CalTestBed

Application Manual

July 2022

V 2.0

CalTestBed

Application Manual

Introduction

The California Test Bed Initiative—CalTestBed—is a laboratory voucher and commercialization development program for innovators and entrepreneurs working to bring early to mid-stage clean energy concepts to market. It is made possible by a grant from the California Energy Commission.

CalTestBed accelerates clean energy innovations toward commercialization by awarding vouchers worth up to $300,000 to test technologies at one of 60+ testbed facilities across Lawrence Berkeley National Laboratory and 9 University of California Campuses. CalTestBed recognizes entrepreneurs' struggles and has formed a public-private partnership with the UC Office of the President and Lawrence Berkeley National Lab to enable clean energy entrepreneurs to gain access to third-party testing at world-class facilities in order to de-risk their technologies, while they maintain their IP and connect to a broad network of commercialization partners.

Table of Contents

Important Application Dates

The CalTestBed program will award up to 60 vouchers to eligible applications over the course of the program.

Relevant Application Dates

Workshops and Webinars	CalTestBed will host 4 webinars to help answer any questions about the application process. Additionally, recordings, questions and comments, and presentations will be posted on the CalTestBed.com website.	At least one week before the solicitation opens.
Application Window Open	The application will be available on the CalTestBed.com website.	July 25, 2022– August 19, 2022
Application Due	Deadline for all applications. Mail-in applications must be postmarked by this date.	11:59 pm PST on August 19, 2022
Review Process	Approved applicants are screened internally for eligibility, then eligible applications are reviewed and scored by Technical Reviewers. A final recommendation meeting with Technical Reviewers and CEC staff certifies the applicants who are recommended to advance to the consultation phase.	August 22,2022 – October 20, 2022
Laboratory Consultations	Recommended applicants will participate in a 1.5-3-hour consultation with the laboratory Principal Investigator, campus representative, and a neutral subject matter expert to create a Statement of Work including scope, schedule, and budget. CEC staff conducts final review of SOWs for voucher approval.	Starting week of November 21, 2022
Testing Begins	Voucher recipients begin testing at laboratory testbeds.	Dependent on SOW scheduling.

Announcements

Prospective applicants should confirm dates and deadlines at CalTestBed.com.

CalTestBed Benefits

As a CalTestBed Voucher Recipient, you will gain access to a number of benefits that will help you refine your prototype and advance your product toward commercialization. These benefits include:

- A **voucher worth up to $300,000**, for use at **one** of the 60+ participating testbeds to cover the cost of testing.
- A **powerful network and cumulative resources** of unified DER testbeds across the UC and LBNL systems.
- Opportunities to present your product to **targeted customer groups** and next level **commercialization partners**.
- Access to experienced clean energy entrepreneurs, industry experts, prospective partners, and utilities at the **CalTestBed symposium**.
- **Additional funding opportunities** through the Empower Innovation Network platform.
- A **community and ecosystem** of fellow CalTestBed voucher recipients.

Awards Valued Between

$10,000 - $300,000

CalTestBed

Application Manual

What Stage of Development will CalTestBed support?

CalTestBed is focused on early to mid-stage technologies that provide benefits to California's ratepayers but lack access to private-sector capital to support testing. More specifically, CalTestBed seeks hardware or integrated innovations that fall between Technology Readiness Levels (TRL) 5 - 7 that would greatly benefit from laboratory-level testing.

- **TRL 5:** Laboratory-scale, similar system validation in relevant environment; Basic technological components are integrated so that they system configuration is similar to (matches) the final application in almost all respects.
- **TRL 6**: Engineering-scale models or prototypes are tested in a relevant environment. The major difference between TRL 5 and 6 is the step up from laboratory-scale to engineering-scale and the determination of scaling factors that will enable design of the operating system.
- **TRL 7**: Full scale, similar (prototypical) system demonstrated in relevant environment. This represents a major step up from TRL 6, requiring demonstration of an actual system prototype in a relevant environment.

TRL Source Reference: https://www.energy.gov/sites/prod/files/2019/04/f62/Appendix%20F%20-%20TRL%20Guide.pdf

CalTestBed

Application Manual

What Types of Innovation Will CalTestBed Support?

CalTestBed will support testing of **hardware and integrated solutions.**

A qualifying integrated solution must feature a hardware innovation that works in conjunction with a software program to deliver the technology's benefits. **An existing prototype ready for laboratory-grade testing is required.**

Innovations recommended for a voucher must be EPIC-aligned and benefit California's rate payers through increasing reliability, lowering costs, and/or improving safety.

Stand-alone software solutions that merely complement existing energy infrastructure are <u>not eligible.</u>

CalTestBed

Application Manual

POWERED BY NEW ENERGY NEXUS

What Types of Innovation Will CalTestBed Fund?

Eligible CalTestBed innovations must fit within the following ten technology types:

Building Technologies	Energy Efficiency	Energy Storage	Grid Technologies	Industrial & Agricultural Innovation	Internet of Things	Material-Based	Renewable Generation	Transportation	Water Technologies
Hardware or integrated solutions that support energy efficiency in buildings including occupancy-based controls and building management system optimization, after treatment coatings for fenestration, insulation, and building envelopes.	Hardware or integrated solutions that demonstrate energy efficiency including appliances, solid-state lighting, non-vapor compression cooling, advanced electric heat pumps that use refrigerants with low or zero GWP.	Hardware or integrated enabling technologies for lithium-metal and lithium-sulfur batteries, Flow batteries, Ultra- or super-capacitors, Non-lithium battery chemistries, enabling technologies for green hydrogen for long duration, energy storage (including technologies such as electrolyzers).	Hardware or integrated solutions that modernize the electric grid, through enabling more clean energy and energy efficiency such as demand response, distributed energy resource management systems, electric vehicle to grid integration, etc.	Hardware or integrated solutions that work in the industrial and/or agricultural context to enable clean energy and/or energy efficiency in industrial and agricultural processes.	Hardware or integrated solutions , that are used to enable clean energy or energy efficiency through the automatic acquisition, storage manipulation, management, movement, control, display, switching, interchange, transmission or reception of data.	Hardware or integrated solutions that utilize novel materials to enable clean energy generation or greater energy efficiency.	Hardware or integrated renewable energy technologies that advance electricity, heat, and/or fuel from renewable sources including solar, wind, heat-exchange, and bioenergy technologies.	Hardware or integrated technologies that enable electric vehicles, and related electric charging infrastructure.	Hardware or integrated technologies that embrace forward-thinking applications and solutions that utilize waterflow for energy generation including hydro, wave, and tidal while advancing clean and safe water goals.

