QUESTIONS
Impact Goals? → **directly tied to #1 (increase supply) and #4 (encourage talent)**

Who are we paying? Universities? Outside legal entities? → guidelines require teams to identify the legal entity which would be paid in the event of a successful application. Stipulates no payments to individuals, but an academic institution or private registered business are both acceptable

Who are example teams? Research groups? Enterprising undergrads? → We expect mostly groups made up of post grads and PhD students, either within research groups or who self organize into a new business entity. More research groups with existing work for the MRV award are expected. Undergrads not out of scope, but may not have the capability or resources to pursue this type of work.

What are the goals of the student awards?
- Increase participation of young people in carbon removal
- Fund early stage ideas from next gen of carbon removal innovators
- Remove barriers to the competition for students with no money to fund demonstrations

What basis are we selecting awardees? → see "Evaluation" section for each type of award, very light touch but gives an indication of who (third party experts) and what (innovation, scalability, plan, team capabilities, impact)

Process:
1. **April 22** - Carbon Removal POP team registration opens
2. Student creates a POP user profile; gains access to POP
3. Guidelines are posted in XPRIZE Carbon Removal POP environment under "Resources" tab
4. Award applicants must create a team through POP, specific questions aimed at identifying students and which award they are seeking, simple biographical project information input
5. Students complete application, upload through POP activity
   a. **QUESTION: Do student teams need a specific "Award Application Upload" activity. Likely...team activities will be laid out following April 22 sign up roll out.**
6. **October 1, 2021** - Submission deadline
7. **October 4, 2021** - XPRIZE judges begin review process (30 days...is this enough? Stress test how many judges we would need for 50 applicants...100 applicants...250 applicants...1000 applicants)
8. **November 2, 2021** - Student awards announced

XPRIZE CARBON REMOVAL
STUDENT COMPETITION GUIDELINES

The XPRIZE Carbon Removal is a four-year global competition inviting innovators and teams from anywhere on the planet to create and demonstrate solutions that accomplish carbon dioxide removal ("CDR") -- pull carbon dioxide directly from the atmosphere or oceans, ultimately scaling massively to gigaton levels, locking away CO2 permanently in an environmentally benign way.

The XPRIZE Carbon Removal Student Competition is governed by these Student Competition Guidelines. The Competition Guidelines summarize the high-level requirements and rules of the competition.

XPRIZE may revise these Student Competition Guidelines at any time during the course of the competition to provide additional information or to improve the quality of the competition. Unanticipated issues that arise may require modifications to these Student Competition Guidelines. XPRIZE reserves the right to revise these Student Competition Guidelines as it, in its sole discretion, deems necessary. All registered teams will be notified of revisions in a timely manner.

Of the $100M prize purse, XPRIZE will award $5M to student teams in the Fall of 2020. The objectives of this award program are to:
- Increase participation of young people in carbon removal
- Fund early stage ideas from the next generation of carbon removal innovators
- Remove barriers to the competition for students that need funding for their demonstration

These awards may fund participation in the XPRIZE Carbon Removal, as well as the development of key supportive technologies.

Award Areas

1. **College & University Carbon Removal Demonstrations:** Awards of up to $250,000 as seed funding for student teams with carbon removal solutions intending to compete for the Grand Prizes. Student teams will need to make a compelling case to the judges that they will be competitive applicants in the overall competition. Student teams will be required to meet all demonstration requirements outlined in the main competition guidelines.

2. **Measurement, Reporting, and Verification Technologies:** Awards of up to $250,000 for additive technology that may not directly remove CO2, but will enable carbon removal. XPRIZE invites proposals in the following areas:
   a. Technologies and methods which improve the precision, accuracy, and time required for carbon measurement, especially in natural ecosystems.
   b. Methodologies and toolsets which improve the standards of assessment, reporting, and accounting for Life Cycle Analyses (LCA), Cost Modelling, and Techno-Economic Analyses (TEA) of carbon removal solutions.

Eligibility

Student teams may be formed out of existing research groups, student clubs, or they may be independently incorporated, provided they meet the eligibility criteria listed below.

Student Teams must:
- Be composed of >50% students enrolled at an educational institution for the 2021-2022 academic year or show proof of recent completion of the 2020-2021 academic year.
- Be led by a student who is enrolled for the 2021-2022 academic year.
- Identify an academic advisor or business leader who will act as a formal mentor to the team.
- Provide a letter of support from their academic institution. This may come from faculty or an administrator.
- Identify the legal entity to which the award will be paid: This may be the student's academic institution or a registered private organization. XPRIZE cannot award prize money to individuals directly.
- Example student teams could be research groups or extracurricular student groups.

All submissions must be uploaded through the XPRIZE Carbon Removal Prize Operations Portal (POP). Applications transmitted via postal mail, fax, and/or email will not be considered. Applications are due October 1, 2021 at 11:59 PM (Pacific Standard Time).

