

CalSEED

AT A GLANCE

INVESTING IN CALIFORNIA'S CLEAN ENERGY FUTURE

We support diverse entrepreneurs who deliver equitable outcomes from their clean energy innovations



WHO WE ARE

The California Sustainable Energy Entrepreneur Development Initiative (CalSEED) is a \$24 million grant and professional development program, funded by the California Energy Commission's EPIC research program. CalSEED was created to accelerate California's clean energy goals and serve as a key avenue for economic development. We are now three years into a five year program and have inaugurated three annual cohorts.

WHAT WE DO

CalSEED uses EPIC funds to help bring early stage clean energy innovations in California to market. Powered by New Energy Nexus and its mission to create a 100% clean energy economy for 100% of the population, CalSEED supports diverse entrepreneurs who deliver equitable outcomes from their cleantech innovations.

WHAT WE OFFER

The CalSEED Concept Award provides promising innovators with \$150,000 in grant funding, unprecedented professional development resources, and access to the best accelerator and incubator programs in California. Concept Award winners are also eligible for a \$450,000 Prototype Award after participating in the Business Plan Competition.

WHO CAN APPLY



Individuals / Teams

Apply without an organization affiliation



Businesses

Startups, small businesses or other companies



Non-Profit Organizations

Organization with an official non-profit tax exemption

SUCCESS STORIES



Coreshell Technologies is accelerating the transition to electric transportation and renewable energy, by solving the key degradation issue in rechargeable batteries with its proprietary nanolayer thin-film coatings.

■ The most surprising thing about CalSEED has been the network. This is a great time to be a passionate clean energy entrepreneur, people are coming together and innovating to solve big challenges. It's good to know there are organizations like CalSEED and New Energy Nexus out there who are trying to fund your innovation, bring your ideas into the world and make a real impact in clean energy. ■

- Jonathan Tan, Co-founder and CEO



SkyCool Systems is developing a rooftop, cooling panel that improves the efficiency of air conditioning and refrigeration systems. The core technology in SkyCool's panels is a patented multilayer optical film that cools when outside and under the sky. The film and panels cool with zero electricity input and without evaporating water.

■ The world is getting hotter and the demand for cooling is expected to grow 6 times by 2050. The status quo is no longer an option. CalSEED is helping reduce barriers to test and deploy innovative technologies like ours to keep our planet cool and reduce the impact of climate change. ■

- Eli Goldstein, Co-founder and CEO



Rejoule is developing a battery diagnostic platform as a drop-in solution to replace or embed into an existing battery management system for large battery packs, consisting of a modular hardware and a dynamic software algorithm component.

■ CalSEED has been helpful to ReJoule in 3 ways: capital, connections, and credibility. The capital was obvious when we applied for the grant but the connections and credibility were a nice surprise! Being connected to experienced cleantech entrepreneurs helps us grow our business in ways we never would have imagined. ■

- Zora Chung, Founder and CFO



Glint Photonics is pioneering new technologies at the intersection of photonics and microfluidics. Their unique technology platform uses embedded liquids as responsive and configurable optical components that can be actuated on the micro-scale, enabling new optical capabilities and miniaturized devices.

■ The state's implementation strategy for Assembly Bill 32 requires doubling the energy efficiency savings of buildings by 2030. This can be substantially advanced by a revolution in the approach to building illumination that targets improvements in utilization efficiency: the effectiveness with which light is directed where it is needed. ■

