California Energy Commission
April 10, 2025 Business Meeting
Backup Materials for Circularity Fuels, Inc.

The following backup materials for the above-referenced agenda item are available in this PDF packet as listed below:

1. Proposed Resolution
2. Grant Request Form
3. Scope of Work

[PROPOSED]

RESOLUTION NO: 25-0410-11a

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: Circularity Fuels, Inc.

RESOLVED, that the State Energy Resources Conservation and Development Commission (CEC) adopts the staff CEQA findings contained in the Agreement or Amendment Request Form (as applicable); and

RESOLVED, that the CEC approves agreement CRI-24-003 with Circularity Fuels, Inc. for a $1,000,000 grant. This agreement will fund research into the use of a novel self-heating flow-through monolith for direct air capture of carbon dioxide in Redwood City; and

FURTHER BE IT RESOLVED, that the Executive Director or their designee shall execute the same on behalf of the CEC.

CERTIFICATION

The undersigned Secretariat to the CEC does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the CEC held on April 10, 2025.

AYE:
NAY:
ABSENT:
ABSTAIN:

Dated:

_____
Kristine Banaag
Secretariat

STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION

CEC-270 (Revised 01/2024)

GRANT REQUEST FORM (GRF)

A. New Agreement Number

IMPORTANT: New Agreement # to be completed by Contracts, Grants, and Loans Office.

New Agreement Number: CRI-24-003

B. Division Information

1. Division Name: ERDD
2. Agreement Manager: Tannis Abdoli
3. MS-:51
4. Phone Number: (916) 461-5460

C. Recipient's Information

1. Recipient's Legal Name: Circularity Fuels, Inc.
2. Federal ID Number: 93-2156585

D. Title of Project

Title of project: Advancing Scalable and Energy-Efficient Direct Air Capture with Self-Heating Monoliths

E. Term and Amount

1. Start Date: 5/1/2025
2. End Date: 6/30/2027
3. Amount: $1,000,000.00

F. Business Meeting Information

1. Are the ARFVTP agreements $75K and under delegated to Executive Director? No
2. The Proposed Business Meeting Date: 4/10/2025 .
3. Consent or Discussion? Discussion
4. Business Meeting Presenter Name: Maryam Haddad
5. Time Needed for Business Meeting: 5 minutes.
6. The email subscription topic is: Carbon Removal Innovation Support Program (CRISP)

Agenda Item Subject and Description:

Circularity Fuels, Inc. Proposed resolution approving agreement CRI-24-003 with Circularity Fuels, Inc. for a $1,000,000 grant, and adopting staff's recommendation that this action is exempt from CEQA. This agreement will fund research into the use of a novel self-heating flow-through monolith for direct air capture of carbon dioxide in Redwood City. (CRISP funding) Contact: Maryam Haddad

G. California Environmental Quality Act (CEQA) Compliance

1. **Is Agreement considered a "Project" under CEQA?**
   Yes

   If yes, skip to question 2.

2. If Agreement is considered a "Project" under CEQA answer the following questions.

a) Agreement **IS** exempt?

Yes

Statutory Exemption?
No

If yes, list PRC and/or CCR section number(s) and separate each with a comma. If no, enter "None" and go to the next question.

PRC section number: None

CCR section number: None

Categorical Exemption?
Yes

If yes, list CCR section number(s) and separate each with a comma. If no, enter "None" and go to the next question.

CCR section number: 15301 & 15306
CCR section number: Cal. Code Regs., tit. 14, section 15306 provides that basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource are categorically exempt from the provisions of CEQA.

In accordance with 15301, there are no alterations to existing facilities involving negligible or no expansion. The project involves laboratory-based research, development, and testing activities conducted entirely within existing facilities at the Recipients Redwood City headquarters. These activities do not require any new construction, land use changes, or environmental modifications and as such, no permitting is required for this project. All activities are in compliance with local, state, and federal regulations governing laboratory operations. For these reasons, the project does not result in a serious or major disturbance to an environmental resource and the project falls under the categorical exemption 15306 and 15301.

The project will not impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies; does not involve any cumulative impacts of successive projects of the same type in the same place that might be considered significant; does not involve unusual circumstances that might have a significant effect on the environment; will not result in damage to scenic resources within a highway officially designated as a state scenic highway; the project site is not included on any list compiled pursuant to Government Code section 65962.5; and the project will not cause a substantial adverse change in the significance of a historical resource. Therefore, none of the exceptions to categorical exemptions listed in CEQA Guidelines section 15300.2 apply to this project, and this project will not have a significant effect on the environment.

Common Sense Exemption? 14 CCR 15061 (b) (3)
No

If yes, explain reason why Agreement is exempt under the above section. If no, enter "Not applicable" and go to the next section.

Not applicable

b) Agreement **IS NOT** exempt.
IMPORTANT: consult with the legal office to determine next steps.

Not applicable

If yes, answer yes or no to all that applies. If no, list all as "no" and "None" as "yes".

Additional Documents	Applies
Initial Study	No
Negative Declaration	No
Mitigated Negative Declaration	No
Environmental Impact Report	No
Statement of Overriding Considerations	No
None	Yes

H. Is this project considered "Infrastructure"?

No

I. Subcontractors

List all Subcontractors listed in the Budget (s) (major and minor). Insert additional rows if needed. If no subcontractors to report, enter "No subcontractors to report" and "0" to funds. **Delete** any unused rows from the table.

Subcontractor Legal Company Name	CEC Funds	Match Funds
No subcontractors to report	$	**$**

J. Vendors and Sellers for Equipment and Materials/Miscellaneous

List all Vendors and Sellers listed in Budget(s) for Equipment and Materials/Miscellaneous. Insert additional rows if needed. If no vendors or sellers to report, enter "No vendors or sellers to report" and "0" to funds. **Delete** any unused rows from the table.

Vendor/Seller Legal Company Name	CEC Funds	Match Funds
MTI Corporation	**$67,028**	**$0**
W.W. Grainger, Inc.	**$17,739**	**$0**
McMaster-Carr Supply Company	**$16,779**	**$0**

K. Key Partners

List all key partner(s). Insert additional rows if needed. If no key partners to report, enter "No key partners to report." **Delete** any unused rows from the table.