CalTestBed

Application Manual

Regional Innovation Clusters

Local hubs for project development resources, including:

CalTestBed partners with Regional Innovation Clusters across the state as communication and channel partners to support clean energy entrepreneurs.

Los Angeles Cleantech Incubator (Energize California: Los Angeles Regional Innovation Cluster)

LACI is located in the Cleantech Corridor. LACI offers research and development labs, prototype manufacturing workshops, office space, coaching, and mentoring, as well as access to potential investors and a growing network of cleantech experts. To learn more about the Los Angeles Regional Innovation Cluster, visit http://laincubator.org/.

Activate (Activation: Bay Area Regional Innovation Cluster)

Activate partners with funders and leading research institutions to support the Activate Fellowship, a new path for entrepreneurial scientists and engineers to transform their discoveries into world-changing technologies. To learn more about this Bay Area Regional Cluster, visit http://www.activate.org/ .

BlueTechValley (Water Energy and Technology Center: Central Valley Regional Innovation Cluster)

The BlueTechValley Innovation Cluster is located in the heart of the San Joaquin Valley, the perfect proving ground for new water-efficiency and related technologies. Strong partnerships with a number of universities, incubators, grant developers, and acceleration programs enable BlueTechValley to provide a range of technology and business development services. To learn more about the Central Valley Regional Innovation Cluster, visit http://bluetechvalley.org/.

Southern California Energy Innovation Network (SCEIN)

Cleantech San Diego's Southern California Energy Innovation Network (SCEIN) is a free incubator program for clean energy startups based in San Diego, Riverside, San Bernardino, and Imperial counties that are developing technologies to help California meet its climate goals. Entrepreneurs in the program gain access to the resources of regional partner organizations and industry connections designed to help get their energy efficiency, renewable energy generation, energy storage, smart grid, and clean transportation products to market faster. Learn more at cleantechsandiego.org/scein.

Access and Inclusion

California is recognized as a leader in progressive clean energy and climate policies, as well as serving as a hub for technology innovation. However, many communities in the state still lack access to clean energy resources nor are they reaping the benefits of the transition to a clean energy future.

As California continues to promote clean energy and sustainable innovation, we must ensure that clean energy solutions address the interests and needs of the state's most underserved and disadvantaged populations.

New Energy Nexus is committed to making equity a key component of the CalTestBed Initiative to ensure that both entrepreneurs and the ratepayers throughout the state benefit from the environmental, economic, and social impacts of this program.

CalTestBed

Application Manual

Equity In

Attract a Diverse Pool of Applicants

CalTestBed has developed an outreach plan for maximizing access and inclusion based off the CalSEED program – which has successfully recruited entrepreneurs from every major region of California of varying socioeconomic backgrounds. Small and diverse-owned businesses are critical for California's transition to a clean energy economy. CalTestBed seeks to ensure that diverse and underrepresented communities – including BIPOC, LGBTQ+, rural, and veteran communities – across California participate in the CalTestBed Initiative and become an integral part of the transition to an emerging green economy. To this end, the CalTestBed Initiative will build on the bold recruiting strategy developed for the CalSEED program to ensure that all socioeconomic ranges across California can accelerate their clean energy ideas.

Equity Out

Encourage Clean Energy Solutions that Lead with Equity

The CalTestBed staff recognizes that disadvantaged and low-income communities in the state lack access to clean energy resources. This is largely due to the limited economic investments in these communities. Frontline and low-income communities need long-term job opportunities, innovative programs that reduce the cost of necessities, and clean energy investments that reduce these communities' disproportionate exposure to polluting energy infrastructure. The CalTestBed Initiative strives to address these issues by accelerating entrepreneurs' ability to rapidly test their products to discover innovative ways to bring equitable clean energy solutions to our most vulnerable populations.

CalTestBed Encourages Projects That:

- Target air pollution reduction benefits to underserved and heavily polluted communities.
- Respond to a clean energy or sustainability need within underserved and low-income communities.
- Increase access to green technologies and resilient infrastructure within underserved and low-income communities.
- Include meaningful community engagement with underserved and low-income communities throughout the development of the project.

CalTestBed

Application Manual

Eligibility Criteria

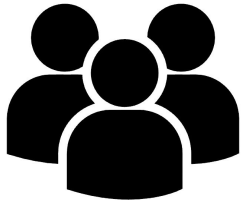
CalTestBed is open to applicants working on innovations with existing prototypes – designed to provide benefits to California rate-payers.

CalTestBed applicants must be located in California, provide their California address, and must be in good standing with the California Secretary of State. Use the company name you have registered with the state as the company name on your application, as it will aid in our eligibility due diligence.

Additionally, proposed innovations must meet some basic requirements. At a minimum, it should:

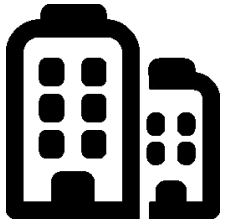
1. Align with EPIC goals
    a) Reduce costs for California ratepayers
    b) Increase reliability
    c) Improve the safety of California's energy mix
2. Prototypes must fall between Technology Readiness Levels (TRL) 5-7 as defined by the U.S. Department of Energy.
3. Innovations must qualify within a listed technology area as noted in the TestBed Directory

Those who can apply include:



Individuals / Teams

Apply without an organizational affiliation.



Businesses

Startups, small businesses, and large companies.

Non-Profit Organizations

Those with official non-profit tax designations.

