Cal**SEED**

Concept Award Application Questions

January 1, 2020

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Introduction

This document contains **ONLY** the applications questions for the 2020 CalSEED Concept Award Applications. For full details about the application process and full instructions, please see the **Application Manual**.

The 2020 CalSEED Concept Award application will have two parts. The first part is an eligibility screening. This part of the application must be submitted online by **March 16th at 11:59 pm PST or be received via registered mail to the CalSEED office by March 16th**. For full instructions on submitting an application by mail, please email **info@calSEED.fund**.

Applications that pass the eligibility screening will be invited later in March to fill out the full application. All questions for both parts of the application are below.

Eligibility Application Questions

The 2020 Concept Award eligibility application will be open from **February 28th through March 16th at 11:59 pm PST**. Below you will find the questions contained in the eligibility application.

1. Innovation Name

2. Contact Information
   a. Name
   b. Position/Title
   c. Organization
   d. Phone Number
   e. Email
   f. Website

3. Address: (Applicants must list the address where the majority of the work will occur)
   a. Street Address
   b. City
   c. State
   d. Zip Code
   e. County (Applicants will be asked to select from the following list)

<div style="columns:2">

- o Los Angeles County
- o Orange County
- o San Diego County
- o Riverside County
- o San Bernardino County
- o Santa Clara County
- o Alameda County
- o Sacramento County
- o Contra Costa County
- o Fresno County
- o Ventura County
- o San Francisco County
- o Kern County
- o San Mateo County
- o San Joaquin County
- o Stanislaus County
- o Sonoma County
- o Tulare County
- o Solano County
- o Monterey County
- o Santa Barbara County
- o Placer County
- o San Luis Obispo County
- o Santa Cruz County
- o Merced County
- o Marin County
- o Butte County
- o Yolo County
- o El Dorado County

- o Shasta County
- o Imperial County
- o Kings County
- o Madera County
- o Napa County
- o Humboldt County
- o Nevada County
- o Sutter County
- o Mendocino County
- o Yuba County
- o Lake County
- o Tehama County
- o Tuolumne County
- o San Benito County
- o Calaveras County
- o Siskiyou County
- o Amador County
- o Lassen County
- o Del Norte County
- o Glenn County
- o Plumas County
- o Colusa County
- o Mariposa County
- o Inyo County
- o Trinity County
- o Mono County
- o Modoc County
- o Sierra County
- o Alpine County

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For questions 4 - 9, applicants will be asked to check boxes answering the question:

4. Are you or any of your leadership team members located in California?

5. Will the development of your innovation and/or business occur in California?

6. Have you or any of your team members received funding from CalSEED in the past?

7. I understand that if I plan to conduct business in California, I must be registered with the appropriate county in California and/or in good standing with the California Secretary of State in order to win an award.

8. Do you have paying customers for this specific innovation?

9. Have you raised funding for this technology in the past?
   (CalSEED Concept Awards are targeted at early stage startups for whom $150,000 in grant funding will have a large, meaningful impact. This includes companies that have received very little to no funding to date, have limited access to outside capital, or are not candidates for traditional forms of investor financing. To align with this objective, only companies who have received less than $1,000,000 in private, outside funding at the time of application are eligible for a Concept Award. This includes private funding and investment capital. Funds raised after submitting this eligibility application are not counted against the $1,000,000 cap, and Concept Awardees are encouraged to continue raising funds to supplement and build upon their

Concept Awards.

The California Energy Commission retains the right to audit any awardees to verify the $1,000,000 application cap has not been violated.)

If you answered "yes",

    a. How much public funding have you received to date? (10 word limit)
    b. How much private funding have you received to date?

FILLABLE FORM

Name / issuing agency	Date of Award	Amount

10. What is the status of development? Please answer in the present tense and use consistent grammar in your response. (100 word limit)

11. Which of the following technology types apply to your proposed innovation? (Applicants must select one)
    c. Hardware (physical component/s that require(s) design and testing):
        i. Choose the answer that best describes your current state of development:
            1. Performing basic scientific research based on observed principles.
            2. Inventing practical applications. Basic principles have been observed.
            3. Analyzing, modelling and/or experimenting with innovation components.
            4. Basic functionality of components is being validated in a lab environment.
            5. Validating the technology in relevant (or simulated / non-laboratory) environment.
            6. Validating the technology at >50% scale in a relevant or simulated environment.
            7. Technology works smoothly and is considered operational.
    d. Software (programs or applications direct system function):
        i. Choose the answer that best describes your current state of development:
            1. Concept mapped out to address known issues. Yet to begin developing code.
            2. First set of requirements gathered and analyzed with little to no proof of detailed analysis to support assumptions.
            3. Implementation, algorithm development, and/or coding at limited functionality. Preliminary requirements defined based on analysis.
            4. Alpha version of software solution in preliminary test with fewer than 100 users. Critical software components integrated.
            5. Limited release versions of software with improved reliability.
            6. Technology works smoothly and is considered operational.
    e. Integrated Solutions (innovative combination of existing or new software and hardware):
        i. Choose the answer that best describes your current state of development:
            1. Developing a novel idea to integrate existing solutions.
            2. Building/coding the integrative hardware or software piece(s).
            3. Analyzing and experimenting the effectiveness of the integrated solution.
            4. Hardware components of integrated solution identified. Early integration software or application beta developed.
            5. <50% scale demonstration developed.
            6. 50% to full scale demonstration developed.

