UC Merced Climate Action Innovation and Entrepreneurship Proof of Concept Funds
Spring 2024 Request for Proposals

Section 1. Summary of Grant Program

Program Synopsis

Early-stage innovations stemming from university research are often perceived as too uncertain or too risky to attract funding to translate into commercial products or services that solve real societal problems. The lack of accessible funding creates a gap between basic research and early-stage commercialization efforts. "Proof of Concept" funds help to bridge this gap by providing funding and resources to translate fundamental research with commercial potential by demonstrating proof-of-concept and establishing market viability, thus de-risking the innovation.

The State of California has designated $100 million to the University of California Office of the President (UCOP), per AB 179, for climate action to address critical needs of the state. The Office of Research and Economic Development (ORED) is pleased to announce that UCOP has awarded $500k of these funds to the UC Merced Vice Chancellor for Research, Innovation and Economic Development to administer a Climate Action Innovation and Entrepreneurship proof of concept competition, of which $250k were encumbered in Fall 2023. Proposals are being solicited which support innovation and entrepreneurship activities addressing the State of California's climate action priorities, and which are likely to attract entrepreneurs, industry, and investors willing to commercialize UC Merced innovations and result in positive societal and economic impacts for the region.

Award Types & Funding

- Total funding available: Up to $250k
- Types of awards: One-time competitively selected awards of up to $50k

Timeline

- April 1, 2024 – Deadline for applications
- May 1, 2024 – Awards announced
- June 1, 2024 – Funds available
- Duration of award – 9 months

Eligibility

Principal Investigator Eligibility:

All UC Merced faculty/research scientists with PI status may apply, but individuals may serve as PI on a maximum of two proposals (there is no limit to the number of proposals for which they may serve as Co-PI or Co-Investigator).

Project Eligibility:

Projects eligible for funding will feature an early-stage technology that meets one or more of the following criteria:

- Has advanced beyond the basic research stage but requires early proof-of-concept data to show feasibility for commercial potential.
- Has demonstrated successful results in the research environment and is poised for commercialization pending a specific, targeted demonstration, test result, or prototype.
- Has reached a critical stage of technology development, whereby specific questions pertaining to commercialization feasibility can be answered within the resource constraints of the program.
- Has identified milestones that would overcome a specific hurdle to commercialization, enabling a technology to become more attractive for either licensing to an existing company or enabling the formation of a startup company within 1-2 years of project completion.

This Proof-of-Concept funding is NOT intended to be used for fundamental research, but rather development, translation, and commercialization of UC Merced intellectual property. All proposals must address California climate action priorities and describe one or more actionable outcomes, interventions, products, or tangible benefits. A partial list of resources may be found in Appendix A.

The proposed project must be disclosed using an Invention Disclosure Form found on the UC Merced Office of Technology Innovation & Industry Relations (OTIIR) site prior to submission. Questions about the disclosure procedure may be directed to Assistant Vice Chancellor John Jackson (jjackson7@ucmerced.edu).

Section 2. Proposal Preparation and Submission Instructions

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2.1 Grant Program Overview and Priorities

These "Climate Action LaunchPad" funds are intended to demonstrate proof of concept and determine market viability. The ultimate objective of the program is to develop technologies with the potential to have high impact both for society and the economy in the realm of climate action, and which will attract entrepreneurs, industry, and investors interested in commercializing UC Merced innovations. Projects must be synergistic with at least one of the State of California's climate action priorities and should promote social equity and climate justice. Appendix A provides a partial list of these priorities.

Grant recipients will be required to participate in structured entrepreneurial training through the UC Merced NSF I-Corps program. This training will be delivered by OTIIR.

Awardees will be expected to meet with OTTIR and/or OTTIR advisory group regularly to:

- Develop a detailed plan of action/timeline, milestones, and deliverables.
- Provide a quarterly report detailing their project progress and use of funds, including mid-year and
- end-of-project reviews.
- Review progress and update project timelines, benchmarks, milestones and evaluation metrics.
- Provide a six-month and final (annual) written report detailing progress and use of funds.
- Deliver a final (annual) presentation to the Review Committee.
- Receive feedback from prospective customers or partners through a customer discovery process (through participation in the UC Merced NSF I-Corps program).
- Develop a commercialization or intervention plan.

If any member of the team has received a UC Merced Climate Action Seed Fund award or a UCOP Climate Action Seed or Matching Grants award, or Fall 2023 UC Merced Climate Action Innovation and Entrepreneurship Proof of Concept award this should be disclosed. Furthermore, the integration and/or adjacency of the two projects should be described.

2.2 Review Process and Scoring Criteria

There will be three levels of review:

Review Committee: The review committee will include members of OTIIR, community partners, local investors and entrepreneurs and technology partnership experts at other institutions. As appropriate, this committee will include representatives from state and local agencies, tribal councils, industries, labor, and communities and/or community organizations that might be interested in utilizing, licensing, or investing in the expected innovations, technology, policy or intervention. The Review Committee will review the proposals and select those that advance to Level II Review.