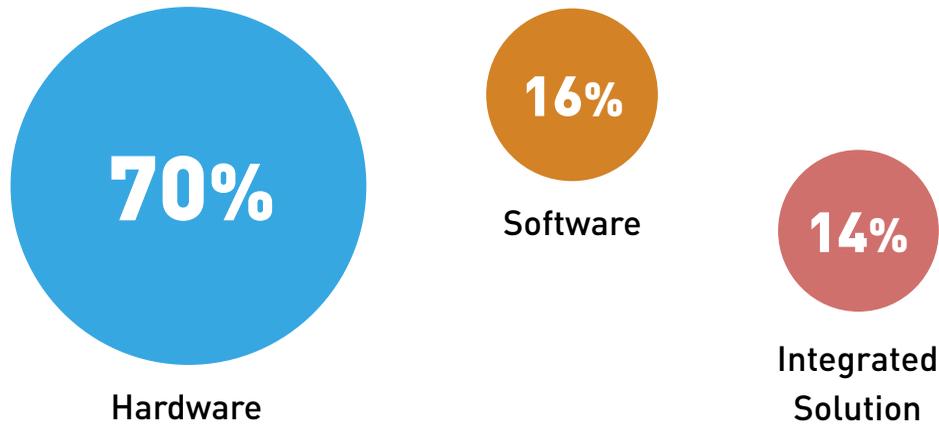
- Peter Kozodoy, Founder and CEO



IMPACT IN NUMBERS

CalSEED entrepreneurs are pioneering solutions to help California realize its decarbonization goals and provide real benefits to California's electricity consumers (ratepayers).

These benefits include: increasing energy access, reducing energy demand, lowering costs, and promoting greater grid reliability.



NUMBER OF COMPANIES	AMOUNT AWARDED	CREATING
1	\$150,000	Industrial feedstocks from atmospheric CO ₂
3	\$450,000	Second-life applications of used EV batteries
8	\$1,200,000	Novel energy storage technologies (e.g. battery chemistry, thermal energy storage and compressed air systems)
5	\$1,650,000	Novel sources of renewable energy like wave energy, piezoelectricity, mobile dams, hydro-electric generation in multiple water pipelines, and solar-power generating windows

NUMBER OF COMPANIES	AMOUNT AWARDED	INCREASING
2	\$300,000	Life cycle and safety of rechargeable lithium batteries
4	\$600,000	Access to renewable energy through community solar
3	\$900,000	Energy efficiency of HVAC systems and ease of use
5	\$1,200,000	Energy efficiency of buildings with IoT
5	\$1,650,000	Reliability with integrated solar and EV charging, energy storage, and other smart-grid technologies
6	\$1,800,000	Energy efficiency of buildings with new materials

NUMBER OF COMPANIES	AMOUNT AWARDED	REDUCING
2	\$300,000	Electricity costs with new lighting lamps and fixtures
8	\$1,200,000	Cost of solar while enhancing its performance
6	\$1,350,000	Cost of EV batteries
7	\$1,500,000	Electricity costs with new lighting lamps and fixtures

SUCCESS STORIES



— opus 12

Opus 12 is a chemical technology company. Their mission is to convert CO₂ into profitable chemicals, such as plastics and transportation fuels. Currently, the company uses metal catalysts to produce synthetic gas, methane and ethylene.

Opus 12's solution uses renewable electricity to convert CO₂ emissions into high-value products. Our system can operate at a steady state, or it can ramp from 0 to 100% capacity in seconds to operate only during periods when load is needed. We are creating the foundation for a new value chain based on recycled CO₂, rather than on fossil fuels.

– Etosha Cave, Co-founder and Chief Science Officer



SUNVAPOR RENEWABLE PROCESS HEAT

Sunvapor is developing solar plants for industrial steam customers that occupy only 1/4 of the land of an equivalent photovoltaic farm, and at a lower cost.

Manufacturing plants emit 1/4 of all the CO₂ in California by generating process heat. Sunvapor has developed a cost-effective solar thermal platform, so that we can meet the demand for process heat with zero-emissions.

– Philip Gleckman, Founder and CEO



SEPION TECHNOLOGIES

Sepion is an advanced materials company offering a platform of highly-tunable nanoporous membranes sold as key components to enable next-gen electric vehicle and portable electronics batteries, long-duration grid-storage batteries, and cost-effective water treatment.

What motivates me in my day-to-day, and in doing science, is to create new science-based solutions to help solve climate change problems. I think it's important that as a species we are pushing the envelope of human knowledge, because basic science is the foundation of impactful technologies. But for me, I wanted to be as close to the frontline as possible in bringing new technologies to bear.

– Peter Frischmann, Founder and CEO



powerflex EDF renewables

PowerFlex develops control software to optimize EV charging in real time, facilitate renewable integration, and respond to grid conditions, demand response (DR) signals or electricity prices.