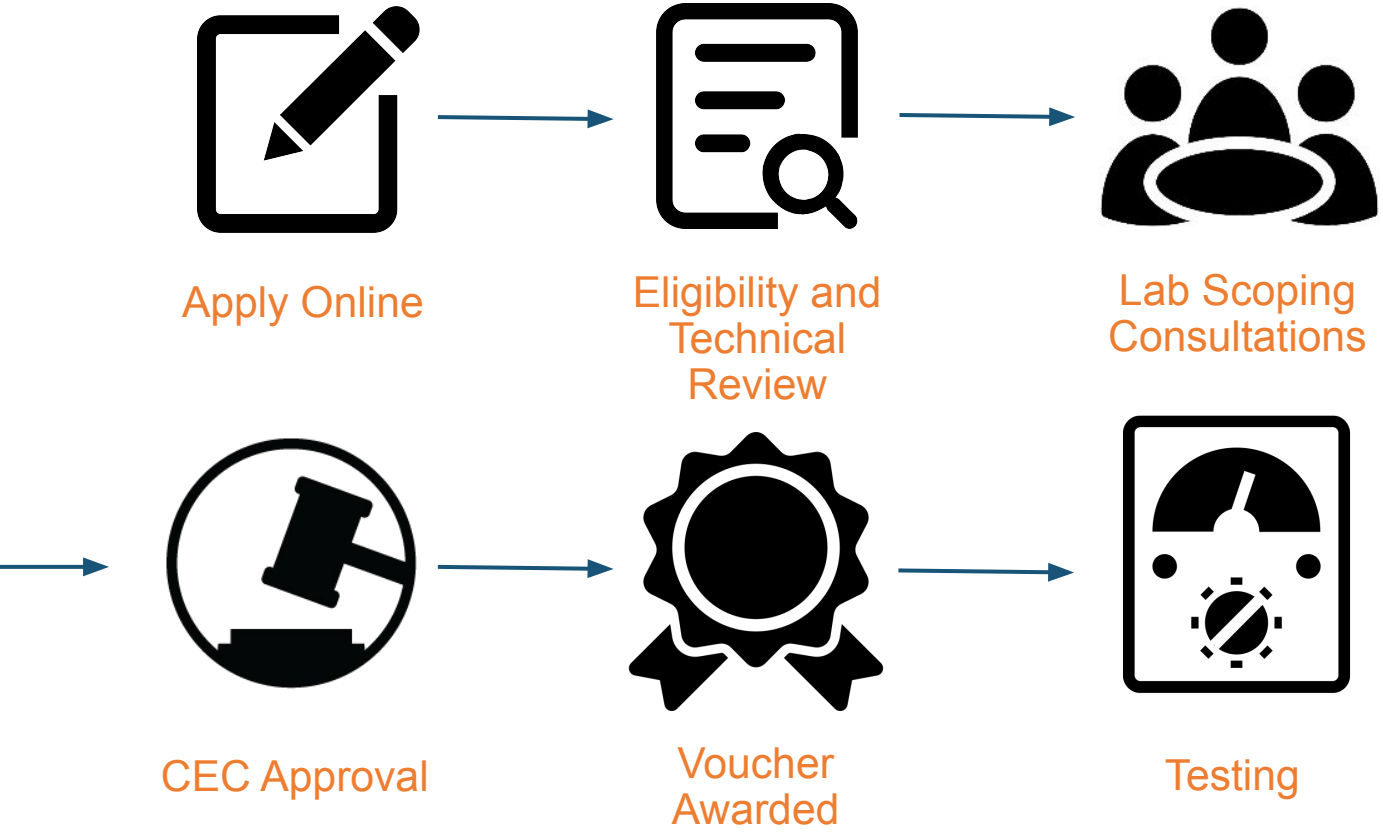
*Universities are not eligible to apply to this opportunity

CalTestBed

Application Manual

Process Overview

The CalTestBed program consists of six main components outlined on the following pages:

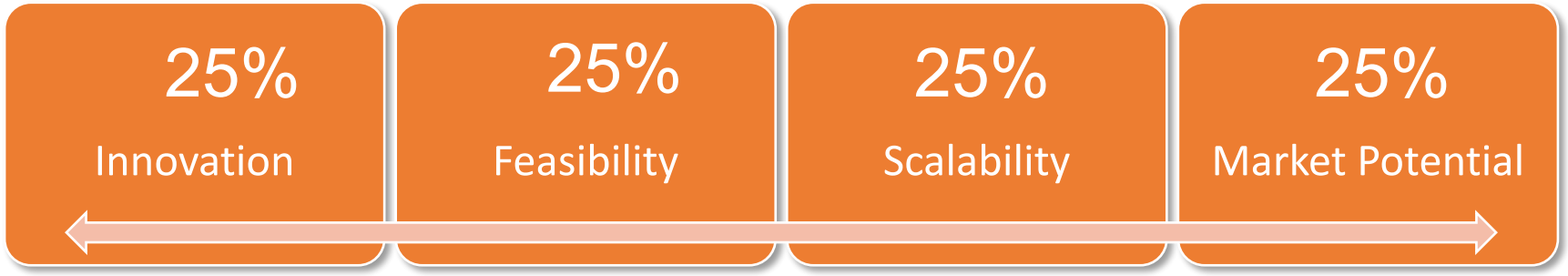


Application, Technical Review, CEC Review, & Scoring

Interested parties will apply directly on www.CalTestBed.com. Applicants will be required to complete both Part 1 and Part 2 sections of the application to be considered.

Part 1 of the application includes a set of initial eligibility questions to ensure that the project meets geographic, Technology Readiness Level (TRL), EPIC alignment, and technology category and type guidelines.

Part 2 of the application requires long-form responses to four scoring categories: Innovation, Scalability, Feasibility, and Market Potential. Each of these responses are limited to 500 words. An explanation of these categories, critical questions needing to be addressed, and key points to be considered can be found in Appendix A. Technical Reviewers with subject matter expertise in the technology category will score applications against these criteria using the scoring rubric shown in Appendix B. Scores will be ranked and the Technical Reviewers will determine finalists that will be recommended to the laboratory consultation phase.



IMPORTANT! The application will also require that you indicate your top three choices from the participating testbed facilities, which can be found in the CalTestBed Facilities Directory.

Laboratory Scoping Consultations

Participating testbed facilities will be sent individualized lists of recommended applicants with their project descriptions to confirm the necessary testing capabilities exist at the lab. If proposed tests are unable to be conducted at the first laboratory choice, the list will be sent to the applicant's second choice, and then the third, if necessary. If it is determined that the capabilities do not exist within the CalTestBed testing facilities network, the application will be deemed ineligible.

If the testing capability is confirmed by the proposed laboratory, then a consultation will be scheduled between the applicant, the facility Principal Investigator, a campus representative, and an independent third-party subject matter expert.

The outcome of the consultation is a draft Statement of Work which includes project scope and schedule. The testing facility will determine the necessary budget to cover testing expenses. The draft SOW will be submitted to NEX for review and iteration.

Voucher Award and Testing

All draft SOWs are forwarded to the CEC for review and approval prior to fully executing the voucher agreement package and commencing testing.

The draft SOWs of qualified, recommended applicants are submitted to the CEC for approval of Statements of Work and final budgets. Afterward, the CalTestBed program staff will notify voucher recipients of the next steps. Approved applicants will then be connected to the testing facility points of contact for onboarding and scheduling their testing.