7. Commercialization of solution in progress or complete

12. Which category most applies to your proposed innovation? (Applicants must select one)
    a. Energy efficiency
        ii. Is your innovation for:
            1. Solid-state lighting
            2. Non-vapor compression cooling
            3. Advanced electric heat pumps that use refrigerants with low or zero GWP
            4. After treatment coatings for fenestration and building envelopes
            5. Other
    b. Energy storage
        iii. Is your innovation for:
            1. Enabling technologies for lithium-metal and lithium-sulfur batteries
            2. Flow batteries
            3. Ultra- or super-capacitors
            4. Non-lithium battery chemistries
            5. Enabling technologies for green hydrogen for long duration energy storage (including technologies such as electrolyzers)
            6. Other
    c. Artificial Intelligence/Machine Learning
        iv. Is your innovation for:
            1. Building Automation
            2. Smart Manufacturing and Industrial Processes
            3. Transactive Energy
            4. Precision Irrigation
            5. Virtual Power Plants
            6. Climate and Weather Risk Prediction to electric infrastructure and services
            7. Other
    d. Advanced Power Electronics/Power Conditioning
        v. Is your innovation for:
            1. High-efficiency plug-load devices
            2. Solid-state distribution system components (transformers, inverters, circuit breakers)
            3. Ultra-fast electric transportation charging
            4. High-power electric drive for medium- and heavy-duty vehicle applications
            5. Low-Power Computing
            6. Industrial motors and equipment
            7. Other
    e. Zero- and Negative-Carbon Emission Generations
        vi. Is your innovation for:
            1. Zero-emission flexible and dispatchable generation
            2. Emerging thin film solar PV materials (perovskites, quantum dots, organic semiconductors)
            3. Solid-state energy harvesting (thermoelectric, thermionic, piezoelectric)
    f. Other

13. In one paragraph, describe your innovation. Please answer in the future tense and use consistent grammar in your response. For example: This innovation will… (100 word limit)

14. In one paragraph, how does your innovation benefit California electricity ratepayers? Please answer in future tense and use consistent grammar in your response. (100 word limit)

15. Please check all that apply. Please note that you will be asked to elaborate on your answers to these questions if you are asked to submit a full application.
    g. Does the proposed innovation demonstrate potential to create positive economic impact in low-income and/or disadvantaged communities in terms of job creation, micro-and small-business partnerships and economic development? (e.g. Will the company hire or utilize vendors in disadvantaged/low income communities?)
    h. Will the proposed innovation increase access to clean energy, energy efficiency technologies, energy storage, or energy cost reduction within disadvantaged communities and/or low-income communities? (i.e. Will it make clean energy more affordable?)
    i. Will the proposed innovation reduce pollution burdens that disproportionately impact disadvantaged and/or low-income communities? (for example: air pollution/air quality, traffic congestion, low-cost/retrofit applications)
    j. Can the proposed innovation be deployed in a disadvantaged community and/or low-income community?
    k. Could the proposed innovation help improve the resiliency and reliability of electricity service in locations that that are being impacted by extreme weather-related events such as wildfires?

The following questions are optional and will not be used to evaluate applicant eligibility for CalSEED.

16. Please choose the selection that best describes how you are applying:
    a. As an individual or team of individuals
    b. As a sole proprietorship
    c. As a university researcher
    d. As a National Lab researcher
    e. As a nonprofit organization
    f. As a for-profit corporation, LLC, LP, or LLP
    g. Community group or collective

17. If you own a business, does it have any classifications or certifications from the State?
    a. Small Business
    b. Micro-Business
    c. Disabled Veteran Business Enterprise
    d. Other

18. Which of the following services would be of use to you and your team?
    a. Additional Public Funding Resources
    b. Technical Assistance
    c. Mentorship
    d. Business Plan Development
    e. Development and Commercialization Partnership Development
    f. Customer Network Development
    g. Investment Opportunities
    h. Intellectual Property and Legal Assistance

19. How did you hear about the CalSEED Initiative? (Applicants will be asked to select one)
    l. Referral
    m. Event
    n. Webinar
    o. News article
    p. Blog article

    q.   Social Media
    r.   Radio Advertisement
    s.   Regional Innovation Cluster
          vii.   Los Angeles Cleantech Incubator
         viii.   Bluetech Valley
           ix.   Cyclotron Road
            x.   Southern California Energy Innovation Cluster
    t.   Incubator (please specify: _____)
    u.   Other

For questions 20 - 22, applicants will be asked to check boxes answering the question:

20. I guarantee that, to the best of my knowledge, all eligibility questions have been answered accurately. If selected to complete the full application, applicants will be asked to confirm pre-application answers.

