[Silica]
Carbon dioxide removal prepurchase application
Summer 2024

General Application

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

Public section

The content in this section (answers to questions 1(a) - (d)) will be made public on the [Frontier GitHub repository](#) after the conclusion of the 2024 summer purchase cycle. Include as much detail as possible but omit sensitive and proprietary information.

Company or organization name

Silica

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

Mexico

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

Toni Braso, Rodrigo Ramos

Brief company or organization description <20 words

Enhanced weathering in agriculture with silicate minerals in Latin America, initially focusing on sugarcane regions of Mexico

1. Public summary of proposed project[1] to Frontier

a. **Description of the CDR approach:** Describe how the proposed technology removes CO_2 from the atmosphere, including how the carbon is stored for > 1,000 years. Tell us why your system is best-in-class, and how you're differentiated from any other organization working on a similar approach. If your project addresses any of the priority innovation areas identified in the RFP, tell us how. Please include figures and system schematics and be specific, but concise. 1000-1500 words

Silica develops enhanced weathering projects with silicate rocks in agricultural fields in Latin America. We are initially focusing on sugarcane regions of Mexico, where we partner with smallholder farmers

[1] We use "project" throughout this template, but the 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.

to deploy fine basalt and pyroclastic materials from nearby vetted quarries.

How EW removes CO_2 from the atmosphere and stores it for > 1,000 years

Enhanced weathering (EW) leverages and accelerates the Earth's natural process of silicate rock weathering, a fundamental mechanism in the global carbon cycle that has regulated Earth's climate for millions of years. This process involves the reaction of silicate minerals, such as those found in basalt, with atmospheric carbon dioxide (CO_2) and water, to capture CO_2 (source).

EW significantly accelerates the rate of CO_2 uptake by utilizing silicate-rich rocks in fine form, which have exponentially increased surface area and reactivity. When applied to soils, these particles react with CO_2 dissolved in rainwater and soil moisture, forming dissolved inorganic carbon (DIC) species, mainly bicarbonate (HCO_3-). These dissolved products are then transported through groundwater pathways to rivers and ultimately to the ocean (source).

In the ocean, the DIC species contribute to the ocean's alkalinity, a natural buffer against ocean acidification. Carbon is stored in the ocean in stable form for millennia either in dissolved form (that is, mostly as bicarbonates) or as carbonate minerals (source).

The permanence of carbon storage through EW is supported by the geological record, which shows that carbonate minerals in ocean sediments can persist for hundreds of thousands of years (source). This long-term sequestration potential, combined with the scalability and potential co-benefits of EW, makes it one of the most promising carbon removal pathways for mitigating climate change (source).

Latin America and the Global South are uniquely positioned to scale EW in a cost-effective way while driving significant co-benefits for local communities

Current estimates indicate, even at the lower ranges, that enhanced rock weathering using basalt in agricultural cropland has a multi-gigaton CDR potential, with <$100/t in sight (source, source, source).

(Sub)tropical regions in the Global South present conditions conducive to faster, more effective weathering, including warm temperatures, high precipitation rates, and higher moisture, acidic soils (source, source, source). Achieving EW's scale potential requires the Global South, where 5 of the 8 countries with the highest EW CDR potential are, including Brazil and Mexico (source). **The Global South is also uniquely positioned to achieve the <$100/t target given its lower cost structure, up to ~33% lower than the Global North** (source, source). Beyond carbon sequestration, tropical regions can benefit significantly from EW agricultural and economic co-benefits. Rising temperatures, floods, and increasing droughts in a region highly dependent on rainfed agriculture are placing a strain on livelihoods and driving rural-to-urban-migration (source). Soil nutrient depletion, particularly in highly weathered soils in regions with limited access to fertilizers threatens food security (source, source). EW can increase crop yields, improve soil health, increase pest and drought resistance, and improve water retention (source, source, source). It can also generate economic opportunities for local communities and become a revenue source from the Global North (source).

Despite Latin America's critical role for CDR development, it has been severely underrepresented in the scientific literature and commercial efforts, especially outside of Brazil, limiting the understanding of the region and the nuances required to scale CDR, particularly EW.