Please note that applications must be written in English only. Applications written in languages other than English will not be considered for award.

ALL SUBMISSIONS DUE OCTOBER 1, 2021
APPLICANTS AWARDED NOVEMBER 2, 2021

College & University Teams

Awards up to $250,000

Scope: These grants will help finance participation in the XPRIZE Carbon Removal competition. Applicants must register as a competing team and are subject to the rules & regulations of the competition. Please refer to the XPRIZE Carbon Removal Competition Guidelines for more details.

While we expect that proposals for these awards will involve some amount of prior work on carbon removal technologies, **please note that we expect proposals for demonstrations that may not yet exist and would be funded with the award money. An existing demonstration is not a requirement of the student award proposals.**

Proposal Requirements:
1. Applicant Biographies
   Submissions should include a brief biography of each team member and the relevant experience that would contribute to the success of the proposal.

2. Proof of Student Status
   Applicants must provide some documentation proving their enrollment in a full-time at an educational institution for the 2021-2022 academic year.
   a. Upload one of the following:
      i. a scanned copy of each team member's student identification card demonstrating that you will be enrolled in the 2021-2022 academic year.
      ii. a letter from your school's student affairs or admissions office confirming your team member's standing as a full time student for the 2021-2022 academic year.
      iii. Other proof that you are enrolled in a post secondary academic program.

3. Letter of Support
   Applicants must obtain a letter of support from an academic advisor or administrator for inclusion in the proposal.

4. Project Description
   Brief narrative (500w max) describing the project for which you are seeking funding.
   a. Describe how you intend to compete for the XPRIZE Carbon Removal competition.
   b. Describe your demonstration objective for the milestone round (Phase 1) (optional)
      i. What will the Phase 1 demonstration entail?
      ii. Why is the Phase 1 demonstration important?

    c. Describe your demonstration objective for the grand prize
        i. What will the demonstration accomplish?
        ii. Where will it be located?
        iii. Why do you believe this concept is a strong contender for the XPRIZE Carbon Removal?

5. Project Drawings & Supporting Files
    a. Submit a Process Flow Diagram and corresponding Stream Table, or other comparable diagrams, for the proposed XPRIZE Carbon Removal demonstration.
    b. Submit any additional engineering drawings, schematics, or renderings of your project design (for both Phase 1 and Phase 2 of the competition as needed), demonstrating how the process will remove CO_2 from the air or ocean and sequester it durably.
    c. Include any additional charts, diagrams, graphs, spreadsheets, etc. to support the proposal.

6. Literature to Support Approach
Submissions should point to relevant academic literature to support the underlying premise of the proposal.
    a. Cite and summarize any key literature (500 words) that supports the underlying premise of your proposed demonstration.
    b. If any experimental work has been conducted by the team to date, please describe it here.

7. Project Plan including Timeline, Budget, and Key Milestones
Describe the project timeline, milestone schedule, and budget for the duration of the project proposal
    a. Submit a brief narrative (500w max) describing the major milestones.
    b. Submit a detailed project plan (gantt chart or similar), mapping the major milestones onto a timeline.

8. Project Budget
A full project budget must be included, showing how the XPRIZE funds will be used as well as any other funding requirements
    a. What funds are you requesting from XPRIZE? (maximum US$250,000)
    b. Submit a budget narrative (500w) describing the major costs associated with the project, justification of the requested amount and describe how the XPRIZE funds would be used.
    c. If additional funding beyond the XPRIZE award will be required (or if resources have been secured already), describe them here, along with your fundraising strategy.
    d. Submit a detailed budget spreadsheet which breaks the proposed project into subsections and phases (as needed), and shows the resources required for

each.

9. Ability to Execute
   Provide the judges confidence that your team is capable of executing the project
   a. What projects has your team completed in the past which demonstrate your team's ability to complete your proposed project?
   b. What key skills does your team possess?
   c. What mentors or supporting infrastructure does your team have access to support your project?
   d. How will the XPRIZE award guarantee the success of your project?

Evaluation: Expert, third-party judges from business, and government, and academia will review proposals in October 2021. Judges will consider innovation, the ability to reach gigaton scale, team resources and capabilities, and project plan feasibility when evaluating proposals. Judges may reach out for further clarification or additional information if needed.

Conditions of Award: Award payments may be linked to milestones, as defined by the selection committee. Teams must provide progress reports at each milestone. Teams must also provide evidence of IP rights in the form of an MOU countersigned by their university's technology transfer office or other suitable documentation.