Key Partner Legal Company Name
No key partners to report

L. Budget Information

Include all budget information. Insert additional rows if needed. If no budget information to report, enter "N/A" for "Not Applicable" and "0" to Amount. **Delete** any unused rows from the table.

Funding Source	Funding Year of Appropriation	Budget List Number	Amount
GGRF	23-24	303.307	$ 1,000,000

TOTAL Amount: $ 1,000,000

R&D Program Area: ICMB: IAW

Explanation for "Other" selection Not applicable

Reimbursement Contract #: Not applicable

Federal Agreement #: Not applicable

M. Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Terry Baggett

Address: 2566 Bay Rd

City, State, Zip: Redwood City, CA 94063-3014

Phone: 773-559-3830

E-Mail: terry@circularityfuels.com

3. Recipient's Project Manager

Name: Gaurav Kamat

Address: 2566 Bay Rd

City, State, Zip: Redwood City, CA 94063-3014

Phone: 949-354-1772

E-Mail: gaurav@circularityfuels.com

N. Selection Process Used

There are three types of selection process. List the one used for this GRF.

Selection Process	Additional Information
Competitive Solicitation #	GFO-24-303
First Come First Served Solicitation #	Not applicable
Other	Not applicable

O. Attached Items

1. List all items that should be attached to this GRF by entering "Yes" or "No".

Item Number	Item Name	Attached
1	Exhibit A, Scope of Work/Schedule	Yes
2	Exhibit B, Budget Detail	Yes
3	CEC 105, Questionnaire for Identifying Conflicts	Yes
4	Recipient Resolution	No
5	Awardee CEQA Documentation	Yes

Approved By

Individuals who approve this form must enter their full name and approval date in the MS Word version.

Agreement Manager: Tannis Abdoli

Approval Date: 2/26/2025

Branch Manager: Kevin Uy for Cody Taylor

Approval Date: 2/28/2025

Director: Kevin Uy for Jonah Steinbuck

Approval Date: 2/28/2025

Exhibit A
Scope of Work
Circularity Fuels

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR[1]	Task Name
1		General Project Tasks
2		Construction of 5 kW Electrically Heated Monolith
3		Testing 5 kW Electrically Heated Monolith for 100 Cycles
4	X	Post-Mortem Characterization
5		Construction of 50 kW Electrically Heated Monolith
6		Testing 50 kW Electrically Heated Monolith
7	X	Post-Mortem Characterization
8		Evaluation of Project Benefits
9		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
CPR	Critical Project Review
DAC	Direct Air Capture
SAF	Sustainable Aviation Fuel
TAC	Technical Advisory Committee

II. PURPOSE OF AGREEMENT, PROBLEM/SOLUTION STATEMENT, AND GOALS AND OBJECTIVES

A. Purpose of Agreement

The purpose of this Agreement is to fund the design, development, testing, and demonstration of a novel self-heating monolith substrate for direct air capture (DAC) of carbon dioxide. This advanced technology aims to significantly reduce the energy and water consumption associated with DAC, lower CO_2 capture costs, and enable scalable deployment to achieve California's statutory energy and climate goals.

B. Problem / Solution Statement:

Problem

Direct air capture (DAC) technologies face significant barriers to scalability and cost-effectiveness due to high energy demands, water consumption, and infrastructure complexity. Most commercial DAC systems rely on steam-based regeneration, which consumes 1.6 tons of water per ton of CO_2 captured, increases operational costs, and

[1] Please see subtask 1.3 in Part III of the Scope of Work (General Project Tasks) for a description of Critical Project Review (CPR) Meetings.

shortens the lifespan of sorbent materials. These inefficiencies limit the widespread adoption of DAC as a critical climate mitigation tool. Furthermore, the integration of existing DAC systems with intermittent renewable energy sources remains a challenge, reducing their potential as a grid-responsive carbon removal solution.

Solution
This project addresses these challenges by advancing a proprietary self-heating monolith reactor design for DAC. The system eliminates the need for steam, using resistive heating to reduce energy consumption by 79% compared to conventional systems, bringing regeneration energy requirements below 1,500 kWh/MT CO_2. The technology enhances the durability of amine sorbents by reducing oxidative stress and thermal degradation. By leveraging roll-to-roll manufacturing techniques, the reactor design is scalable and cost-effective, supporting commercial deployment.

The project will demonstrate scalability from 5 kW to 50 kW systems and validate performance under real-world conditions. These reactors will produce water as a byproduct, significantly reducing reliance on fresh water, and deliver high-purity CO_2 for use in synthetic fuels like sustainable aviation fuel (SAF). The ability to operate flexibly as a demand response asset supports California's renewable energy goals by capturing CO_2 during periods of excess renewable energy generation.

C. Goals and Objectives of the Agreement:

Agreement Goals
The goals of this Agreement are to:

- Reduce baseline cost of capture by 30% or greater with a plan to achieve $100/MT of CO_2 equivalents by 2032
- Reduce baseline capture process energy (total of electrical and thermal) by 30% or greater
- Achieve 30% or greater increase in stability over the first 100 cycles and <10% degradation after first 100 cycles of amine capture elements
- Decrease the amount of water required per ton of CO_2 captured
- Increase CO2 purity to achieve <0.5% contaminants in the CO2
- Increase scale 1,000x: resultant reactor >50kW reactor (~50L reactor volume) and CO2 captured from $2.62 \mathrm{L per day}$ to $2600 \mathrm{L per day}$

Ratepayer Benefits:

This Agreement will result in the ratepayer benefits of greater electricity reliability and lower costs by reducing DAC systems' energy consumption and enabling integration with excess renewable energy generation. By utilizing surplus grid power, the technology increases grid stability and decreases electricity costs during periods of high renewable energy supply. Additionally, reducing DAC costs to <$100/MT makes carbon removal economically viable for hard-to-abate sectors, supporting California's carbon neutrality targets.