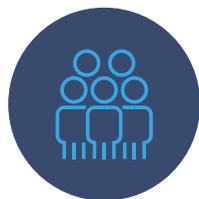
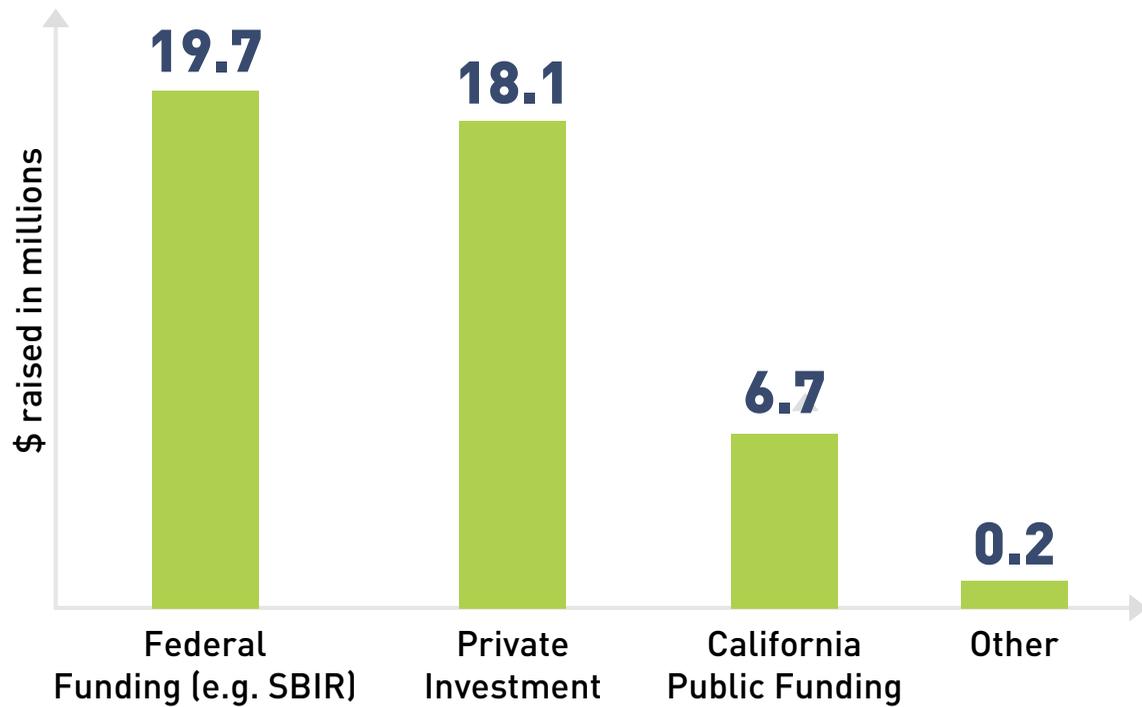
The CalSEED project has allowed PowerFlex to demonstrate adaptive charging technology that optimizes EV charging without exceeding the capacity limit of the electrical infrastructure. This minimizes the capital cost of EV charging facilities and reduces its demand charge and hence its operating cost.

– Steven Low, Co-founder



IMPACT IN NUMBERS

In the first two cohorts, CalSEED awarded 42 startups with **\$11 million**. We are proud to report these awardees have leveraged the \$11 million to raise an additional **\$45 million**, in external public and private follow-on funding.