CalTestBed

Application Manual

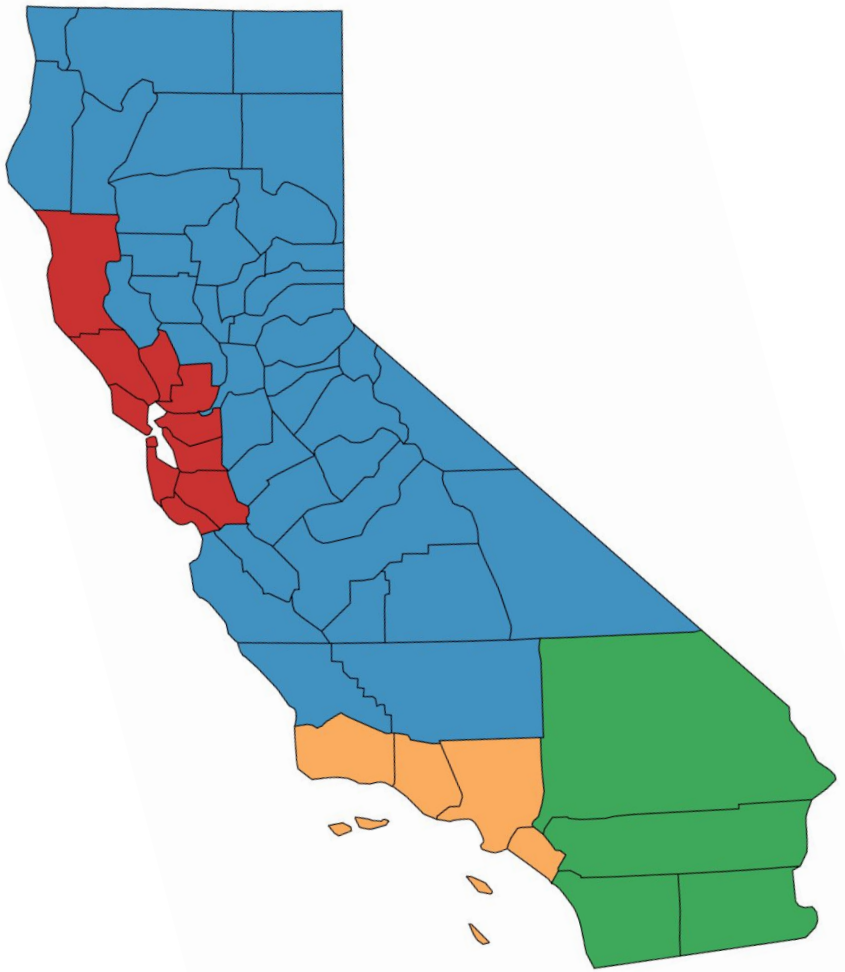
Regional Solicitation Selections

To ensure geographic diversity across the program, the CalTestBed Technical Reviewers will recommend the top ranked applications from four geographic regions to participate in the Laboratory Scoping Consultations.

The applicant region will be determined based on an official business address (or home address if applying as an individual).

These regions include:

- **San Francisco Bay**
- **Central Valley**
- **Greater Los Angeles**
- **Greater San Diego**



Appendices:

Appendix A – Application Questions

1. Organization Name (10 words) (apply with name registered with Sec of State)

2. Innovation Name

3. Primary Contact Information
    1. First Name
    2. Last Name
    3. Position/Title
    4. Email
    5. Phone Number
    6. Organization Website
    7. Organization Social Media Handles

4. Organization Address (If you are applying as a business or organization, please provide the address of your principal office in California. If you are applying as an individual, please provide your home address.)
    1. Street Address
    2. City
    3. State
    4. County
    5. Zip Code

5. What percentage of your team is located in California?
6. Will the development of your innovation and/or business occur in California?

CalTestBed

Application Manual

Appendix A – Application Questions cont.

6. Have you or any of your team members applied to CalTestBed in the past?

7. California Requirement: I understand that I must be registered with the appropriate county in California and be in good standing with the California Secretary of State in order to be eligible for a voucher.

8. Select the category that best describes the applicant organization (applicant entities may not be universities)

An individual or team

1. As an individual or team
2. As a sole proprietorship
3. As a non-profit organization
4. As a for-profit organization LLC, LP, or LLP
5. Other: describe

8. Mission Statement (200 words max)

9. Number of Employees

10. Designation (Select all that apply) (link to available certifications: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/bco/utility-supplier-diversity-program/available-certifications-1272022.pdf
    2. Women Owned Small Business (WOSB)
    3. Women Business Enterprise (WBE)
    4. Minority Business Enterprise (MBE)
    5. B Corp
    6. Veteran Owned Small Business (VOSB)
    7. Service-Disabled Veteran-Owned Small Business (SDVOSB)

Appendix A – Application Questions cont.

11. I have reviewed the sample Agreement documents and understand that I will be required to agree to the terms and conditions in order to be eligible for a voucher. (Yes/No)

12. Which category best describes your innovation? (Refer to definitions on page 8 and Select one)
    1. Building Technologies
    2. Energy Efficiency
    3. Energy Storage
    4. Grid Technologies
    5. Industrial & Agricultural Innovations
    6. Internet of Things
    7. Material-Based
    8. Renewable Generation
    9. Transportation
    10. Water Technologies

13. Choose the answer that best describes your current state of development:

Performing basic scientific research based on observed principles.
Inventing practical applications. Basic principles have been observed.
Analyzing, modelling and/or experimenting with innovation components
Basic functionality of components is being validated in a lab environment.
Validating the technology in relevant (or simulated / non-laboratory) environment;
Validating the technology at >50% scale in a relevant or simulated environment.;Technology works smoothly and is considered operational.

Appendix A – Application Questions

11. Which of the following technology types applies to your innovation? **Reminder: no pure software prototypes are eligible for voucher funding, and hardware component of integrated solutions must be innovative.**
    Hardware
    Integrated solution

11. Provide a brief description of the innovation (prototype) to be tested. (100 words max)

12. What is the status of your development? (100 word limit)

13. In 1 page, outline the specific testing you would like to conduct including testing protocol, necessary equipment, expected duration, and staff requirements

17. Rank your top three laboratory choices and note the capabilities at each that are relevant to your requested testing using the CalTestBed Facilities Directory.
    First Choice
    Relevant Capabilities for your proposed testing (lab dropdown)
    Second Choice
    Relevant Capabilities for your proposed testing (lab dropdown)
    Third Choice
    Relevant Capabilities for your proposed testing (lab dropdown)