Technological Advancement and Breakthroughs:

This Agreement will lead to technological advancement and breakthroughs to overcome barriers to the achievement of the State of California's statutory energy goals by demonstrating a novel DAC system with self-heating monolith substrates that eliminate steam usage, reduce energy consumption, and enhance sorbent durability. These breakthroughs lower the cost and environmental footprint of DAC, enabling large-scale deployment. The production of high-purity CO_2 for SAF synthesis contributes to decarbonization across multiple industries, aligning with California's clean energy and carbon neutrality goals.

Agreement Objectives

The objectives of this Agreement are to:

- Design and fabricate two reactors with self-heating monolith substrates at 5 kW and 50 kW scales using roll-to-roll manufacturing techniques.
- Benchmark the 5-kW reactor's performance over 100 cycles, measuring key metrics such as energy consumption, sorbent capacity retention, and CO_2 purity.
- Perform post-mortem characterization of sorbent materials and reactor components to identify degradation mechanisms and inform design improvements.
- Scale up to a 50-kW reactor, validating manufacturability, scalability, and economic feasibility under commercial conditions.
- Integrate and demonstrate the 50-kW reactor with renewable energy sources to support flexible, grid-responsive operation.
- Publish experimental data and findings in peer-reviewed journals and share results with stakeholders through technical reports and workshops.

III. TASK 1 GENERAL PROJECT TASKS

PRODUCTS

Subtask 1.1 Products

The goal of this subtask is to establish the requirements for submitting project products (e.g., reports, summaries, plans, and presentation materials). Unless otherwise specified by the Commission Agreement Manager (CAM), the Recipient must deliver products as required below by the dates listed in the **Project Schedule (Part V).** All products submitted which will be viewed by the public, must comply with the accessibility requirements of Section 508 of the federal Rehabilitation Act of 1973, as amended (29 U.S.C. Sec. 794d), and regulations implementing that act as set forth in Part 1194 of Title 36 of the Federal Code of Regulations**.** All technical tasks should include product(s). Products that require a draft version are indicated by marking **"(draft and final)"** after the product name in the "Products" section of the task/subtask. If "(draft and final)" does not appear after the product name, only a final version of the product is required. With respect to due dates within this Scope of Work, **"days"** means working days.

The Recipient shall:

For products that require a draft version, including the Final Report Outline and Final Report

- Submit all draft products to the CAM for review and comment in accordance with the Project Schedule (Part V). The CAM will provide written comments to the Recipient on

the draft product within 15 days of receipt, unless otherwise specified in the task/subtask for which the product is required.

- Consider incorporating all CAM comments into the final product. If the Recipient disagrees with any comment, provide a written response explaining why the comment was not incorporated into the final product.
- Submit the revised product and responses to comments within 10 days of notice by the CAM, unless the CAM specifies a longer time period, or approves a request for additional time.

For products that require a final version only

- Submit the product to the CAM for acceptance. The CAM may request minor revisions or explanations prior to acceptance.

For all products

- Submit all data and documents required as products in accordance with the following:

Instructions for Submitting Electronic Files and Developing Software:

- **Electronic File Format**
  - Submit all data and documents required as products under this Agreement in an electronic file format that is fully editable and compatible with the California Energy Commission's (CEC) software and Microsoft (MS)-operating computing platforms, or with any other format approved by the CAM. Deliver an electronic copy of the full text of any Agreement data and documents in a format specified by the CAM, such as memory stick.

  The following describes the accepted formats for electronic data and documents provided to the CEC as products under this Agreement, and establishes the software versions that will be required to review and approve all software products:
  - Data sets will be in MS Access or MS Excel file format (version 2007 or later), or any other format approved by the CAM.
  - Text documents will be in MS Word file format, version 2007 or later.
  - Project management documents will be in Microsoft Project file format, version 2007 or later.

- **Software Application Development**
  Use the following standard Application Architecture components in compatible versions for any software application development required by this Agreement (e.g., databases, models, modeling tools), unless the CAM approves other software applications such as open-source programs:
  - Microsoft ASP.NET framework (version 3.5 and up). Recommend 4.0.
  - Microsoft Internet Information Services (IIS), (version 6 and up) Recommend 7.5.
  - Visual Studio.NET (version 2008 and up). Recommend 2010.
  - C# Programming Language with Presentation (UI), Business Object and Data Layers.
  - SQL (Structured Query Language).
  - Microsoft SQL Server 2008, Stored Procedures. Recommend 2008 R2.
  - Microsoft SQL Reporting Services. Recommend 2008 R2.

- XML (external interfaces).

Any exceptions to the Electronic File Format requirements above must be approved in writing by the CAM. The CAM will consult with the CEC's Information Technology Services Branch to determine whether the exceptions are allowable.

MEETINGS

Subtask 1.2 Kick-off Meeting

The goal of this subtask is to establish the lines of communication and procedures for implementing this Agreement.

The Recipient shall:

- Attend a "Kick-off" meeting with the CAM, and other CEC staff relevant to the Agreement. The Recipient's Project Manager and any other individuals deemed necessary by the CAM or the Project Manager shall participate in this meeting. The administrative and technical aspects of the Agreement will be discussed at the meeting. Prior to the meeting, the CAM will provide an agenda to all potential meeting participants. The meeting may take place in person or by electronic conferencing (e.g., Teams, Zoom), with approval of the CAM.

  The Kick-off meeting will include discussion of the following:
  - The CAM's expectations for accomplishing tasks described in the Scope of Work;
  - An updated Project Schedule;
  - Terms and conditions of the Agreement;
  - Invoicing and auditing procedures;
  - Travel;
  - Equipment purchases;
  - Administrative and Technical products (subtask 1.1);
  - CPR meetings (subtask 1.3);
  - Monthly Calls (subtask 1.5)
  - Quarterly Progress reports (subtask 1.6)
  - Final Report (subtask 1.7)
  - Match funds (subtask 1.8);
  - Permit documentation (subtask 1.9);
  - Subawards(subtask 1.10);
  - Technical Advisory Committee meetings (subtasks 1.11 and 1.12);
  - Agreement changes;
  - Performance Evaluations; and
  - Any other relevant topics.