Silica's best-in-class system is bringing distinct innovations to help accelerate EW as a pathway in the region

1. Silica is **expanding and adapting the state of the art MRV to diverse tropical conditions** which are less understood. We have a **partnership with Lithos to adapt their MRV approach** where Lithos and other academic partners, as well as local experts, suggest iterations that are best for the local context, and will analyze, measure and verify the conservative gross carbon removal (pre-LCA) from our deployments. Iterations are focused on understanding and modeling Mexican soil types (initially Phaeozems, Vertisols and Andosols in Veracruz, some of them volcanic and with varying degrees of heterogeneity) interacting with different feedstocks (basalt quarry byproduct, pyroclastic materials), across perennial crops like sugarcane with particular farming practices (e.g. pre-harvest sugarcane burning, annual ratooning), in (sub)tropical climate conditions. We combine high-density, highly accurate compositional soil analyses with aqueous phase measurements to determine the most suitable MRV path (more details in section 5).

This approach ensures the robustness of our measurements, and helps expand and advance MRV methods and models that we collectively hope will be applicable to Latin America, supporting widespread social adoption, logistics infrastructure, and measurement practices across the Global South.

Our team also works closely with leading EW researchers in our advisor network, including **researchers at the Yale Center for Natural Carbon Capture**, and collaborates with practitioners operating in similar conditions. Following a shared approach, including using the same leading geochemical labs, we increase the reliability of our data and comparability vs. other regions.

To achieve EW's multi-Gt potential serving disadvantaged rural communities, many EW companies will be needed. To scale the ecosystem in a responsible way, trusted established institutions will likely need to act as enablers for new companies to emerge and operate. Our pioneering work with Lithos and Yale will set the foundation for such work.

We believe that partnering with first-class EW organizations is the right path to advance EW in the tropics. We are **matching our MRV partner's expertise with a deep understanding of local agriculture, soil science and operational experience**, while advancing our EW science and developing local talent.

Mexico has a large capacity for EW and is the ideal playground to understand EW's potential in the Global South. Mexico's agricultural land use spans 97 million hectares (#12 in the world), with 30 million hectares used for crops.

Much of this terrain presents ideal conditions for accelerated weathering, including **warm year-round temperatures, abundant rainfall, and acidic pH, which we are currently prioritizing (central Veracruz has 25-26°C mean annual temperature and 1,200-3,000mm/yr rainfall) (source).**

Mexico also presents a wide range of climate and soil conditions representative of a broader set of conditions in the Global South, with two full growing seasons per the year (source). This will allow us to test and better understand the impact of critical parameters such as precipitation levels, irrigation, pH, soil texture and CEC; to understand and hopefully expand the number of farmers in varying conditions across the Global South that can benefit from EW.

2. Silica is also **supporting the development of a more efficient, simple, accessible and affordable MRV method which would be especially beneficial in the Global South.**

This novel approach, pioneered by the Leverhulme Centre for Climate Change Mitigation, involves the magnetic extraction of feedstock from composite materials, and the use of more accessible equipment (e.g., handheld XRF spectrometer in the field or ICP-OES / XRF lab equipment) to conduct a mass-balance analysis on the extracted feedstock to estimate CDR. This holds significant potential to reduce labor and financial costs vs. current solid-phase methods with highly precise instrumentation, and is especially well suited for the Global South, where high-precision analytical infrastructure is often limited. This method is being researched and more details will be shared in upcoming publications. Silica will implement this method alongside the well-established MRV approach followed by Lithos and Yale with high-precision ICP-MS equipment, and compare the results to help validate this promising method. Silica's feedstock's high magnetism (based on Yale's preliminary assessment with >95% recovery of feedstock) is ideally suited to validate this approach /method.

3. Another innovation is the **use of abundant, high-CDR efficient pyroclastic materials as our feedstock**, in addition to traditional basalt quarry byproducts, **which can remove multiple Gt of CO_2 at a lower cost and reduced operational complexity**. These materials are found in 2 main forms: "tezontle", highly porous, with a PSD varying from a few cm / mm to fines; and "arena negra", naturally in finer form (95% < 580µm, 60% < 252µm and 50% < 195µm in our partner quarries). A basic sieving or low intensity grinding process of "tezontle" generates suitable EW feedstock (<1 mm to fines). Arena negra requires no sieving.