Analytical and Measurement Tools

Awards up to $100,000

Scope: These grants will finance development of carbon measurement innovations and novel tool kits which directly benefit the carbon removal space. In particular, we are interested in:
1. Soil GHG monitoring & verification technology
2. Ocean GHG monitoring & verification technology
3. Life Cycle Analysis Tools
4. Techno-Economic Analysis Tools, and specifically methods and tools for estimating cost at scale of early-stage carbon removal solutions.

We expect that proposals for these awards will involve prior work on carbon removal measurement technologies and that these awards will fund further development of these tools.

Submission Requirements:
Proposal Requirements:
1. Applicant Biographies
   Submissions should include a brief biography of each team member and the relevant experience that would contribute to the success of the proposal.

2. Proof of Student Status
   Applicants must provide some documentation proving their enrollment in a full-time at an educational institution for the 2021-2022 academic year.
   a. Upload one of the following:
      i. a scanned copy of each team member's student identification card demonstrating that you will be enrolled in the 2021-2022 academic year.
      ii. a letter from your school's student affairs or admissions office confirming your team member's standing as a full time student for the 2021-2022 academic year.
      iii. Other proof that you are enrolled in a post secondary academic program.

3. Letter of Support
   Applicants must obtain a letter of support from an academic advisor or administrator for inclusion in the proposal.

4. Project Description
   Brief narrative (500w max) describing the project for which you are seeking funding.
   a. Describe the technology you plan to advance with this award, and the final deliverable you will develop.
   b. Describe how the technology will advance the Carbon Dioxide Removal field.

     c. Provide a justification for why this project should be considered a priority for Carbon Removal.

5. Project Drawings & Supporting Files
     a. Submit engineering drawings, schematics, or renderings of your project design which demonstrate your proposed technology and its use.
     b. Include any additional charts, diagrams, graphs, spreadsheets, etc. to support the proposal.

6. Literature to Support Approach
Submissions should point to relevant academic literature to support the underlying premise of the proposal.
     a. Cite and summarize any key literature (500 words) that supports the underlying premise of your proposal, including any studies on the core technology, current state of the art, or describing the need for your proposed technology.
     b. If any experimental work or development has been conducted by the team to date, please describe it here.

7. Project Plan including Timeline, Budget, and Key Milestones
Describe the project timeline, milestone schedule, and budget for the duration of the project proposal
     a. Submit a brief narrative (500w max) describing the major milestones.
     b. Submit a detailed project plan (gantt chart or similar), mapping the major milestones onto a timeline.

8. Project Budget
A full project budget must be included, showing how the XPRIZE funds will be used as well as any other funding requirements
     a. What funds are you requesting from XPRIZE? (maximum US$100,000)
     b. Submit a budget narrative (500w) describing the major costs associated with the project, justification of the requested amount and describe how the XPRIZE funds would be used.
     c. If additional funding beyond the XPRIZE award will be required (or if resources have been secured already), describe them here, along with your fundraising strategy.
     d. Submit a detailed budget spreadsheet which breaks the proposed project into subsections and phases (as needed), and shows the resources required for each.

9. Ability to Execute
Provide the judges confidence that your team is capable of executing the project
     a. What projects has your team completed in the past which demonstrate your team's ability to complete your proposed project?
     b. What key skills does your team possess?

c. What mentors or supporting infrastructure does your team have access to support your project?

d. How will the XPRIZE award guarantee the success of your project?

Evaluation: Expert, third-party judges from academia, business, and government will review proposals in October 2021. Judges will consider innovation, measurement approach, the impact of improved ability to measure carbon removal and sequestration for a given pathway, team resources and capabilities, and project plan feasibility when evaluating proposals. Judges may reach out for further clarification or additional information if needed.

More detailed evaluation criteria will be provided following the selection of the Judging Panel.

Conditions of Award: Award payments may be linked to milestones, as defined by the selection committee. Teams must provide progress reports at each milestone. Teams must also provide evidence of IP rights in the form of an MOU countersigned by their university's technology transfer office or other suitable documentation.

Generic Proposal Sections (to be used to develop POP form)

Proposal Requirements:
1. Applicant Biographies
   Submissions should include a brief biography of each team member and the relevant experience that would contribute to the success of the proposal. (text entry, cap at 500w)

2. Proof of Student Status
   Applicants must provide some documentation proving their enrollment in a full-time at an educational institution for the 2021-2022 academic year.
   a. Upload one of the following: *(file upload)*
      i. a scanned copy of each team member's student identification card demonstrating that you will be enrolled in the 2021-2022 academic year.
      ii. a letter from your school's student affairs or admissions office confirming your team member's standing as a full time student for the 2021-2022 academic year.
      iii. Other proof that you are enrolled in a post secondary academic program.