- Provide *Kick-off Meeting Presentation* to include but not limited to:
  - Project overview (i.e. project description, goals and objectives, technical tasks, expected benefits, etc.)
  - Project schedule that identifies milestones
  - List of potential risk factors and hurdles, and mitigation strategy

- Provide an *Updated Project Schedule, Match Funds Status Letter,* and *Permit Status Letter*, as needed to reflect any changes in the documents.

The CAM shall:
- Designate the date and location of the meeting.
- Send the Recipient a *Kick-off Meeting Agenda*.

Recipient Products:
- Kick-off Meeting Presentation
- Updated Project Schedule *(if applicable)*
- Match Funds Status Letter (subtask 1.7) *(if applicable)*
- Permit Status Letter (subtask 1.8) *(if applicable)*

CAM Product:
- Kick-off Meeting Agenda

Subtask 1.3 Critical Project Review (CPR) Meetings
The goal of this subtask is to determine if the project should continue to receive CEC funding, and if so whether any modifications must be made to the tasks, products, schedule, or budget. CPR meetings provide the opportunity for frank discussions between the CEC and the Recipient. As determined by the CAM, discussions may include project status, challenges, successes, advisory group findings and recommendations, final report preparation, and progress on technical transfer and production readiness activities (if applicable). Participants will include the CAM and the Recipient and may include the CAO and any other individuals selected by the CAM to provide support to the CEC.

CPR meetings generally take place at key, predetermined points in the Agreement, as determined by the CAM and as shown in the Task List on page 1 of this Exhibit.
However, the CAM may schedule additional CPR meetings as necessary. The budget may be reallocated to cover the additional costs borne by the Recipient, but the overall Agreement amount will not increase. CPR meetings generally take place at the CEC, but they may take place at another location, or may be conducted via electronic conferencing (e.g., WebEx) as determined by the CAM.

The Recipient shall:
- Prepare and submit a *CPR Report* for each CPR meeting that: (1) discusses the progress of the Agreement toward achieving its goals and objectives; and (2) includes recommendations and conclusions regarding continued work on the project.
- Attend the CPR meeting.
- Present the CPR Report and any other required information at each CPR meeting.

The CAM shall:
- Determine the location, date, and time of each CPR meeting with the Recipient's input.
- Send the Recipient a *CPR Agenda* with a list of expected CPR participants in advance of the CPR meeting. If applicable, the agenda may include a discussion of match funding and permits.
- Conduct and make a record of each CPR meeting. Provide the Recipient with a schedule for providing a Progress Determination on continuation of the project.
- Determine whether to continue the project, and if so whether modifications are needed to the tasks, schedule, products, or budget for the remainder of the Agreement. A determination of unsatisfactory progress This may result in project delays, including a

potential Stop Work Order, while the CEC determines whether the project should continue.
- Provide the Recipient with a *Progress Determination* on continuation of the project, in accordance with the schedule. The Progress Determination may include a requirement that the Recipient revise one or more products.

Recipient Products:
- CPR Report(s)

CAM Products:
- CPR Agenda(s)
- Progress Determination

Subtask 1.4 Final Meeting
The goal of this subtask is to complete the closeout of this Agreement.

The Recipient shall:
- Meet with CEC staff to present project findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement. This meeting will be attended by the Recipient and CAM, at a minimum. The meeting may occur in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.

  The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be divided into two separate meetings at the CAM's discretion.
  - The technical portion of the meeting will involve the presentation of findings, conclusions, and recommended next steps (if any) for the Agreement. The CAM will determine the appropriate meeting participants.
  - The administrative portion of the meeting will involve a discussion with the CAM of the following Agreement closeout items:
    - Disposition of any procured equipment.
    - The CEC's request for specific "generated" data (not already provided in Agreement products).
    - Need to document the Recipient's disclosure of "subject inventions" developed under the Agreement.
    - "Surviving" Agreement provisions such as repayment provisions and confidential products.
    - Final invoicing and release of retention.
- Prepare a *Final Meeting Agreement Summary* that documents any agreement made between the Recipient and Commission staff during the meeting.
- Prepare a *Schedule for Completing Agreement Closeout Activities*.
- Provide copies of *All Final Products* organized by the tasks in the Agreement.

Products:
- Final Meeting Agreement Summary *(if applicable)*
- Schedule for Completing Agreement Closeout Activities
- All Final Products

MONTHLY CALLS, REPORTS AND INVOICES

Subtask 1.5 Monthly Calls

The goal of this task is to have calls at least monthly between the CAM and Recipient to verify that satisfactory and continued progress is made towards achieving the objectives of this Agreement on time and within budget.

The objectives of this task are to verbally summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, to verify match funds are being proportionally spent concurrently or in advance of CEC funds or are being spent in accordance with an approved Match Funding Spending Plan, to form the basis for determining whether invoices are consistent with work performed, and to answer any other questions from the CAM. Monthly calls might not be held on those months when a quarterly progress report is submitted, or the CAM determines that a monthly call is unnecessary.

The CAM shall:

- Schedule monthly calls.
- Provide questions to the Recipient prior to the monthly call.
- Provide call summary notes to Recipient of items discussed during call.

The Recipient shall:

- Review the questions provided by CAM prior to the monthly call
- Provide verbal answers to the CAM during the call.

Product:

- Email to CAM concurring with call summary notes.

Subtask 1.6 Quarterly Progress Reports and Invoices

The goals of this subtask are to: (1) periodically verify that satisfactory and continued progress is made towards achieving the project objectives of this Agreement; and (2) ensure that invoices contain all required information and are submitted in the appropriate format.

The Recipient shall:

- Submit a *Quarterly Progress Report* to the CAM. Each progress report must:
  - Summarize progress made on all Agreement activities as specified in the scope of work for the reporting period, including accomplishments, problems, milestones, products, schedule, fiscal status, and an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Progress reports are due to the CAM the 10th day of each January, April, July, and October. The Quarterly Progress Report template can be found on the ECAMS Resources webpage available at: https://www.energy.ca.gov/media/4691
- Submit a monthly or quarterly *Invoice* on the invoice template(s) provided by the CAM.