In central Veracruz, the basaltic Los Tuxtlas Volcanic Field is composed of hundreds of scoria cones, lava domes and maars (source). There are 7+ billion tons of volcanic scoria in ~300 cones (source, source - see supplementary File 6). We have tested 10+ quarries with tens of millions of deposits. ~870 million tons of tezontle are extracted per year in Mexico (source).

Silica is first using “arena negra”, found in maars, tuff cones and tuff rings, as no processing is required. There’s limited research quantifying deposits, but local volcanologist Dr. Rafael Torres estimates it at 1.5+ bn tons. We have 2 partner quarries with 2.5+ million m^3 in deposits.

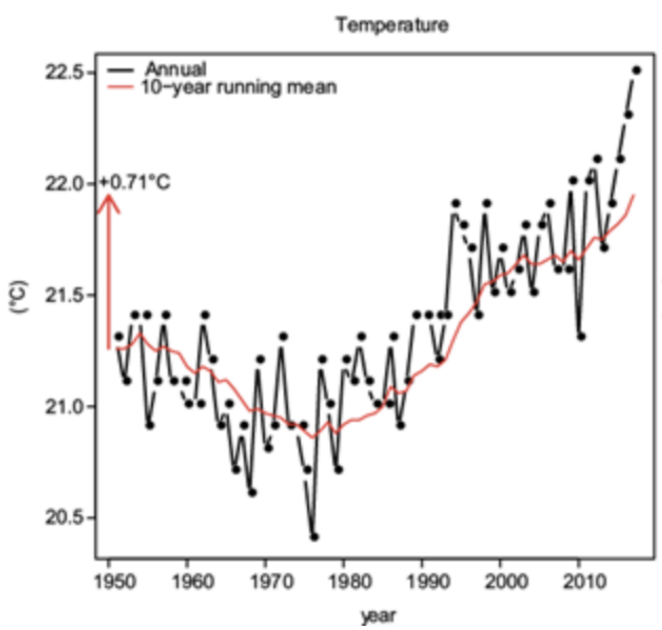
Feedstocks in Los Tuxtlas **have up to 50% CDR efficiency (0.5 tons of CDR removal per ton of rock applied), further contributing to achieving the <$100/t target.** Silica can capture up to 2x CO_2 per ton of rock vs. other commonly used feedstocks. That means that half of the feedstock needs to be sourced, transported and applied per ton of CO_2 captured.

Pyroclastic materials’ price is a fraction of basalt’s given its abundance, accessibility, lower extraction costs, and lower suitability for high-load bearing applications due to lower density and compressive strength.

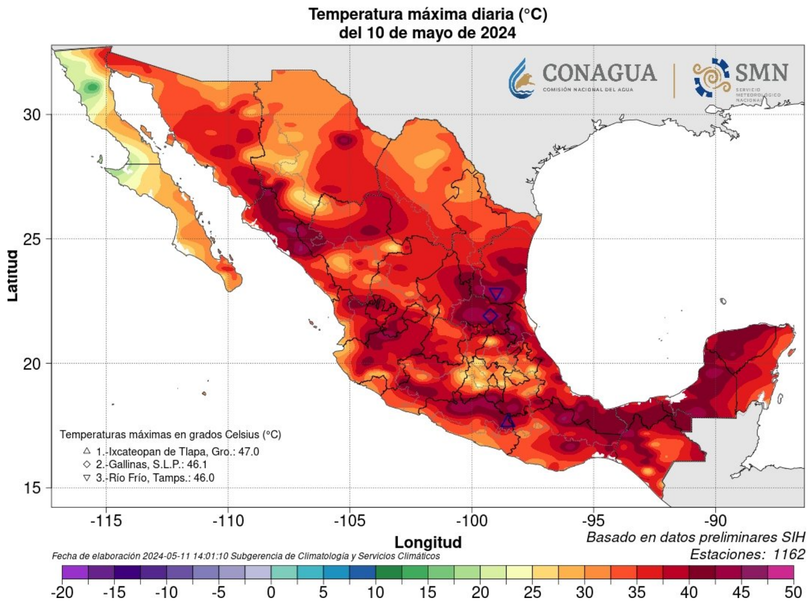
We are working with Dr. Rafael Torres, Dr. Katrin Sieron and Dr. Lucia Capra, to map deposits in Veracruz and across Mexico. Volcaniclastic materials are abundant in the agricultural regions to which we will soon expand (e.g. Nayarit, Colima, Michoacan), and outside of Mexico and Latin America, where Silica’s learnings can be transferred.