Appendix A – Application Questions

18. How does your innovation benefit California electricity ratepayers in the following areas?
(Provide details as available and N/A where there are no expected benefits)
    1. Annual electricity (EPIC) and thermal savings (PIER NG) (kilowatt-hour and therms) in CA (100 word max)
    2. Energy cost reductions in CA (100 word max)
    3. Peak load reduction and/or shifting in CA (100 word max)
    4. Greenhouse gas emission reductions in CA (100 word max)
    5. Air emission reductions in CA (e.g. NOx) (100 word max)
    6. Water savings and cost reduction in CA (100 word max)
    7. Increased safety in CA (100 word max)
    8. How many jobs do you expect to create in CA? (100 word max)
    9. Explain your path-to-market strategy in CA near-term (i.e. initial target markets), mid-term, and long-term markets for the technology. (100 word max)

19. Have you raised funding for this technology in the past?
    10. Public: How much funding did you receive? (10 words)
    11. Private: How much funding did you receive? (10 words)

Appendix A – Application Questions - Technical (Scored)

The following questions will determine your project's score against other CalTestBed Initiative applicants:

1. Describe the technology to be tested as it relates to Scoring Category 1: Innovation. Use the Scoring Category guidelines in the Application Manual for reference. Be careful to avoid divulging confidential or proprietary information, as these applications are subject to public record requests. (500 words max)

2. Describe the technology to be tested as it relates to Scoring Category 2: Feasibility. Use the Scoring Category guidelines in the Application Manual for reference. Be careful to avoid divulging confidential or proprietary information, as these applications are subject to public record requests. (500 words max)

3. Describe the technology to be tested as it relates to Scoring Category 3: Scalability. Use the Scoring Category guidelines in the Application Manual for reference. Be careful to avoid divulging confidential or proprietary information, as these applications are subject to public record requests. (500 words max)

4. Describe the technology to be tested as it relates to Scoring Category 4: Market Potential. Use the Scoring Category guidelines in the Application Manual for reference. Be careful to avoid divulging confidential or proprietary information, as these applications are subject to public record requests. (500 words max)

***Refer to the detailed breakdown of each scoring category question and what topics to include in the response found in Appendix B**

Appendix A – Application - Financial and Legal Certifications

To be eligible for this voucher program applicants must agree to the Terms and Conditions in the Voucher Recipient Agreement available through the Smart Simple platform. Additionally,

- The applicant understands that no voucher funding will be provided to the voucher recipient directly, and the value is redeemable for testing only at participating testbeds.
- The applicant acknowledges that all costs associated with proposal preparation are borne by the applicant and that receipt of a proposal by the CalTestBed Initiative does not constitute a contractual relationship with the applicant.
- The applicant has performed a thorough search of existing published literature and patents and determined that their technology is original.
- The applicant has disclosed if they have 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 application.
- The applicant owns all proprietary ideas, concepts, patents, branding and intellectual property detailed within this application.
- The applicant understands that submitted applications are subject to public records requests and has not disclosed confidential information in this application.
- The applicant understands they must have a prototype ready to be delivered to the laboratory.

Appendix B – Scoring Categories

Scoring Category 1: Innovation

In this section, you will describe your innovation in detail and list your goals for the project. It is very important that you explain how the innovation you are proposing to test will represent an advance over current state-of-the-art products. We will also ask you to discuss any existing or anticipated products that could compete with your proposed innovation once it is fully developed and entered in the market.

Critical Questions to Consider

1. What problem/challenge does your proposed innovation address?
2. What makes your product qualified to tackle this given problem, compared to your competitors? What obstacles stand in the way of solving this problem?
3. Is there a breakthrough technology innovation? A new business model?
4. Will the innovation create greater reliability, lower costs, reduce emissions, and/or increase the safety of California's electricity grid? If so, how?
5. Describe what aspects and/or assumptions of your innovation require lab-level demonstration facilities to prove or disprove.

Key Points

- Your ability to show, in detail, why your project is innovative.
- Your perspective on the state of the current market.
- Your ability to outline how your innovation is qualified to tackle the stated problem.
- Your ability to prove the financial and/or environmental value proposition to California ratepayers.

Appendix B – Scoring Categories

Scoring Category 2: Scalability

In this section, we will ask you to describe how your innovation - once fully developed and on the market - will be able to scale to benefit California utility ratepayers. CalTestBed wants to understand that you have a clear understanding of market stakeholders that influence your design, manufacturing, and customer relationships.

The CalTestBed team understands that many early-stage innovations that may be funded may not deliver meaningful scale growth in the immediate future. That's why it is vitally important for you to include a discussion of the long-term scaling solutions of your innovation in your application.

Critical Questions to Consider

1. What kind of tools and systems are embedded in your design process? How easy or difficult is it to implement changes?
2. What kind of manufacturing processes do you expect to scale your product? Do those facilities exist? Updated? Created from scratch?
3. What level of infrastructure exists, or needs to be created to support your innovation at scale?
4. Have you defined your "ideal customer" characteristics? Do you anticipate being reactive to a wide audience, or proactive on a small one?
5. Is your innovation a highly-customized and compromised solution for every customer? Or is it a highly-repeatable, standardized product offering sold in a consistent way?
6. How well have you defined your market differentiation? How easy will it be to describe your innovation and its position as truly unique to prospective customers?
7. How well have you described the outcomes your customers can expect from utilizing your product?
8. Where will you scale? In what way?

Key Points

- CalTestBed is dedicated to assisting entrepreneurs develop products that will benefit California ratepayers.
- CalTestBed is also committed to working with innovators who have a positive impact on California's disadvantaged and underrepresented communities.

Appendix B – Scoring Categories

Scoring Category 3: Feasibility

In this section, we ask you to demonstrate that your innovation makes operational and economic sense. CalTestBed wants to support projects that have well-defined viability criteria and clear, quantified risk factors.

Successful applicants will show a strong understanding that the long-term product viability is achievable, which may or may not include other supportive financial mechanisms in place (i.e. grants, awards, etc.). Thoughtful responses will include a roadmap for the technology and show that business model is in place for the years following CalTestBed participation and how the voucher program can help advance your product's TRL level.

CalTestBed is not interested in projects where product viability entirely rests on the outcome of the demonstration.

Critical Questions to Consider

1. Have you evaluated how your product will be produced? Identified what the variable production costs are and why they vary? Are they in your control?
2. Have you analyzed how to assure continuing access to critical supplies of raw materials and component parts at reasonable prices?
3. Have you identified weaknesses and described how you can overcome them?
4. Have you conducted testing on other aspects of your innovation? What large aspects remain? How important are they to the success of your innovation?
5. Have you analyzed how long your product may stay relevant?
6. Have you secured other public funding to help with demonstration and/or commercialization next steps? These may include: CEC, DOE, SBIR, Accelerator/Incubator prizes, Competition prizes, etc.