Recipient Products:

- Quarterly Progress Reports
- Invoices

CAM Product:
- Invoice template

Subtask 1.7 Final Report
The goal of this subtask is to prepare a comprehensive Final Report that describes the original purpose, approach, results, and conclusions of the work performed under this Agreement. When creating the Final Report Outline and the Final Report, the Recipient must use the CEC Style Manual provided by the CAM.

Subtask 1.7.1 Final Report Outline

The Recipient shall:
- Prepare a *Final Report Outline* in accordance with the *Energy Commission Style Manual* provided by the CAM.

Recipient Products:
- Final Report Outline (draft and final)

CAM Products:
- Energy Commission Style Manual
- Comments on Draft Final Report Outline
- Approval of Final Report Outline

Subtask 1.7.2 Final Report

The Recipient shall:
- Prepare a *Final Report* for this Agreement in accordance with the approved Final Report Outline, Energy Commission Style Manual, and Final Report Template provided by the CAM with the following considerations:
  - Ensure that the report includes the following items, in the following order:
    - Cover page (**required**)
    - Credits page on the reverse side of cover with legal disclaimer (**required**)
    - Acknowledgements page (optional)
    - Preface (**required**)
    - Abstract, keywords, and citation page (**required**)
    - Table of Contents (**required**, followed by List of Figures and List of Tables, if needed)
    - Executive summary (**required**)
    - Body of the report (**required**)
    - References (if applicable)
    - Glossary/Acronyms (If more than 10 acronyms or abbreviations are used, it is required.)
    - Bibliography (if applicable)
    - Appendices (if applicable) (Create a separate volume if very large.)
    - Attachments (if applicable)
- Submit a draft of the Executive Summary to the TAC for review and comment.
- Develop and submit a *Summary of TAC Comments on Draft Final Report* received on the Executive Summary. For each comment received, the Recipient will identify in the summary the following:

  - Comments the Recipient proposes to incorporate.
  - Comments the Recipient does propose to incorporate and an explanation for why.
- Submit a draft of the report to the CAM for review and comment. The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt.
- Incorporate all CAM comments into the *Final Report*. If the Recipient disagrees with any comment, provide a *Written Responses to Comments* explaining why the comments were not incorporated into the final product.
- Submit the revised *Final Report* electronically with any Written Responses to Comments within 10 days of receipt of CAM's Written Comments on the Draft Final Report, unless the CAM specifies a longer time period or approves a request for additional time.

Products:
- Summary of TAC Comments on Draft Final Report
- Draft Final Report
- Written Responses to Comments *(if applicable)*
- Final Report

CAM Product:
- Written Comments on the Draft Final Report

MATCH FUNDS, PERMITS, AND SUBAWARDS

Subtask 1.8 Match Funds

The goal of this subtask is to ensure that the Recipient obtains any match funds planned for this Agreement and applies them to the Agreement during the Agreement term.

While the costs to obtain and document match funds are not reimbursable under this Agreement, the Recipient may spend match funds for this task. Match funds must be identified in writing, and the Recipient must obtain any associated commitments before incurring any costs for which the Recipient will request reimbursement.

The Recipient shall:
- Prepare a *Match Funds Status Letter* that documents the match funds committed to this Agreement. If no match funds were part of the application that led to the CEC awarding this Agreement and none have been identified at the time this Agreement starts, then state this in the letter.

  If match funds were a part of the application that led to the CEC awarding this Agreement, then provide in the letter:
  - A list of the match funds that identifies:
    - The amount of cash match funds, their source(s) (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied.
    - The amount of each in-kind contribution, a description of the contribution type (e.g., property, services), the documented market or book value, the source (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient must identify its owner and provide a contact name, address, telephone number, and the address where the property is located.

    - If different from the solicitation application, provide a letter of commitment from an authorized representative of each source of match funding that the funds or contributions have been secured.
- At the Kick-off meeting, discuss match funds and the impact on the project if they are significantly reduced or not obtained as committed. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide a *Supplemental Match Funds Notification Letter* to the CAM of receipt of additional match funds.
- Provide a *Match Funds Reduction Notification Letter* to the CAM if existing match funds are reduced during the course of the Agreement. Reduction of match funds may trigger a CPR meeting.

Products:
- Match Funds Status Letter
- Supplemental Match Funds Notification Letter *(if applicable)*
- Match Funds Reduction Notification Letter *(if applicable)*

Subtask 1.9 Permits
The goal of this subtask is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track. Permit costs and the expenses associated with obtaining permits are not reimbursable under this Agreement, with the exception of costs incurred by University of California recipients. Permits must be identified and obtained before the Recipient may incur any costs related to the use of the permit(s) for which the Recipient will request reimbursement.

The Recipient shall:
- Prepare a *Permit Status Letter* that documents the permits required to conduct this Agreement. If no permits are required at the start of this Agreement, then state this in the letter. If permits will be required during the course of the Agreement, provide in the letter:
    - A list of the permits that identifies: (1) the type of permit; and (2) the name, address, and telephone number of the permitting jurisdictions or lead agencies.
    - The schedule the Recipient will follow in applying for and obtaining the permits.

  The list of permits and the schedule for obtaining them will be discussed at the Kick-off meeting (subtask 1.2), and a timetable for submitting the updated list, schedule, and copies of the permits will be developed. The impact on the project if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in progress reports and will be a topic at CPR meetings.
- If during the course of the Agreement additional permits become necessary, then provide the CAM with an *Updated List of Permits* (including the appropriate information on each permit) and an *Updated Schedule for Acquiring Permits*.
- Send the CAM a *Copy of Each Approved Permit*.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM within 5 days. Either of these events may trigger a CPR meeting.

Products:
- Permit Status Letter
- Updated List of Permits *(if applicable)*
- Updated Schedule for Acquiring Permits *(if applicable)*

- Copy of Each Approved Permit *(if applicable)*

Subtask 1.10 Obtain and Execute Subawards and Agreements with Site Hosts
The goals of this subtask are to: (1) procure and execute subrecipients and site host agreements, as applicable, required to carry out the tasks under this Agreement; and (2) ensure that the subrecipients and site host agreements are consistent with the Agreement terms and conditions and the Recipient's own contracting policies and procedures.