4. Finally, beyond CDR, **EW can provide significant co-benefits in Latin America, including improved yields and job opportunities for local communities**. In Mexico, farmers have limited resources to invest in their land, soils are depleted and acidifying, and recent increases in droughts and extreme temperatures are decreasing yields (e.g., 17% decrease in corn production vs. last year) (source, source). Climate change could reduce basic grain yields up to 50% yield in Central America (source). Farmers are overwhelmingly concerned about high input and services cost (89%) and losses due to climate or biologic factors (61%); only 6.1% of them have access to credit and 1.9% are insured (source).

Mean temperature in Mexico over the last 70 years (source)



Daily highest temperature in Mexico, May 10 2024 (source)



EW can help Global South farmers against climate change through higher yields (from optimized pH, increased nutrient availability and replenished soils), and increased drought resistance and water retention (source, source, source).

Sugarcane, our initial crop of focus, is a prime candidate to drive meaningful co-benefits to farmers and their communities. There are 170k+ sugarcane farmers in Mexico, with 85%+ of them being smallholders, whose livelihoods are highly dependent on their yields. **In one of our early sugarcane pilots we have seen 33-43% yield increases in basalt-treated plots vs. controls, showcasing EW's promise**. Field day laborers are forced to migrate to other parts of Mexico during the year due to work seasonality. Silica can provide local job opportunities (e.g., sampling, spreading, monitoring) during off-season.

A critical part of our mission is to lift up farmers and their communities, and currently our farmers benefit from Silica at no cost. Given the large yield improvements, some of them have already expressed their openness to sharing the deployment cost. Depending on CC prices evolution, this could represent an additional lever for Silica to achieve the <$100/t target, while still driving significant impact to farmers and their communities.

Silica addresses several priority innovation areas identified in the RFP

While more details are provided throughout the pre-application, here's a summary of the priority areas we are tackling:

- Underrepresented geographies: we are focused on Latin America, starting in Mexico
- Additional revenue sources: Farmers have expressed their openness to sharing the costs of our deployments. While not an additional revenue source, we are exploring insettings as an alternative revenue model with Coca-Cola and Bimbo (largest baked goods company in the world). We are planning pilot trials in Q4 2024
- Environmental / economic co-benefits: Environmental - reduced use of fertilizers, soil remineralization and replenishment, counteracting soil acidification. Economic - yield improvements and job opportunities for local communities (e.g., sampling and spreading)
- EW Innovation: 1) We are expanding the state of the art MRV to diverse tropical conditions, partnering with Lithos and the Yale Center for Natural Carbon Capture, 2) supporting the development of a more simple, efficient, accessible and affordable MRV method which would be especially beneficial in the Global South, and 3) using highly abundant, high-CDR efficient (up to 50% CDR efficiency) pyroclastic materials as our feedstock, which can scale with lower

operational complexity

b. **Project objectives:** What are you trying to build? Discuss location(s) and scale. What is the current cost breakdown, and what needs to happen for your CDR solution to approach Frontier's cost and scale criteria?[2] What is your approach to quantifying the carbon removed? Please include figures and system schematics and be specific, but concise. 1000-1500 words

What we are trying to build

At Silica we want to **unlock EW's potential in Latin America to remove CO_2 at scale and benefit as many farmers and local communities as possible**. Initially we are exclusively focusing on EW, and longer term we see an opportunity to drive improved sustainable agricultural practices that can generate further environmental and economic impact.

Our first region is Mexico, which has the potential for 100+ Mt CDR scale via EW in croplands (source). It presents ideal conditions for accelerated weathering, and our team has strong ties to key stakeholders and the local operational expertise to scale EW. In addition to vast agricultural land (97 million hectares, 30 million for cropland specifically) and abundant EW feedstock, there is vast mining and **transportation infrastructure**, with **~23bn tons of non-mineral materials produced and transported per year (source),** which is a critical factor for EW viability (source).