Key Points

- There is no need for a full-fledged business plan, but enough information to evaluate projects with the highest likelihood of benefit to California ratepayers. Be sure to include any relevant information to help your justification.

Appendix B – Scoring Categories

Scoring Category 4: Market Potential

In many ways your choice of market is the most impactful decision you will make. In this section, we ask for information on your innovation's market and details on the types of entities you'll be selling to. This might include leveraging a large/growing market, or identifying a new one, but we want you to detail how you arrived at your conclusions and outline any research you've conducted.

Critical Questions to Consider

1. Is there a beachhead market identified? Is it niche? How does it relate to expanding in other markets?
2. Do you have the knowledge and relationships in place to be considered a leader in your market? If not, do you have a plan to fill the holes so you do?
3. How quickly can you establish yourself as a leader in your market? How much capital will be required?
4. Do you have a solid understanding of your customers' typical budget? How does your innovation impact it?
5. How is your target market's industry changing? Is it? How does your innovation relate to this change, or lack thereof?
6. Have you identified any hindering or favorable federal, state, or local policies/regulations that could help the adoption and commercialization of your product? Are there similar competing products with better incentives to your customers?
7. What tools and metrics have you used to analyze your target market?

Key Points

- Illustrate how your innovation has broad appeal.
- Clearly demonstrate the value proposition for customers, companies, and investors.

Appendix C – Scoring Rubric

Used by the Technical Review Committee to Evaluate Applications

			"Poor"	"Average"	"Good"	"Very Good"	"Excellent"
			Cannot be considered for a voucher.	Minimal chance of being considered.	Some chance of being considered.	Good chance of being considered.	Excellent chance of being considered for a voucher.
					Judging Score		
Weight	Criteria	Description	1	2	3	4	5
25%	Innovation	Problem/Challenge is identified. Innovation is described in detail and goals are listed for the project. Product can address problem/challenge. Clear explanation how the innovation (and the demonstration of the innovation) will represent an advance over current state-of-the-art products. Discussion on any existing or anticipated products that could compete with proposed innovation once fully developed and entered into the market. Competition identified and addressed. Technology or business model can be considered "breakthrough." Technology creates greater reliability, lower costs, reduces emissions, and/or increases the safety of California's electricity grid. Assumptions that lab testing will help prove or disprove are provided.	Problem is unclear or solution will not work. No clear advancement over current technologies. Competition is strong. Not a "breakthrough". No benefit to CA ratepayers.	Problem seems too difficult to solve or is not relevant. Solution seems ill-poised to accomplish targeted goals. Applicant demonstrates minimal advancement over current technologies, with no reference to data or previous research. Technology faces stiff competition and does not justify use of public funds to benefit CA ratepayers.	Applicant identifies a reasonable problem with a solution. Applicant claims advancement over current technologies, but some reference to data and previous research. Technology appears to have some competition. Satisfactory benefit to CA ratepayers.	Applicant outlines a clear problem with a convincingly good solution, but would not be described as "game-changing". Demonstrates technology with clear advancement over current solutions. Existing but limited competition. Solution seems poised to succeed. Applicant frames the innovation with clear benefit to CA ratepayers.	Problem and solution clearly outlined as game-changing. Major advancement over current technologies with low or non-existent competition odds. Significant benefit to CA ratepayers.
25%	Scalability	Once the innovation is fully developed an on the market, applicant shows a clear understanding of market stakeholders that influence design, manufacturing, and customer relationships. Tools and systems that could assist scaling are embedded in the design process. Ability to implement change in design is addressed. Manufacturing infrastructure exists, or lack thereof is addressed. The "ideal customer" is defined. Product repeatability/standardization is addressed. Market differentiation is outlined. Ability to describe the innovation and it's position in the market is obvious to customers. Where and how scaling happens is described.	No understanding of market, market stakeholders, or longer-term design considerations. No scaling tools used or addressed. No standardization or repeatability. Product is identical to competetors. No ideal customer outlined.	Applicant shows poor understanding of the market, does not identify key stakeholders. Discussion of long-term design is limited. Design flexibility and manufacturing are not deemed achievable or are too risky. No metrics for standardizing success, or lots of customization required for repeatability. Ideal customer is described but is not clear.	Applicant demonstrates satisfactory research on how product fits in the market and who the relevant stakeholders are. Applicant discusses long-term design considerations but achievability is may include a level of risk. Design flexbility and manufacturing processes are well discussed, but may have some holes. Some metrics for standarizing scaling success are provided. Convincing ideal customer defined.	Applicant shows strong understanding of market stakeholders through data-driven research. Applicant demonstrates they have thought clearly about long-term design considerations as well as how to leverage scaling tools and processes to grow the technology. Design flexibility is deemed possible and manufacutring processes are proven reasonable. Plans on scaling are thoughtfully demonstrated. Achievable metrics for scaling success are provided.	Complete understanding of market stakeholders and long-term design considerations. Scaling tools and processes are well-thought out and detailed. Design flexibility is highly likely. Manufactuing processes are completely valid and acheiveable. Plans on scaling are directly included.
25%	Feasibility	Demonstrates that the innovation makes operational and economic sense. Other supportive financial mechanisms (i.e. private funding, grants, awards, etc.) are in place, are being considered, or are confirmed as not needed. Clear business model has been developed for years after CalTestBed. Explanation on how the voucher will help accelerate the technology TRL but product viability is not tied to CalTestBed voucher funding. Production and production variables/concerns are addressed. Raw material production and pricing influence is discussed. Potential technology weaknesses are identified and discussed. Other untested aspects of the technology are outlined and addressed. Commercialization next steps and/or funding is well-considered.	Innovation makes no operational or economic sense. Add-on funding not addressed. No business case after CTB. Product viability is tied to CTB voucher. No production description. No product weaknesses identified or discussed.	Innovation proves little economic or operational sense. Limited thought given to plans after CTB. Technology may be too dependant on CTB voucher funding with no clear plans/possibility of raising follow-on funds to support technology development. Minimal thought/details given to component material sourcing or supply chain.	Innovation has good economic and operational sense, but appears risky due to lack of concrete data or dependance on lofty technological goals. Plans after CTB are provided but with a barebones roadmap. Innovation has little outside funding to support development. Component material sourcing is lightly described or there is cause for concern on supply chain sourcing.	Innovation demonstrates strong operational and economic sense. Plans after CTB are clear, but could be fleshed out more. Good balance of outside capital to support project outcomes while proving a need for CTB funding. Component material sourcing is clear and possible, with little cause for concern. Product weaknesses and their solutions are discussed and convincing.	Innovation makes perfect operational and economic sense. Plans after CTB are crystal clear. Need for voucher funding is well described but not reliant upon funding. Component material sourcing is very feasible. Product weaknesses and their solutions are discussed.
25%	Market Potential	Customers are identified. Leveraging a large/growing market, or identification of a new market is clear, with details on conclusions and/or research outlined. Beachhead market is identified, discussion on how it relates to similar markets is included. Knowledge and relationships are in place to be considered a market leader, and/or a discussion on how to become such is included. Timing and capital requirements on market leadership is discussed. Typical customer budgets is well-understood and how the innovation impacts customer budgets is outlined. Understanding of market/industry historical changes and relation to that change is discussed. Hindering or favorable federal, State, and/or local policies/regulations/incentives that could help the adoption of the technology is mentioned.	No customers or market potential. Market is small or not clear. No beachhead market identified. Cannot be considered a market leader in a reasonable amout of time. No understanding of customer budgets or market influencers. Current or future policy could prove detrimental to the product	Market is identified but applicant shows poor/little understanding of its growth. Product is entering the market at a time that is clearly too early/too late. Beachhead is identified, but may be too vague. Innovation has little chance of being a market leader or would take too long to reach there. Applicant loosley understands customers and their respective budgets. Innovation could be harmed by regulation.	Market has potential, but does not seem particularly strong or product may be entering at a time too early/too late to succeed. Beachhead is identified and feasible, though may not be sized correctly. Innovation has a chance of being a market leader eventually. Customer budgets are described but not in enough detail. Innovation is not bolstered by favorable incentives. but not likley harmed by any either.	Product is entering the market at a time before too many barriers to entry. Market growth projections are backed by data and research. Innovation can become a market leader with little risk and in a reasonable amount of time. Applicant has demonstrated thoughtful research towards understanding typical customers and their budgets through research and concrete examples. Product can/could benefit from policy incentives.	Market is clear, large, and/or growing quickly. Beachhead makes perfect sense. Innovation can become a major market leader in a short amount of time. Typical customers and their budgets are perfectly understood. Very strong favorable incentive from regulation.
100%							TOTAL SCORE