The Recipient shall:
- Execute and manage subawards and coordinate subrecipients activities in accordance with the requirements of this Agreement.
- Incorporate this Agreement by reference into each subaward.
- Include any required Energy Commission flow-down provisions in each subaward, in addition to a statement that the terms of this Agreement will prevail if they conflict with the subaward terms.
- Submit a *Subaward and Site Letter* to the CAM describing the subawards and any site host agreement needed or stating that no subawards or site host agreements are required.
- If requested by the CAM, submit a draft of each *Subaward* and any *Site Host Agreement* required to conduct the work under this Agreement.
- If requested by the CAM, submit a final copy of each executed *Subaward* and any *Site Host Agreement*.

Notify and receive written approval from the CAM prior to adding any new subrecipient (see the terms regarding subrecipient additions in the terms and conditions)

Products:
- Subaward and Site Letter (*if applicable)*
- Draft Subawards *(if requested by the CAM)*
- Draft Site Host Agreement *(if requested by the CAM)*
- Final Subawards *(if requested by the CAM)*
- Final Site Host Agreement *(if requested by the CAM)*

TECHNICAL ADVISORY COMMITTEE

Subtask 1.11 Technical Advisory Committee (TAC)
The goal of this subtask is to create an advisory committee for this Agreement. The TAC should be composed of diverse professionals. The composition will vary depending on interest, availability, and need. TAC members will serve at the CAM's discretion. The purpose of the TAC is to:
- Provide guidance in project direction. The guidance may include scope and methodologies, timing, and coordination with other projects. The guidance may be based on:
  - Technical area expertise;
  - Knowledge of market applications; or
  - Linkages between the Agreement work and other past, present, or future projects (both public and private sectors) that TAC members are aware of in a particular area.
- Review products and provide recommendations for needed product adjustments, refinements, or enhancements.
- Evaluate the tangible benefits of the project to the state of California, and provide recommendations as needed to enhance the benefits.

- Provide recommendations regarding information dissemination, market pathways, or commercialization strategies relevant to the project products.
- Help set the project team's goals and contribute to the development and evaluation of its statement of proposed objectives as the project evolves.
- Provide a credible and objective sounding board on the wide range of technical and financial barriers and opportunities.
- Help identify key areas where the project has a competitive advantage, value proposition, or strength upon which to build.
- Advocate, to the extent the TAC members feel is appropriate, on behalf of the project in its effort to build partnerships, governmental support, and relationships with a national spectrum of influential leaders.
- Ask probing questions that ensure a long-term perspective on decision-making and progress toward the project's strategic goals.

The TAC may be composed of qualified professionals spanning the following types of disciplines:

- Researchers knowledgeable about the project subject matter;
- Members of trades that will apply the results of the project (e.g., designers, engineers, architects, contractors, and trade representatives);
- Public interest market transformation implementers;
- Product developers relevant to the project;
- U.S. Department of Energy research managers, or experts from other federal or state agencies relevant to the project;
- Public interest environmental groups;
- Utility representatives;
- Air district staff; and
- Members of relevant technical society committees.

The Recipient shall:

- Prepare a *List of Potential TAC Members* that includes the names, companies, physical and electronic addresses, and phone numbers of potential members. The list will be discussed at the Kick-off meeting, and a schedule for recruiting members and holding the first TAC meeting will be developed.
- Recruit TAC members. Ensure that each individual understands member obligations and the TAC meeting schedule developed in subtask 1.12.
- Prepare a *List of TAC Members* once all TAC members have committed to serving on the TAC.
- Submit *Documentation of TAC Member Commitment* (such as Letters of Acceptance) from each TAC member.

Products:

- List of Potential TAC Members
- List of TAC Members
- Documentation of TAC Member Commitment

Subtask 1.12 TAC Meetings

The goal of this subtask is for the TAC to provide strategic guidance for the project by participating in regular meetings, which may be held via teleconference.

Exhibit A
Scope of Work
Circularity Fuels

The Recipient shall:

- Discuss the TAC meeting schedule with the CAM at the Kick-off meeting. Determine the number and location of meetings (in-person and via teleconference) in consultation with the CAM.
- Prepare a *TAC Meeting Schedule* that will be presented to the TAC members during recruiting. Revise the schedule after the first TAC meeting to incorporate meeting comments.
- Prepare a *TAC Meeting Agenda* and *TAC Meeting Back-up Materials* for each TAC meeting.
- Organize and lead TAC meetings in accordance with the TAC Meeting Schedule. Changes to the schedule must be pre-approved in writing by the CAM.
- Prepare *TAC Meeting Summaries* that include any recommended resolutions of major TAC issues.

The TAC shall:

- Help set the project team's goals and contribute to the development and evaluation of its statement of proposed objectives as the project evolves.
- Provide a credible and objective sounding board on the wide range of technical and financial barriers and opportunities.
- Help identify key areas where the project has a competitive advantage, value proposition, or strength upon which to build.
- Advocate on behalf of the project in its effort to build partnerships, governmental support and relationships with a national spectrum of influential leaders.
- Ask probing questions that ensure a long-term perspective on decision-making and progress toward the project's strategic goals.
- Review and provide comments to proposed project performance metrics.
- Review and provide comments to proposed project Draft Technology Transfer Plan.

Products:

- TAC Meeting Schedule (draft and final)
- TAC Meeting Agendas (draft and final)
- TAC Meeting Back-up Materials
- TAC Meeting Summaries

Subtask 1.13 Project Performance Metrics

The goal of this subtask is to finalize key performance targets for the project based on feedback from the TAC and report on final results in achieving those targets. The performance targets should be a combination of scientific, engineering, techno-economic, and/or programmatic metrics that provide the most significant indicator of the research or technology's potential success.

The Recipient shall:

- Complete and submit the project performance metrics section of the *Initial Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task, to the CAM.
- Present the draft project performance metrics at the first TAC meeting to solicit input and comments from the TAC members.