Level I Review and Scoring Criteria:

Reviewers will score applications on a scale of "1" (lowest) to "10" (highest). Review criteria fall into 5 categories: 1) Program Fit, 2) Technical Merit, 3) Commercial Potential, 4) Budget and Timelines, and 5) Milestones. Proposers should endeavor to address the following questions:

- Program Fit
    - Does the proposal fit with the program objectives and eligibility?
    - Does the project address one or more California climate action research priorities?
    - Is the technology or project at a stage where proof-of-concept funding will substantially enable next steps towards technology commercialization; and the project reflects a gap in early technology development with potential for commercial impact?
- Technical Merit
    - Does the project team have scientific or technological expertise required by the proposal?
    - How clearly does the proposal describe the proposed research and the anticipated results?
    - Does the proposal clearly describe and provide sufficient prior proof-of-concept or enabling research results to support the work proposed?
- Commercial Potential
    - Does the proposal effectively describe the product or service that would be enabled by the proposed work and end-user served? How well does the proposal identify a market need and product fit within the competitive landscape?
    - How effectively does the proposal present the current intellectual property and intellectual property strategy?
- Budget and Timelines
    - Is there a reasonable likelihood of achieving project objectives, given the available financial and technical resources identified or anticipated?
    - How appropriate is the timeline presented for achieving the proposal's objectives?
- Milestones
    - Does the proposal indicate clear recognition of the steps, challenges, and value-generating milestones that would enable commercial feasibility for the technology?

Level II Review Criteria: In support of the goal of this initiative, the Review Committee will focus on the strengths and weakness of each presentation in these areas:

- Unmet need or potential opportunity.
- Impact and innovation of the project.
- Feasibility for the project to achieve proposed goals within the specified timeline.
- Potential for translation and commercialization.
- Multidisciplinary nature of the project.
- Potential strength of the intellectual property.

The Review Committee will recommend proposals to the Vice Chancellor for Research, Innovation and Economic Development for Level III review and final selection.

Level III Review

Level III Review will explicitly address final distribution of awards to achieve a balance (a) across schools and disciplines; (b) amongst early and later career researchers; and (c) to ensure that every funded project contributes in some way to UC Merced's commitment to address, promote, or translate DEI principles, social equity and climate justice needs.

2.3 Instructions for Proposal Preparation

A complete application consists of all of the sections described below, to be uploaded as a single pdf file into the InfoReady competition portal (see Sec. 2.4). Each section should start on a new page on the uploaded PDF.

1. **Coversheet** and **Project Summary (max 400 characters):** Provide a concise summary of the research project in non-scientific terms that would be understood by a lay audience. Include the specific CA climate priority or priorities being addressed and the actionable outcome(s). A brief description of the commercial potential and/or market application should be included and address the target market, potential customers and deployment of the technology in the market. Avoid discipline-specific jargon or technical terms. Indicate how considerations of diversity and inclusion are incorporated into the project.

2. **Project Personnel Table:** Include UC Merced PI, Co-PIs and Co-Is. Attach a biosketch/CV for each PI and Co-PI (maximum of three pages each).

3. **Project Description:** Limited to a maximum of **4 pages including figures, images, or charts**). The following four sections must be included:

    1) **Program Fit**

    - Description of the problem or need that your technology/invention addresses in the context of California Climate Action priorities (See Appendix A).

    2) **Technical Merit**

    - Description of the project and associated technology associated.
    - Why will your technology or solution be more effective than others in addressing the problem or unmet need?
    - If available, include relevant data and results that support your claim of the performance, benefits, and effectiveness of your technology.

    3) Commercial Potential

    - Describe the product or service that would be enabled by the proposed work.
    - In your opinion, who are the customers, users, or potential licensees of the technology?
    - Have you received any interest in your project or technology from an outside entity?
    - What is the competitive landscape of the project? Are other research groups and/or companies that are addressing the same problem.

    4) Timelines, Milestones, and Evaluation Metrics

    - Identify the project timeline, benchmarks, and milestones.
    - Include a plan for monitoring and assessing the project's progress.
    - The proposal must include specific outcomes and metrics to be achieved in the project period. Possible outcomes might include, but are not limited to:

        - Construction of a working prototype or second iteration prototype
        - Demonstration of scale-up development potential
        - Production of pilot data to attract market interest
        - Submission of a provisional patent
        - Submission of a full patent

- Award of a patent
- Execution of a letter of intent
- Execution of a license
- Demonstration of commercial feasibility through customer discovery
- Creation of a business plan
- Creation of a startup company
- Execution of an industry contract
- Submission of a Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR) proposal
- Award of a Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR) grant

4. **Itemized Budget and Justification:** Provide a detailed budget, by project year, accompanied by brief line-item justifications in relation to the activities and potential impact See Appendix B for allowable costs. Budgets should reflect the efficient use of resources to maximize outcomes and minimize administrative costs. If relevant, also include any matching contributions in the budgets and budget justifications. For simplicity, all budgets should be prepared by the Sponsored Project Office (SPO). Please email spo@ucmerced.edu with subject "UC Merced Climate Action Proof of Concept Competition" and an RA will be assigned to assist you with budget preparation. Depending on PI's preference, post-award funding may be managed either by a SPO or ORU RA. The final budget awarded is subject to modification by ORED.