21. The CalSEED team would like to share funding, acceleration, and professional development opportunities with you. Please opt-in if you would like to receive occasional emails about funding and programs from CalSEED and our partner organizations.

22. The CalSEED team collaborates with Regional Innovation Clusters around the state of California. Can we share your contact information, project name, and project description with partners within the California Energy Innovation Ecosystem?

Full Application Questions

Those who pass the eligibility screening will be invited to fill out a full application. Below you will find the questions for the full application.

What Innovation are you proposing?

Please use consistent grammar in your responses, save frequently, and review your responses before submitting.

1. Please provide a project summary that follows this exact format (120 word limit):

The goal of this project is to <finish sentence with description of project>. <One sentence about why/how the technology is innovative and different>. <One additional sentence about why this new innovative technology matters and makes an impact>. During the CalSEED agreement <description of main tasks/milestones of the project>.

Example A: The goal of the project is to develop a portable battery diagnostic system that can be embedded in an EV battery pack management system to continuously monitor battery health while detecting and preventing thermal runaway. This battery diagnostic technology is more accurate and faster than competitors and will be able to self-calibrate based on the individual battery pack characteristics which vary depending on the EV model and year. The CalSEED award will be used to improve adaptability and repeatability of sensitive battery diagnostic measurements across varying battery pack designs by adding the dynamic self-calibration. The award will also be used to confirm the system is able to continue to provide accurate, clean, and reliable data.

Example B: The goal of this project is to design and demonstrate a software platform that enables multi-unit building owners to install a shared solar system that equitably rewards residents for using energy when it is cheap or provided by the solar system. The platform will have a 15-minute interval load algorithm that can identify each housing unit's "true" solar energy and EV charging usage considering real time-of-use. During the CalSEED agreement, the team will develop five technology features: load algorithms, tenant facing interface, EV charging integration, battery load control, and usage and pricing event triggers.

Example C: The goal of this project is to engineer a low cost, easy-to-assemble ground mounted photovoltaic system that can be stowed flat to withstand winds up to 150 mph. This photovoltaic technology is composed of ground-mounted photovoltaic solar array that is pre-fabricated in a factory, shipped to a PV project site in standard shipping containers, and rapidly deployed using common hand tools. This innovation minimizes complexity in the design of the technology and enables large projects sizes to be quickly deployed. The goal is this CalSEED project is to complete the engineering design and validate a streamlined manufacturing process.

2. What problem are you trying to solve and how? (200 word limit)

3. Are there existing alternatives or competitors that attempt to address the same problem? If possible, provide a comparison of two or three existing products, processes, and/or services that meet the same or similar functions as your concept. Include comparison data if available. (200 word limit)

4. What is preventing or has prevented the current market from solving this problem? (200 word limit)

5. What specific innovation or idea will be explored or tested with this innovation? Provide enough detail for the review team to understand the nature of the innovation or idea you propose. (1000 word limit)

6. Please describe any obstacles that you currently face and how this innovation seeks to overcome those obstacles. (200 word limit)

7. What is unique about your innovation or approach that may not be immediately obvious? (200 word limit)

8. What is the status of development? Please answer in present tense. For example: Our innovation is… (200 word limit)

9. In one sentence, describe your proposed innovation for a member of the general public. (50 word limit)

Who Benefits from Your Innovation?

The following questions ask about the benefits of your innovation globally, in the state of California, and locally. We want to understand your innovation's impacts on the electricity system, the environment, as well as on the economy. As California continues to promote clean energy and sustainable innovations, we must ensure that clean energy solutions address the interests and needs of underrepresented populations (including renters, low-income populations, rural communities and disadvantaged communities), and that these communities can fully participate in the benefits and opportunities of a clean energy economy.

To this end, CalSEED is committed to increasing access to clean energy, energy efficiency, and energy storage technologies, reducing pollution burdens, providing economic opportunities, and reducing the need for Public Safety Power Shutoffs, particularly in vulnerable populations that face barriers accessing and affording technologies to cope with the power shutoffs. Social equity a key component of this program. This includes job development, training, contracting, supplier diversity and economic development. To find out more about how California defines disadvantage communities, **click here.**

Please consider the following guidance:

- If the proposed innovation is a piece or part of a product or if direct sale of the innovation is not going to the final, end user (e.g. innovation will be B2B), please explain how potential partners in the supply chain and customers downstream will benefit.