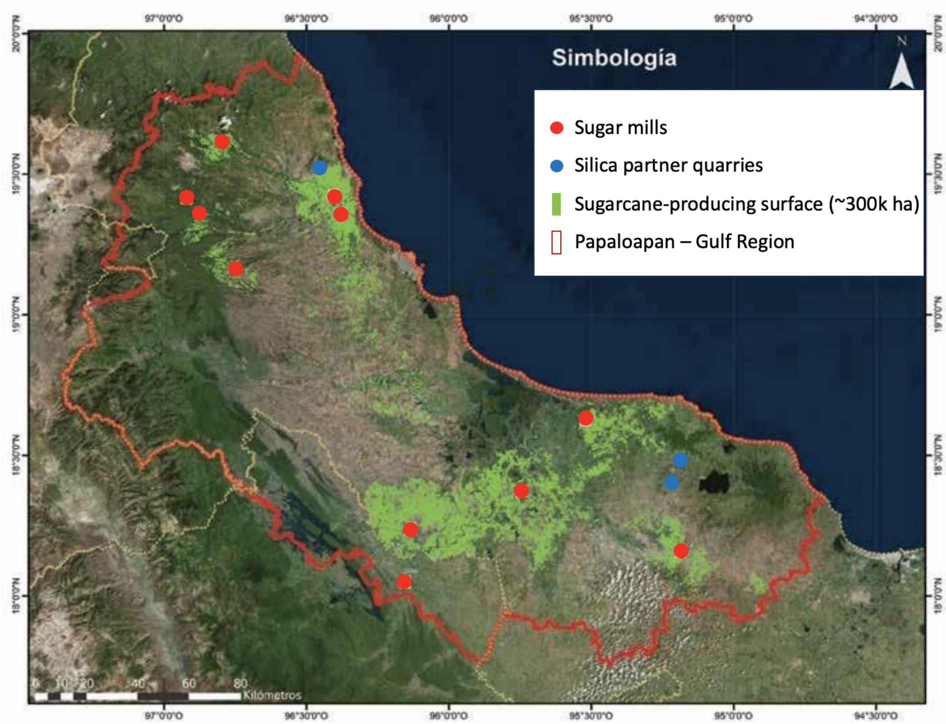
Within Mexico we are starting with sugarcane, a prime candidate for EW due to its unique physiology, and its prevalence and importance in tropical and subtropical regions. Sugarcane's high biomass production, extensive root systems and high nutrient requirements can accelerate mineral weathering rates, while plants significantly benefit from increased nutrient availability, improved water retention and pH adjustment, among other factors (source, source). **Initial Silica trials showed 33%-43% yield improvements vs. controls with conservative 10 and 15 t/ha application rates**.

Mexico's sugarcane industry, the second largest crop by production volume, spans nearly 1 million hectares and employs 0.5 million people directly and 2.4 million people indirectly (source). Globally, sugarcane is the 5th largest crop, expanding over 26 million hectares, most of them in the Global South (source).

Silica is narrowing down its deployments to two priority regions, Veracruz and Jalisco, which account **38% and 13% of Mexico's overall sugarcane production**, respectively. Within Veracruz we are focusing on the central region, which comprises **1.5M+ ha of agricultural land, with ~300k of sugarcane nearby partner quarries**. In Jalisco we are focusing on the central west region, with 300k+ ha of agricultural land, including ~60k ha of sugarcane. Both regions have warm temperatures throughout the year (annual mean temp. 25-26°C and 21-22°C in Veracruz and Jalisco respectively (source, source), **abundant rainfall (1,200-3,000mm/yr)** (source) **compared to other regions of Mexico** and **short transport distances from agricultural fields to the ocean for efficient bicarbonate transport – as seen below.**