Appendix D – Frequently Asked Questions

About CalTestBed

What is the primary purpose of CalTestBed?
The primary purpose of CalTestBed is to increase access to world class testbeds for entrepreneurs to test and de-risk their innovations, in order to bring new clean energy technologies to market. CalTestBed unifies an ecosystem of 60 testbeds across the University of California system and Lawrence Berkeley National Lab and conducts a solicitation, review, and selection process to match qualified applicants with laboratory capabilities, in effect streamlining and accelerating the process for entrepreneurs to bring their technologies to market.

Where does the funding for CalTestBed come from?
The CalTestBed initiative is funded through the California Energy Commission's Electric Program Investment Charge (EPIC) Program. The purpose of EPIC is to accelerate the development and adoption of new low-carbon technology solutions for California's electricity sector. To find out more about EPIC and other Energy Commission activities and funding opportunities for research and development, please visit: http://www.energy.ca.gov/research.

How does CalTestBed differ from other funding opportunities through EPIC?
CalTestBed vouchers address a critical gap in access to world-class testing for prototypes, which is necessary to bring new energy innovations to market. The entrepreneur receives a voucher for testing services provided by a CalTestBed laboratory facility, and the facility invoices for the cost of the testing provided. To find out more about other EPIC funding opportunities, visit: http://www.energy.ca.gov/contracts/epic.html.

How much are the vouchers worth?
CalTestBed vouchers can be worth up to, but not exceed, $300,000. Individual voucher amounts are determined by the agreed upon and CEC-approved Statement of Work. Funds are paid to the testing facilities for delivery of testing services. CalTestBed entrepreneurs receive testing services and do not direct funding.

Appendix D – Frequently Asked Questions

About CalTestBed

How often do you accept applications?
Barring unforeseen circumstances, we anticipate an annual solicitation cycle.

Should I reach out to a Regional Energy Innovation Cluster?
You are encouraged to take advantage of our regional cluster partners (LACI, Activate, BlueTech Valley and SCEIN), but you are not required to do so for the CalTestBed application and your relationship with clusters will not affect the scoring of your application.

Should I reach out to a participating testbed?
NO. It is advised that applicants NOT reach out to participating testbeds. Applicants are not required to have an active relationship with a participating testbed. Lab officials are instructed not to help applicants with their applications due to conflict-of-interest concerns which might result in applicants being disqualified. Voucher applicants should consult the detailed CalTestBed Facilities Directory to determine their top three testbed choices in the application process. Taking preference into consideration, voucher recipients will be matched with appropriate testbeds through a deliberative process by the CalTestBed team in collaboration with the labs.

Does CalTestBed have an office?
CalTestBed is administered by New Energy Nexus. New Energy Nexus works with multiple partners throughout California to manage the application process and provide professional development services to entrepreneurs.

Appendix D – Frequently Asked Questions

Eligibility

Do I have to be in California?
Yes. You must have a California address at time of application to be eligible. You must list your official CA business address or, if applying as an individual, the personal address of the lead applicant. You also must be able to sufficiently describe how your innovation will benefit CA IOU ratepayers, and your market strategy for the state. The EPIC funds used to support this program come from a small charge on ratepayers' bills, so the benefits of the vouchers are intended to benefit CA ratepayers through lower cost, increased safety and greater reliability. To be eligible, businesses must be registered with the California Secretary of State and should apply with the company name as registered with the state to enable our eligibility due diligence.

Do I have to be a US citizen?
No.

Can I apply for funding without being a company?
Yes. CalTestBed is open to individuals, businesses, and non-profits.

Am I eligible to apply for CalTestBed if I have already received an EPIC award through another program?
Yes, however if the applicant is a CalSEED awardee, they must have already completed their Concept award and must have already submitted their final reporting.

I've already been funded by CalSEED. Can I apply to CalTestBed?
Yes.

Can I apply with the same idea in the next funding round?
Yes. If your project was not funded, you are free to apply again. If your innovation has already been funded through CalTestBed, you are **not eligible** for a second award. **Once an applicant has been declined three times, they are no longer eligible to apply.**

Appendix D – Frequently Asked Questions

Eligibility

I have two prototypes. Can I submit two applications?
No. For this solicitation we are only accepting one application per lead applicant/organization. You may be on the team for a different application with a different innovation, but not as the lead applicant. Similarly, we are only accepting one application per innovation – duplicate applications from multiple team members will be rejected.

Does this program require any match funding?
Since applicants are not receiving funding directly but in the form of testing services, they are not responsible for match funding.