2.4 Instructions for Submission

Proposals should be submitted directly by a member of the team via InfoReady:
https://ucmerced.infoready4.com/#competitionDetail/1931847

The deadline for the submission of proposals to this competition is 11.59PM PST on Monday April 1st, 2024.

2.5 Reporting Requirements

Awardees will be required to submit a six-month and final (annual) written report and to make a presentation at the time of the final report. Failure to make timely progress may result in ORED recalling unused funds.

Examples of metrics which may be collected are:

- Number of invention disclosures filed.
- Number of non-disclosure agreements executed.
- Number of provisional and full patents submitted.
- Number of patents awarded.
- Number of letters of intent executed.
- Number of existing startups funded.
- Number of new and emerging startups funded.
- Number of minority and women owned startups formed.
- Number of minorities served.
- Number of community/regional partners engaged.
- Number of community/regional collaborators.
- Number of individuals and teams trained in NSF I-Corps Lean LaunchPad methodology.
- Number of companies/venture capitalists contacted.
- Number of company hits received through OTIIR IN-PART software.
- Number of industry contracts received in support of climate action related technologies.
- Number of technologies or interventions which targeted underserved areas.
- Number of technologies or interventions which mitigated issues in underserved areas.

2.6 Contacts and FAQs

Questions about the competition may be directed to Vice Chancellor for Research, Innovation and Economic Development Dr. Gillian Wilson (gwilson@ucmerced.edu). Technical questions about submitting through InfoReady should be directed to Kelly Bolcavage, Senior Research Development Officer, (kbolcavage@ucmerced.edu).

A list of Frequently Asked Questions (FAQs) document will be maintained in the InfoReady portal.

Appendix A: California Climate Action Priorities and Resources

Proposals must address one or more of California's climate action priorities, as highlighted in some resources below. Detailed information is provided on the specific goals and actions aligned with the state's priorities. This partial list is intended as only a guide. Applicants may propose activities that align with other documented state climate action priorities not listed here. However, those resources must be identified in the proposal.

- **California Climate Adaptation Strategy:** https://www.climateresilience.ca.gov/
  - California Natural Resources Agency. Links together the state's existing and planned climate adaptation efforts, showing how they fit together to achieve California's six climate resilience priorities.

- **The Pathways to 30×30 Strategy:** https://www.californianature.ca.gov/pages/30x30
  - California Natural Resources Agency. Describes how California will successfully implement the goal of conserving 30% of California's lands and coastal waters by 2030.

- **California Air Resources Board 2022 Scoping Plan:** https://ww2.arb.ca.gov/ourwork/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents
  - California Air Resources Board. Assesses progress toward the statutory 2030 greenhouse gas target, while laying out a path to achieving carbon neutrality no later than 2045.

- **California's Fifth Climate Change Assessment:** https://opr.ca.gov/climate/icarp/climateassessment/
  - Governor's Office of Planning and Research. Contributes to the scientific foundation for understanding climate-related vulnerability throughout California.

- **California Climate Dashboard:** https://calepa.ca.gov/climate-dashboard/
  - California Environmental Protection Agency. Describes programs, policies, and investments that California is making to combat climate change.

- **California Climate Solutions:** https://calepa.ca.gov/climate-solutions/
  - California Environmental Protection Agency. Provides an overview of California's Climate Solutions.

- **Defining Vulnerable Communities in the Context of Climate Change:** https://opr.ca.gov/docs/20180723-Vulnerable_Communities.pdf
  - Integrated Climate Adaptation and Resiliency Program. Resource guide to use when first considering how to define vulnerable communities in an adaptation context.

Additional information on California Climate priorities maybe found at this website:
https://uckeepresearching.org/california-climate-action/

Appendix B: Allowable Costs

The guidance for allowable costs, non-allowable costs, and F&A (indirect costs) is as follows:

Allowable Costs: Materials and equipment under $5000, and/or the support of undergraduate and graduate students, postdoctoral researchers, or academic researchers to conduct technical and market validation studies and develop prototypes to determine interest from the private sector. Funds can be used to hire contractors for certain activities, such as prototype fabrication, third-party technical validation testing, or medicinal chemistry services. PIs should identify

potential service providers in the proposal. Awardees must secure an effort commitment within three months of notification of award, so the team can complete all work described in the proposal within the award period.

Non-allowable Costs: Capital equipment (over $5000) unless granted an exception by the VCR. Student tuition and fees. Faculty and non-research staff salaries and fringe benefits. Funding provided by this opportunity may not be used to cover patient care costs, clinical trials, patent execution costs, fundraising costs, or any costs prohibited by California state policy. Grant support may not be used for market research reports, business consulting expenses, maintenance agreements, costs associated with attending conferences. Travel costs are generally excluded from eligibility, except in rare cases.

Indirect costs: Indirect Cost Return (IDC) also known as Facility & Administrative (F&A) will be incurred at a rate of 10%.