakeholders, and roundtable discussions to hear local insights on what exactly those concerns are, and whether those concerns can be addressed through economic, environmental, or social opportunities. Environmental justice concerns can also be addressed in the community benefit agreement to acknowledge the challenges and ensure we deliver on those benefits.
>
> Capture6 plans to pursue pathways for positive impact through our facilities. In addition to creating economic opportunities - such as jobs or revenue for the community - we aspire to generate positive environmental and social benefits.
>
> One example is that by capturing CO2 from the air, we can remove local air pollutants that threaten public health. In addition, we can repurpose former industrial sites where possible. We are prioritizing building on brownfield lands to leave the local environment untouched. We can also help repurpose water sources for irrigation through our DAC process.

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[2] For helpful content regarding environmental justice and CDR, please see these resources: C180 and XPRIZE's Environmental Justice Reading Materials, AirMiners Environmental and Social Justice Resource Repository, and the Foundation for Climate Restoration's Resource Database

We also see the facility as an educational opportunity. Capture6 would like to include educational opportunities for local schools, universities, and community members to visit the facility and learn about our technology and process. Public understanding, transparency, and engagement is critical to advance equitable climate solutions.

8. Legal and Regulatory Compliance

a. What legal opinions, if any, have you received regarding deployment of your solution?

See confidential addendum

b. What permits or other forms of formal permission do you require, if any, to engage in the research or deployment of your project? What else might be required in the future as you scale? Please clearly differentiate between what you have already obtained, what you are currently in the process of obtaining, and what you know you'll need to obtain in the future but have not yet begun the process to do so.

See confidential addendum

c. Is your solution potentially subject to regulation under any international legal regimes? If yes, please specify. Have you engaged with these regimes to date?

Our current implementations do not fall under international regulatory regimes.

d. In what areas are you uncertain about the legal or regulatory frameworks you'll need to comply with? This could include anything from local governance to international treaties. For some types of projects, we recognize that clear regulatory guidance may not yet exist.

The types of regulatory frameworks our facilities are subject to are largely similar to that of water treatment and desalination facilities, consisting predominantly of permits from local authorities, labor rules and prevailing wages for the community, and environmental assessments for the region.

e. Do you intend to receive any tax credits during the proposed delivery window for Frontier's purchase? If so, please explain how you will avoid double counting.

See confidential addendum

9. Offer to Frontier

This table constitutes your **offer to Frontier**, and will form the basis of contract discussions if you are selected for purchase.

See confidential addendum

Application Supplement: DAC

(Only fill out this supplement if it applies to you)

Note: these questions are with regards only to air capture: e.g. your air contactors, sorbents or solvents, etc. Separately, there exist Geologic Injection and CO_2 Utilization supplements. We anticipate that most companies filling out this DAC supplement should ALSO fill out one of those supplements to describe their use of the CO_2 stream that's an output of the capture system detailed here.

Physical Footprint

1. What is the physical land footprint of this project, and how do you anticipate this will change over the next few years? This should include your entire physical footprint, i.e., how much land is not available for other use because your project exists. Also, what is the estimated footprint if this approach was removing 100 million tons of CO_2 per year?

Land footprint of this project (km^2)	< 0.01 km^2
Land footprint of this tech if scaled to 100 million tons of CO_2 removed per year (km^2)	~4 km^2

Capture Materials and Processes

1. What material(s) is/are you using to remove CO_2?

Our DAC process uses aqueous sodium hydroxide (NaOH) as the solvent for CO2 capture.

2. How do you source your material(s)? Discuss how this sourcing strategy might change as your solution scales. Note any externalities associated with the sourcing or manufacture of it (e.g., hazardous wastes, mining, etc.). You should have already included the associated carbon intensities in your LCA in Section 3.

NaOH is continuously and sustainably generated through electrochemistry of water and sodium chloride salt.

3. How much energy is required for your process to remove 1 net tonne of CO_2 right now (in GJ/tonne)? Break that down into thermal and electrical energy, if applicable. What energy intensity are you assuming for your NOAK TEA?

Only electrical energy is required for our cradle-to-grave process of carbon removal and mineralization; no thermal energy is used.

4. What is your proposed source of energy for this project? What is its assumed carbon intensity? How will this change over the duration of your project? (You should have already included the associated carbon intensities in your LCA in Section 3).

See confidential addendum

5. Besides energy, what other resources do you require (if any, such as water)? Where and how are you sourcing these resources, and what happens to them after they pass through your system? (You should have already included the associated carbon intensities in your LCA in Section 3).

See confidential addendum

6. Do you have experimental data describing how your system's CDR performance changes over time? If so, please include that data here and specify whether it's based on the number of cycles or calendar life.

See confidential addendum

7. What happens to your capture medium at end-of-life? Please note if it is hazardous or requires some special disposal, and how you ensure end-of-life safety.

See confidential addendum

8. Several direct air technologies are currently being deployed around the world. Why does your DAC technology have a better chance to scale and reach low cost than the state of the art?

See confidential addendum