- While answering the following questions in this section, think about how your innovation will positively impact disadvantaged communities through economic opportunities and social benefits. We encourage responses that not only describe what the innovation's social impact benefits will be, but also explain how the innovation will achieve that benefit.

- Please use consistent grammar (verb tense, use of pronouns, etc.) in your responses, save frequently, and review your responses before submitting.

For questions 10 – 13, please indicate if your innovation, when scaled, will provide these benefits. Benefits are a critical part of the evaluation criteria, and we are looking for quality responses. While we encourage innovations to provide as many social benefits as possible, you will not get extra points for answering all of the questions if the responses are not high quality.

10. Will scaling this innovation create economic opportunities?
    a. If yes, what are the economic opportunities that your successful innovation could bring in terms of job creation, partnering and contracting with micro- and small-businesses, and economic development? Please address the local and statewide economic benefits and the economic opportunities for low-income or disadvantaged communities. (200 word limit)

11. When deployed, will your innovation increase access to clean energy, energy efficiency, or energy storage within disadvantaged or low-income communities?
    a. If yes, please explain. (200 word limit)

12. Will your proposed innovation address pollution burdens that disproportionately impact disadvantaged and/or low-income communities? (for example: air pollution/air quality, traffic congestion, low-cost/retrofit applications)
    a. If yes, please explain. (200 word limit)

13. Could the proposed innovation help improve the resiliency and reliability of electricity service in locations that that are being impacted by extreme weather-related events such as wildfires?
    a. If yes, please explain how electricity rate-payers will benefit. (200 word limit)

14. Other than economic opportunities, increasing access, and reducing pollution burdens, are there other ways in which the development of your proposed innovation will benefit underrepresented communities? (200 word limit)

15. What are your target markets? (i.e. who is your intended end user?) (200 word limit)

16. If you are successful in commercializing this innovation, how do you intend to integrate it into the California market? (100 word limit)

17. Applicants have the option to provide up to two letters of support. Letters from technology partners, environmental justice organizations, and other partners that demonstrate equity, feasibility, and commercial viability are most helpful. Letters of support are not required. (Applicants will see an "UPLOAD" button.)

Name	Organization	Role
[Name 1]		
[Name 2]		

How Would You Use a CalSEED Award?

Please use consistent grammar in your responses, safe frequently, and review your responses before submitting.

18. Tell us what you plan to do with a CalSEED award and define what you expect to have accomplished at the end of your CalSEED award. (500 word limit)

19. Applicants are expected to present a simple Scope of Work that will be accomplished within the project duration if they receive a CalSEED award. (If you are selected for an award, you will not be contractually bound to the Scope of Work you provide in this application.)

(Applicants will see a fillable form.)

Milestones	Tasks	Deliverables

20. If you have received outside funding, what is the source? Be specific and describe how the funds were used. You may be asked to provide supporting documentation to validate the information you provide. Be specific. (100 word limit)

    Example: ARPA-E GRIDS program provided $250,000 to fund prototype in 2012. Jack Jackson (angel investor) invested $100,000 in 2013. Raised $15,000 via Kickstarter for pre-sold subscriptions. Founders contributed $35,000 of seed capital. Total raised to date: $400,000.

21. In one sentence, please state the goal of your project for a member of the general public. (50 word limit)

Why should you become a CalSEED Awardee?

Please use consistent grammar (verb tense, use of pronouns, etc.) in your responses and review your responses before submitting.

22. Why are you or your team the right team to advance this innovation? (200 word limit)

23. How many team members are working on developing this concept?
    a. 1-2
    b. 3-5
    c. 6-10
    d. More than 10

24. Please provide a summary of qualifications for up to five team members. Describe what contribution each team member will make to the project. (Applicants will see a fillable form.)

Name	Role	Why are they right for this role?

25. What have you or your team done before that will help make this concept a success? (1000 word limit)

26. In one sentence, describe your organization for a member of the general public. (50 word limit)

Financial and Legal Certifications

For questions 27 - 31, applicants will be asked to check boxes so that:

27. The grant applicant acknowledges that all costs associated with proposal preparation are borne

by the applicant and that receipt of a proposal by the CalSEED Initiative does not constitute a contractual relationship with the grant applicant.

28. The applicant has performed a thorough search of existing published literature and patents and determined that the proposed concept is original.

29. The applicant has disclosed if it has any past or current funding received from any private, state, or federal agencies for work that is similar or related to the innovations proposed in this grant application.

30. The applicant owns all proprietary ideas, concepts, patents, branding and intellectual property detailed within this application.

31. The applicant understands that submitted applications are subject to public records required and has not disclosed confidential information in this application.

32. The applicant is able to agree to the Electric Program Investment Charge contract **Terms and Conditions** for CalSEED.