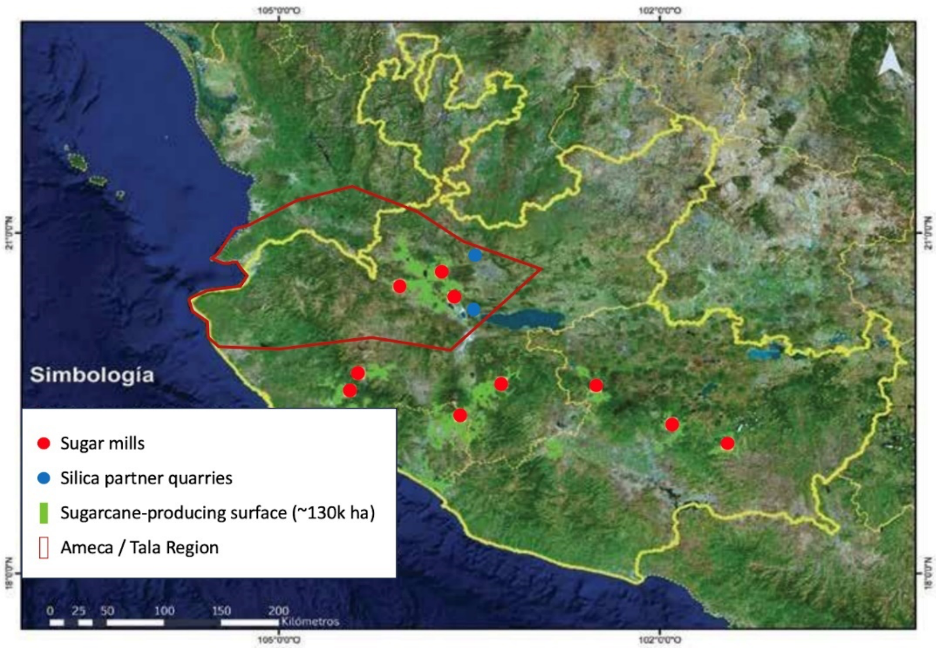
[2] We're looking for approaches that can reach climate-relevant scale (about 0.5 Gt CDR/year at $100/ton). We will consider approaches that don't quite meet this bar if they perform well against our other criteria, can enable the removal of hundreds of millions of tons, are otherwise compelling enough to be part of the global portfolio of climate solutions.

Veracruz sugar mills, sugarcane surface and select partner quarries



Fuente: UACh, con base en información de CONADESUCA-SIAP, 2016.

Jalisco sugar mills, sugarcane surface and select partner quarries



Fuente: UACh, con base en información de CONADESUCA-SIAP, 2016.

Although farmers are generally smallholder operations in Mexico, sugarcane production is highly organized through 2 national sugarcane organizations and 51 sugar mills. **If we are able to demonstrate commercial traction and leverage our MRV program/partnerships and nascent supply chain in conversations with these groups**, we believe this distribution network will be a powerful channel **allowing Silica to reach smallholder farmers at scale, creating outsized community impact**. As an early test of this hypothesis, we have **already developed pilots in collaboration with 3 sugar mills,** accounting for ~80k hectares, and **we are collaborating with Mexico's National Confederation for Sugarcane's Sustainable Development,** joining their monthly stakeholder meetings attended by national sugarcane producer organizations, sugar mill representatives and major CPGs sourcing sugarcane at scale in Mexico (e.g., Coca-Cola, PepsiCo), through which we have already been connected to farmers.

After securing our foothold in the key sugarcane areas (which already have the potential for megaton capture) **we then plan to expand across crop systems in Mexico, and through Latin America, starting in Central America**. Within Mexico our **vision is twofold**:

1) Improve yields for basic crops that drive food security in Mexico, including corn (~7m hectares), beans (2m), sorghum grain (1.5m), and wheat (0.5m); as well as pastures (~70m) (source). We hope to also partner with the Mexican government to incorporate Silica in **"Fertilizantes para el Bienestar", a unique national program providing free fertilizers to 2 million basic grain farmers, to reach smallholder farmers at scale and advance the government's emission reduction targets — while also reducing costs of CDR for end-state buyers such as the Frontier collective.**
2) Decarbonize and expand organic production of high-value crops largely exported, including avocado (180k hectares, $3bn USD in annual exports), tomato (45k hectares, $2.8bn), berries (60k hectares, $2.6bn), citrus (835k ha, $0.8bn), mango (200k, $0.5 bn), coffee (700k ha, $0.4 bn) and barley (360k ha). Mexico's agri-food exports reached ~$52bn USD In 2023 (4% y/y increase) and Silica can contribute to accelerate its sustainable growth (source). **There are branding opportunities for these agri-food exports, and we believe this forms a significant tailwind as we scale in later stages.**

A path to achieving the Frontier's cost and scale criteria

In our deployments to date cost per ton will range broadly, driven by differences in the sourced feedstock, fields proximity to quarries, spreading method and MRV.