- Develop and submit a *TAC Performance Metrics Summary* that summarizes comments received from the TAC members on the proposed project performance metrics. The *TAC Performance Metrics Summary* will identify:
    - TAC comments the Recipient proposes to incorporate into the *Initial Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task.
    - TAC comments the Recipient does not propose to incorporate with and explanation why.
- Develop and submit a *Project Performance Metrics Results* document describing the extent to which the Recipient met each of the performance metrics in the *Final Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task.
- Discuss the *Project Performance Metrics Results* at the Final Meeting.

Products:
- TAC Performance Metrics Summary
- Project Performance Metrics Results

IV. TECHNICAL TASKS

TASK 2 CONSTRUCTION OF 5 KW ELECTRICALLY HEATED MONOLITH

The goal of this task is to design, fabricate, and assemble a 5 kW prototype of the self-heated monolith reactor using scalable roll-to-roll manufacturing techniques. This reactor will serve as the foundational unit for testing and validating energy efficiency, operational stability, and scalability.

The Recipient shall:
- Develop and Submit a *Fabrication Plan*
  Prepare a detailed plan that includes the materials, processes, and quality assurance steps for constructing the 5-kW reactor. The plan will describe roll-to-roll manufacturing methods, assembly techniques, and sorbent coating processes.
- Procure Materials and Components
  Acquire all necessary materials such as FeCrAl substrates, resistive heating elements, alumina powder, and amine solutions. Ensure compatibility with reactor design and document specifications.
- Construct the 5 kW Reactor
  Assemble the reactor using roll-to-roll fabrication methods. Integrate resistive heating elements and coat the monolith with sorbent materials.
- Conduct Initial Quality Control Tests
  Validate the structural integrity, heating uniformity, and electrical functionality of the reactor. Perform tests to ensure compliance with design specifications.
- Prepare and Submit a *Fabrication Summary Report*
  Document the construction process, challenges encountered, solutions implemented, and lessons learned. Include diagrams, quality control data, and recommendations for future improvements.

Products:
- Fabrication Plan
- Fabrication Summary Report

TASK 3 TESTING 5 KW ELECTRICALLY HEATED MONOLITH FOR 100 CYCLES
The goal of this task is to evaluate the 5-kW reactor's performance and durability through 100 DAC cycles, replicating real-world environmental conditions to validate energy efficiency, sorbent stability, and CO_2 capture performance.

The Recipient shall:

- Develop and Submit a *Test Plan*
  Outline testing objectives, procedures, environmental conditions, and data collection methods. Include specifications for instrumentation, performance metrics, and operational parameters.
- Set Up the Testbed
  Install the 5-kW reactor in a controlled environment. Integrate precision humidifiers, mass flow controllers, thermocouples, and data logging systems to monitor performance metrics.
- Conduct 100 DAC Cycles
  Operate the reactor under diurnal humidity conditions. Record energy consumption, sorbent retention, heat transfer efficiency, and CO_2 purity.
- Analyze Performance Data
  Use advanced analytical methods to assess performance trends, degradation mechanisms, and efficiency improvements.
- Prepare and Submit a *Testing Summary Report*
  Summarize findings, including performance metrics, insights into degradation, and recommendations for reactor optimization.

Products:

- Test Plan
- Testing Summary Report

TASK 4 POST-MORTEM CHARACTERIZATION
The goal of this task is to analyze the 5 kW reactor's components post-testing to identify material degradation mechanisms and provide recommendations for design and material improvements.

The Recipient shall:

- Develop and Submit a *Post-Mortem Characterization Plan*
  Specify methods and objectives for analyzing the reactor, including microscopy, spectroscopy, and thermal stress assessments.
- Disassemble the Reactor
  Extract components such as sorbent layers, substrates, and heating elements for detailed analysis.
- Perform Advanced Characterization
  Use techniques like scanning electron microscopy, X-ray photoelectron spectroscopy (XPS), and thermal analysis to assess structural and chemical integrity.
- Prepare and Submit a *Post-Mortem Analysis Report*
  Summarize findings on material degradation, wear patterns, and structural changes. Include recommendations for enhancing reactor durability and performance.
- Prepare and submit a *CPR Report #1*.

- Attend the CPR meeting per subtask 1.3.

Products:
- Post-Mortem Characterization Plan
- Post-Mortem Analysis Report
- CPR #1 Report

TASK 5 CONSTRUCTION OF 50 KW ELECTRICALLY HEATED MONOLITH
The goal of this task is to scale up the monolith reactor design to a 50-kW capacity, incorporating insights from the 5-kW prototype to optimize manufacturability and performance.

The Recipient shall:
- Develop and Submit a *Scaling and Fabrication Plan*
  Outline construction steps for the 50-kW reactor, addressing scaling challenges, material selection, and quality assurance protocols.
- Procure Materials and Components
  Acquire components for the scaled design, ensuring compatibility with the reactor's operational requirements.
- Construct the 50-kW Reactor
  Assemble the reactor using enhanced manufacturing techniques to achieve uniform heating and structural stability.
- Conduct Initial Stress Testing
  Validate the reactor's performance through preliminary tests, ensuring readiness for extended testing.
- Prepare and Submit a *Fabrication Summary Report* that will include but is not limited to, construction process, challenges encountered, and lessons learned during scaling.

Products:
- Scaling and Fabrication Plan
- Fabrication Summary Report

TASK 6 TESTING 50 KW ELECTRICALLY HEATED MONOLITH
The goal of this task is to test the 50-kW reactor under conditions representative of commercial DAC operations to validate scalability, energy efficiency, and operational stability.

The Recipient shall:
- Develop and Submit a *Test Plan*
  Describe the testing methodology, performance metrics, and environmental conditions for evaluating the 50-kW reactor.
- Set Up the Test Environment
  Install the reactor in a commercial-grade testbed with advanced monitoring and data collection systems.
- Conduct Extended Testing
  Operate the reactor over prolonged periods to measure energy use, CO_2 capture rates, and sorbent performance under commercial conditions.
- Analyze Results
  Use modeling and data analysis to assess performance trends and validate scalability.

- Prepare and Submit a *Testing Summary Report* that will include but is not limited to, test results, including key performance metrics, data analysis, and conclusions.