Will you sign an NDA?
Implementation partners of CalTestBed will NOT sign an NDA.

If we are not signing an NDA, how will my ideas be protected?
Applications will not be published but will be in the public record and available upon request. We recommend giving enough detail so that the review team can adequately judge your application without disclosing confidential and proprietary information.

Is there a specific technology that will score higher than others on the application?
CalTestBed does not score specific technologies higher than others. Innovations must fit within the technology type and category requirements in the Application Manual.

Does my project have to be a technology?
You are required to have a hardware or integrated technology prototype ready-for-testing to be eligible for a CalTestBed voucher.

Does my project/technology/idea qualify?
CalTestBed applicants must have an existing prototype ready-for-testing and the required testing capabilities must be listed in the CalTestBed Facilities Directory. No facilities outside of the those listed in the Facilities Directory will be considered to provide testing.

Appendix D – Frequently Asked Questions

Eligibility

What types of innovations are eligible for funding?

CalTestBed is focused on providing testing for prototype technologies (TRL 5-7) that have the potential for providing benefits including lower cost, greater reliability and improved safety for to the ratepayers of California. We are specifically looking for hardware and integrated solutions. **No stand-alone software solutions will be considered.**

	Hardware	Integrated Solutions
Description	Physical components – tools, machinery, durable equipment - that require design and testing	An innovative combination of software and hardware innovations to maximize functionality and value
Examples	New inverter technologies; photovoltaic panels; manufacturing equipment; sensors for energy efficiency; electric vehicle components; grid-friendly vehicle charging infrastructure; novel battery chemistry or components; transmission and distribution infrastructure improvements; high-voltage electrical equipment, etc.	Solutions which leverage software and hardware innovations to increase efficiency and resilience of the grid and/or solve community access issues (e.g., vehicle to grid concepts), etc.
Out of Scope	Project financing for already existing technologies; manufacturing line scale up; infrastructure projects; oil/natural gas projects.	Single non-replicable solutions. Concepts that are not novel or innovative in application. Concepts that do not have an innovative hardware component.

Appendix D – Frequently Asked Questions

Eligibility

I have an idea for a product that we are currently selling to customers. Does this disqualify me from applying?
CalTestBed is targeting novel innovations at the prototype level. This encompasses innovations at Technology Readiness Level (TRL) 5-7. For further guidance, please consult Page 6 of this application manual which provides a reference to the US Department of Energy's TRL guide.

How do I know if my technology is in the appropriate stage to be considered for a CalTestBed voucher?
We use the DOE's definitions of the maturity of a concept, called Technology Readiness Levels, to determine eligibility for CalTestBed vouchers. We are looking to fund prototypes between TRL levels 5-7. Please refer to page 6 of this application manual for determining your TRL level. If it is discovered that a recommended voucher recipient does not have a prototype ready for testing, it may result in the applicant being disqualified.

What could potentially result in disqualification of a recommended voucher recipient?
If inconsistencies are discovered in the application language regarding eligibility criteria, certifications or conflicts of interest are discovered (for example, the company being registered and operating in the state of CA, the innovation's TRL, the nature of the innovation, the existence of a prototype ready for testing, conflicts of interest, certification of the agreement terms, etc.) the applicant risks disqualification from consideration.

Appendix D – Frequently Asked Questions

On the Application

What time on August 19th are the applications due?
Online applications are due by 11:59pm Pacific time on August 19th.

How long does it take to complete the application?
We estimate that the complete application will take approximately 3-5 hours to complete. You should expect to spend additional time reviewing the agreements for certification and the CalTestBed Facilities Directory to determine lab preferences.

Can I ask for help with the application process?
Assistance is available in the form of webinars and the application manual. CalTestBed staff are NOT available for one-on-one application assistance. Depending on where you're located in California, it could be beneficial to reach out to your regional innovation cluster (LACI, Activate, BlueTech Valley and SCEIN) for assistance with your application. *Do not contact participating testbeds directly.*

I can't log into SmartSimple, the application portal. What do I do?
Contact us at info@caltestbed.com.

Can I include images or graphs in the application?
No. Please describe your innovation and testing requirements using text only. **No additional materials will be considered in evaluating your application**.

Can I edit my application?
We recommend using the "Save Draft" button at the bottom of your SmartSimple application to preserve your progress. When you are ready to submit, press the "Submit" button at the bottom of the SmartSimple application. Once you have submitted, you cannot edit the application.

Appendix D – Frequently Asked Questions

On the Application

Can I change my company name in SmartSimple?
If you want to change your company name, you can ONLY do so by starting a new application. You will not be penalized for doing so since the review team will only review fully completed applications. However, once the application period has ended, company names cannot be changed in SmartSimple.

What happens if I accidentally submit an incomplete application?
All applications will undergo a preliminary review to ensure each application meets the minimum requirements. The CalTestBed team will contact any applicant who needs to provide additional information. At that time, you will be notified and will have 24 hours to fix the issue.

How long does it take for CalTestBed to review the applications?
Depending on the number of applications received, the CalTestBed team expects the review process to take 3-4 months. Please refer to the project schedule on Page 4 for critical dates.

Will CalTestBed request more information after the application process?
Once applications have been deemed eligible and score highly enough to be recommended by technical reviewers, the applicants will proceed to the consultation phase. This phase includes a 1.5 to three-hour structured discussion with campus officials and an assigned neutral party to develop a Statement of Work, which includes scope and schedule. The final budget will be determined by the testing facility personnel based on the agreed upon Statement of Work.

CalTestBed

Application Manual

About Us

CalTestBed is powered by New Energy Nexus and funded by the California Energy Commission through EPIC Funds.

New Energy Nexus supports diverse entrepreneurs to drive innovation and build equity into the global clean energy economy. New Energy Nexus is driven by the immense opportunity that clean energy represents to accelerate the clean energy transition. We are committed to a world where everyone has equal access to clean, sustainable energy; 100% for the 100%.

New Energy Nexus works across the entire lifecycle of clean energy development, commercialization, and deployment. Since 2004, the team has supported clean energy enterprises and launched industry-leading centers focused on developing practical solutions to some of today's most pressing clean energy challenges.

New Energy Nexus is proud to lead the CalTestBed program in collaboration with our implementation partners at the University of California Office of the President and Lawrence Berkeley National Lab, and the tremendous ecosystem of partners that brings the program to life.

POWERED BY NEW ENERGY NEXUS

CalTestBed

info@caltestbed.com
www.caltestbed.com

Connect With Us: linkedin.com/company/caltestbed @CalTestBed