- We expect substantial cost reductions as we scale up. For MRV we are conducting high-density soil sampling and very thorough analyses with high precision analytical techniques, **ICP-MS for measuring trace elements (e.g., Ti, Zr), and ICP-AES to measure major cations Ca, Mg and Na used for weathering rate calculations.** In our **research-grade calibration trials we are using 2 different water collection systems for our aqueous phase measurements (a vacuum soil solution lysimeter and a custom-built leachate water catchment system) to determine the most suitable approach in the Mexican context.** The amount and density of measurements and their unit cost are expected to **decline as we gather data, shift towards a more model-based MRV approach and achieve a larger scale**. **The novel MRV approach by the Leverhulme Centre for Climate Change Mitigation would further decrease the costs. if validated.**
- For feedstock sourcing, spreading and transportation we are forecasting significant cost reductions at scale. To date we have conducted deployments up to ~240 km from quarries, driven by our desire to **test different crop systems and agricultural partners**. At scale, we want to limit deployments to a <100 km radius from our quarries. **Our partners have already offered cost reductions at a larger scale**, as the attractiveness of our business and thus their own cost structures improve.
- An important driver of Silica's competitive long term cost is the high gross CDR potential of our feedstock. While our current main priority region has a multi-Mt potential, for future locations outside of this to be as cost-competitive we will need to secure highly efficient feedstock, as this will linearly impact our transportation and spreading cost. We are already working with volcanologists / geologists in Mexico to identify further desirable feedstock in new regions.

To remove gigatons of CO_2 we will need to leverage the existing massive mining and transport infrastructure in Mexico, secure farmland at scale and run an efficient operation across Latin America, partnering with key stakeholders we are already engaging with (see Section 7a).

Additional cost details and assumptions are included in the TEA and summarized in Section 6a.

Silica follows a robust MRV approach to quantifying carbon removed in the Global South context

We are following state-of-the-art MRV approaches together with Lithos and the Yale Center for Natural Carbon Capture (more details in section 5a):

1. Mass balance approach using solid-phase measurement (tracer elements and cation pools)
2. Novel approach with magnetic feedstock extraction and leveraging potentially cheaper, more accessible equipment
3. Aqueous phase measurements to complement/corroborate solid-phase CDR estimates

c. **Risks:** What are the biggest risks and how will you mitigate those? Include technical, project execution, measurement, reporting and verification (MRV), ecosystem, financial, and any other risks. 500-1000 words

Major risks and mitigation plans

1. Weathering / CDR rate: while we are optimistic about the potential for accelerated weathering in Mexico, there is still uncertainty on how fast the CDR will occur, given that we are pioneering the research in those conditions. We expect considerable differences between soil types and feedstock combinations, and will need to narrow down the most desirable conditions. This will have a direct impact on our overall scale potential in Mexico and financing costs.

   We have prioritized the most promising regions in Mexico and are developing research grade field trials with different soil - feedstock combinations. We will scale in preferred conditions while we continue to test new regions to maximize the number of farmers that can benefit from

EW.

2. MRV: while there has been significant progress in EW MRV, there are still uncertainties, particularly in under-studied conditions like those in Mexico.

   We are following state-of-the-art MRV approaches that have been field-tested, and are adapting them to the Mexican context. We are over-investing in thorough geochemical and fertility soil tests (monitoring 40+ elements / parameters to determine the preferred tracers and soil-based MRV approach), testing different water catchment systems for aqueous phase measurements and testing a novel MRV approach well-suited for the Global South.