Products:
- Test Plan
- Testing Summary Report

TASK 7 POST-MORTEM CHARACTERIZATION
The goal of this task is to evaluate the 50-kW reactor's performance post-testing to identify wear patterns, degradation mechanisms, and potential design improvements.

The Recipient shall:
- Develop and Submit a *Post-Mortem Characterization Plan*
  Specify methods for assessing structural and chemical changes in the reactor's components.
- Disassemble the Reactor
  Extract and preserve reactor components for detailed analysis.
- Perform Advanced Characterization
  Use analytical techniques to evaluate material and structural changes due to operational stress.
- Prepare and Submit a *Post-Mortem Analysis Report*
  Present findings on material wear, thermal stress, and degradation, with recommendations for further improvements.
- Prepare and submit a *CPR Report #2.*
- Attend the CPR meeting per subtask 1.3.

Products:
- Post-Mortem Characterization Plan
- Post-Mortem Analysis Report
- CPR #2 Report

TASK 8: EVALUATION OF PROJECT BENEFITS
The goal of this task is to report the benefits resulting from this project.

The Recipient shall:
- Complete the *Initial Project Benefits Questionnaire*. The Initial Project Benefits Questionnaire shall be initially completed by the Recipient with 'Kick-off' selected for the 'Relevant data collection period' and submitted to the CAM for review and approval.
- Complete the *Annual Survey* by January 31st of each year. The Annual Survey includes but is not limited to the following information:
  - Technology commercialization progress
  - New media and publications
  - Company growth
  - Follow-on funding and awards received
- Complete the *Final Project Benefits Questionnaire*. The Final Project Benefits Questionnaire shall be completed by the Recipient with 'Final' selected for the 'Relevant data collection period' and submitted to the CAM for review and approval.

- Respond to CAM questions regarding the questionnaire drafts.
- Complete and update the project profile on the CEC's public online project and recipient directory on the Energize Innovation website (www.energizeinnovation.fund), and provide *Documentation of Project Profile on EnergizeInnovation.fund*, including the profile link.
- If the Prime Recipient is an Innovation Partner on the project, complete and update the organizational profile on the CEC's public online project and recipient directory on the Energize Innovation website (www.energizeinnovation.fund), and provide *Documentation of Organization Profile on EnergizeInnovation.fund*, including the profile link.

Products:

- Initial Project Benefits Questionnaire
- Annual Survey(s)
- Final Project Benefits Questionnaire
- Documentation of Project Profile on EnergizeInnovation.fund
- Documentation of Organization Profile on EnergizeInnovation.fund

TASK 9: Life Cycle Assessment (LCA), Techno-Economic analysis (TEA) and Community Benefits Plan

The goal of this task is to evaluate the impact of the proposed project on techno-economics and the environment by conducting a Life Cycle Assessment (LCA) and a Techno-Economic Analysis (TEA). Additionally, the recipient will create a preliminary community education and outreach plan for the proposed DAC prototype. The outcomes of these analyses will then be broadly disseminated to demonstrate the efficacy of deploying this technology within the California DAC sector.

The Recipient shall:

- Use published protocols to develop TEA and LCA models.
- Incorporate performance and manufacturing data into TEA and LCA models
- Assess the techno-economic and environmental impacts of this project on the recipient's technology platform
- Prepare a *TEA Report* and an *LCA Report* to be delivered to the industrial partner and CEC.
- Discuss the outcomes of TEA and LCA analyses with the industrial partner to detect/identify any new roadblocks to on-site deployment at batch plants uncovered through these analyses and include findings in the Mitigation Plans Memo.
- Prepare a *Mitigation Plans Memo* that addresses any risks or no-go issues uncovered through TEA and LCA.
- Create a *Community Benefits Plan Development Proposal* (CBPDP) as a part of their final deliverables upon the completion of the project. This CBPDP must include but not limited to:
    - project's plan for outreach and engagement, including community partners

- a list of community partners for future outreach and engagement
- a list of potential impacts, including waste-water and any other pollutants, from operating the Recipient's DAC systems
- approaches for negotiating future Community Benefits Agreements and integrating stakeholder and community feedback to develop and improve ongoing engagement
- approaches for negotiating CBP's, including one-on-one conversations with other carbon removal companies that have already negotiated CBP's

Products:

- TEA Report
- LCA Report
- Mitigation Plans Memo
- Community Benefits Plan Development Proposal

TASK 10: TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

The goal of this task is to conduct activities that will accelerate the commercial adoption of the technology being supported under this agreement. Eligible activities include, but are not limited to, the following:

- Scale-up analysis including manufacturing analysis, independent design verification, and process improvement efforts.
- Technology verification testing, or application to a test bed program located in California.
- Legal services or licensing to secure necessary intellectual property to further develop the technology
- Market research, business plan development, and cost-performance modeling.
- Entry into an incubator or accelerator program located in California.

The Recipient Shall:

- Develop and submit a *Technology Transfer Plan* that identifies the proposed activities the recipient will conduct to accelerate the successful commercial adoption of the technology.
- Present the draft *Technology Transfer Plan* to the TAC for feedback and comments.
- Develop and submit a *Summary of TAC Comments* that summarizes comments received from the TAC members on the Draft Technology Transfer Plan. This document will identify:
  - TAC comments the Recipient proposes to incorporate into the final *Technology Transfer Plan*.
  - TAC comments the Recipient does not propose to incorporate into the final *Technology Transfer Plan* with an explanation why not.
- Submit the final *Technology Transfer Plan* to the CAM for approval.
- Implement activities identified in final *Technology Transfer Plan*.
- Develop and submit a *Technology Transfer Summary Report* that includes high level summaries of the activities, results, and lessons learned of tasks performed relating to implementing the Final Technology Transfer Plan. This report should not include any proprietary information.

- When directed by the CAM, develop presentation materials for an CEC- sponsored conference/workshop(s) on the project.
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the CEC.
- Provide at least (6) six *High Quality Digital Photographs* (minimum resolution of 1300x500 pixels in landscape ratio) of pre and post technology installation at the project sites or related project photographs.

Products:

- Technology Transfer Plan (draft and final)
- Summary of TAC Comments
- Technology Transfer Summary Report (draft and final)
- High Quality Digital Photographs

V. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.