3. Letter of Support
   Applicants must obtain a letter of support from an academic advisor or administrator for inclusion in the proposal. (file upload)

4. Project Description
   Brief narrative describing the project for which you are seeking funding.
   a. Describe how you intend to compete for the XPRIZE Carbon Removal competition. *(text entry, cap at 500w)*
   b. Describe your demonstration objective for the milestone round (Phase 1) (optional) *(text entry, cap at 500w)*
      i. What will the Phase 1 demonstration entail?
      ii. Why is the Phase 1 demonstration important?
   c. Describe your demonstration objective for the grand prize *(text entry, cap at 500w)*
      i. What will the demonstration accomplish?
      ii. Where will it be located?
      iii. Why do you believe this concept is a strong contender for the XPRIZE Carbon Removal?
   d. Make a case for why your team *(text entry, cap at 250w)*

5. Project Drawings & Supporting Files
   a. Submit a Process Flow Diagram and corresponding Stream Table, or other comparable diagrams, for the proposed XPRIZE Carbon Removal demonstration. *(file upload)*

b. Submit any additional engineering drawings, schematics, or renderings of your project design (for both Phase 1 and Phase 2 of the competition as needed), demonstrating how the process will remove CO2 from the air or ocean and sequester it durably. *(file upload)*

c. Include any additional charts, diagrams, graphs, spreadsheets, etc. to support the proposal. *(file upload)*

6. Literature to Support Approach
   Submissions should point to relevant academic literature to support the underlying premise of the proposal.
   a. Cite and summarize any key literature that supports the underlying premise of your proposed demonstration. *(text entry, cap at 500w)*
   b. If any experimental work has been conducted by the team to date, please describe it here. **(text entry, cap at 250w)**

7. Project Plan including Timeline, Budget, and Key Milestones
   Describe the project timeline, milestone schedule, and budget for the duration of the project proposal
   a. Submit a brief narrative describing the major milestones. **(text entry, cap at 500w)**
   b. Submit a detailed project plan (gantt chart or similar), mapping the major milestones onto a timeline. *(file upload)*

8. Project Budget
   A full project budget must be included, showing how the XPRIZE funds will be used as well as any other funding requirements
   a. What funds are you requesting from XPRIZE? (maximum US$250,000) **(text entry - 6 characters max)**
   b. Submit a budget narrative describing the major costs associated with the project, justification of the requested amount and describe how the XPRIZE funds would be used. **(text entry, cap at 500w)**
   c. If additional funding beyond the XPRIZE award will be required (or if resources have been secured already), describe them here, along with your fundraising strategy. **(text entry, cap at 250w)**
   d. Submit a detailed budget spreadsheet which breaks the proposed project into subsections and phases (as needed), and shows the resources required for each. *(file upload)*

9. Ability to Execute
   Provide the judges confidence that you are capable of executing the project
   a. What projects has your team completed in the past which demonstrate your team's ability to complete your proposed project? **(text entry, cap at 250w)**
   b. What key skills does your team possess? **(text entry, cap at 250w)**

c. What mentors or supporting infrastructure does your team have access to support your project? **(text entry, cap at 250w)**
d. How will the XPRIZE award guarantee the success of your project? **(text entry, cap at 250w)**

Proposal Requirements (old)

1. Applicant Biographies
   a. Submissions should include a brief biography of each team member and the relevant experience that would contribute to the success of the proposal.
2. Proof of Student Status
   a. Applicants must provide some documentation proving their enrollment in a full-time at an educational institution for the 2021-2022 academic year. This could be in the form of:
      i. A scanned copy of your student identification card demonstrating that you will be enrolled in the 2021-2022 academic year.
      ii. A letter from your school's student affairs or admissions office stating that you are enrolled as a full time student for the 2021-2022 academic year.
      iii. Other proof that you are enrolled in a post secondary academic program for the 2021-2022 academic year.
3. Letter of Support
   a. Applicants must obtain a letter of support from an academic advisor or administrator for inclusion in the proposal.
4. Demonstration Description
   a. A brief narrative (500w max) laying out the proposal objectives, impacts, and expected outcomes. Student award applicants should address the XPRIZE Carbon Removal evaluation criteria in their demonstration description.
   b. Demonstration narrative should include any related charts, drawings, diagrams, graphs, spreadsheets, etc. to support the demonstration narrative.
5. Literature to Support Approach
   a. Submissions should point to relevant academic literature to support the underlying premise of the proposal.
6. Project Plan including Timeline, Budget, and Key Milestones
   a. A brief narrative (500w max) describing the project timeline, milestone schedule, and budget for the duration of the project proposal.
   b. Project plan should also include any related charts, graphs, spreadsheets, etc. to support the project plan narrative.
7. Funding Request
   a. Submissions should explicitly call out the funding request made of XPRIZE for the purposes of the proposal and how those funds would be used.
8. Fundraising Strategy
   a. Submissions should identify any funding needs in excess of the XPRIZE Student Awards, as well as a fundraising strategy for raising the remainder of funding necessary for the proposal.