3. Heavy metals: some of the feedstocks we are using have a relatively high Ni content. We don't expect this to be a concern, based on the guidance from academic experts, evidence on the limited risks across pathways for realistic basalt application rates, and given that Ni levels are far from those in olivine. Moreover, even considering application rates of 50+ tons/ ha-yr, which is well above what we expect to apply, the concentration of Ni would remain far from what maximum permissible levels for agricultural land use established by the Mexican Official Regulation (NOM-147).

   We are conservatively deploying this feedstock, and are closely monitoring the soil heavy metal concentrations, plant uptake (in roots, stem, and leaves) and downstream water chemistry. The results of our analysis might impact which feedstocks we work with and/or their application rates. We have identified quarries with minimum heavy metals content and are conducting deployments with those as well.

4. Data sources on available suitable farmland at scale: unlike the US and other Global North countries, there is limited granular soil information in Mexico. We are developing a better understanding of the distribution of soil characteristics in our current priority regions. We will need to expand those efforts across Mexico to more accurately determine the country's potential, while we build a better understanding of weathering / CDR rates across conditions. Additionally, while we are currently experiencing strong interest from farmers and farming organizations, we will need to ensure the co-benefits are well understood, and that Silica builds a strong reputation to achieve a multi-Mt+ scale.

   Our initial crop of focus, sugarcane, is highly abundant in Mexico and has a large potential to benefit from EW. We are building strong relationships with the major sugarcane organizations and sugar mills in Mexico, which we expect will provide us with access to farmland at scale. We are developing demonstration plots across our priority regions to build confidence both at the smallholder farmer and sugarcane organizations level, and conducting on the ground awareness and communication campaigns.

5. Financing: high-quality CDR purchases are still limited and concentrated in a small number of buyers. Long-term, projected supply is expected to be insufficient to meet the expected demand. Short-term, however, there's a risk that demand will remain constrained and insufficient to sustain many of the existing and new CDR companies, particularly for less mature pathways. For EW companies that can "cross the chasm", the ability to secure predictable, cost-competitive financing at scale to fund deployments will be critical.

   Silica is operating in a very financially responsible way. **We have a very lean, high-performing team, and are focusing most of our resources on targeted high-quality research to confidently understand EW in our priority regions.** Based on the gross efficiency of our feedstock (resulting from locating and testing 100+ quarries across target regions), weather / soil conditions and co-benefits, we expect to be an attractive, cost-competitive supplier for buyers. We are already building relationships with buyers and debt funding institutions to be well positioned to rapidly scale once we have field trial data and demand is unlocked. Given the co-benefits of our deployments, we expect to have access to capital at below market rates, based on conversations with institutions like FIRA Mexico and the IDB Lab.

6. Operational complexity: even with the right team and partnerships to do EW in Mexico, the reality of operating in rural Mexico and scaling with smallholder farmers is challenging. We are

confident that we will be able to do so successfully, but are aware of the difficulties. We are testing different suppliers and partners at a smaller scale to determine those we will scale with. In-person interactions are critical in Mexico's business and agricultural culture and we are increasingly spending time with our partners to build trusted relationships. We are also focused on finding the best local talent and aligning the incentives of our employees and key stakeholders with Silica's success.

d. **Proposed offer to Frontier:** Please list proposed CDR volume, delivery timeline and price below. If you are selected for a Frontier prepurchase, this table will form the basis of contract discussions.

Proposed CDR over the project lifetime (tons) *(should be net volume after taking into account the uncertainty discount proposed in 5c)*	1,266 tCO_2 - 75% of project's expected net CDR (1,693 net tCO_2 - 1,820 gross tCO_2)
Delivery window *(at what point should Frontier consider your contract complete? Should match 2f)*	December 2027
Levelized cost (\$/ton CO_2) *(This is the cost per ton for the project tonnage described above, and should match 6d)*	\$316/tCO_2 We have added a 10% buffer to the costs in (6) to account for additional rigorous research including higher-density soil and water sampling, crop tissue sampling, and testing a novel MRV approach
Levelized price (\$/ton CO_2)[3] *(This is the price per ton of your offer to us for the tonnage described above)*	\$395/tCO_2 Difference between levelized cost and levelized price includes a margin for Silica, part of which will be reinvested in further research

[3] 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 and reflect reductions from co-product revenue if applicable).