52 jobs
created



50 patents
registered

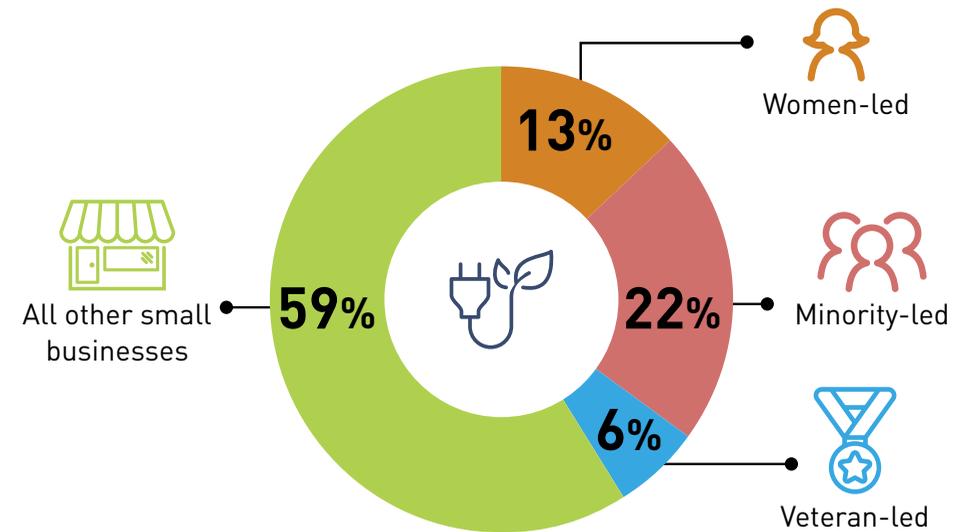


70 pilot projects
launched



21M kWh
of electricity
saved

CalSEED is committed to bringing the full benefits of a clean energy economy to our most underserved communities by making social equity a key component of this program.



\$1.4 million
awarded to projects in
disadvantaged communities
(DACs)

\$2.4 million
awarded to minority-led
startups



Equity should be built into the foundation of how ideas are conceived, how products are designed and how companies are run.

- Parwana Ayub, Environmental Equity Fellow

SUCCESS STORIES



SOUTH 8 TECHNOLOGIES

South 8 Technologies, Inc. has developed a breakthrough Liquefied Gas Electrolyte chemistry for next-generation rechargeable lithium batteries that serves a wider operating temperature range of -80 to +60 °C, provides up to 80% greater energy, and increases safety at a lower cost.

“The CalSEED grant really enabled us to kickstart a lot of the science. It allowed us to buy materials and prototyping equipment we otherwise wouldn’t have access to. Plus, the network is huge! South 8 Technologies is named as a reminder that as we develop these clean technologies, we do so for the betterment of all people, not just those that can afford it. We all breathe the same air and our technologies can help reduce carbon emissions towards a greener future for all.”

- Cyrus Rustomjii, Founder and CEO, and Jungwoo Lee, CTO



NOON ENERGY

Noon Energy is pioneering a flow battery technology that enables economical long-duration energy storage. Their design will allow intermittent renewable electricity sources, such as solar and wind, to meet continual demand.

“Noon Energy is excited to join the CalSEED and New Energy Nexus cleantech communities. CalSEED funding has opened doors for us. It has enabled us to advance our go-to-market strategy and the prototype of our new ultra-low cost long-duration energy storage technology, which are crucial developments for us as an early-stage startup.”

- Christopher Graves, Founder and CEO



ICARUS RT™

Icarus RT is building a low-cost hybrid solar PV / thermal system co-located with commercial and larger solar PV arrays. The system will recover heat from PV panels, store heat energy, and convert stored energy to power after sunset or when needed.

“Since receiving the CalSEED award, we were nominated to the Shell/NREL Gamechanger Program and made great progress as finalists toward an opportunity to work with NREL. We also won the UC Berkeley Cleantech to Market program and private fundraising results have improved substantially. In short, CalSEED has accelerated our momentum and provided amazing and tremendous support to all aspects of our business.”

- Mark Anderson, Co-founder and CEO



codecycle

CodeCycle improves building energy outcomes by using data-driven web and mobile software to streamline the Title 24, Part 6, compliance process for building inspectors, contractors, and design teams. This is first-of-its-kind technology and has the ability to revolutionize building code enforcement by speeding up inspections, while also driving down Co₂ emissions.

“We are working to expand our software tool from lighting to also cover HVAC and building envelope codes. What’s exciting as we expand our services is that we can deliver efficiency benefits to parts of California that tend to get bypassed by traditional efficiency programs. It is the nature of building standards that they are designed to help everyone. That’s the law. We have now used CalSEED funding to serve three new cities in the Central Valley.”

- Dan Suyeyasu, Founder and Director





CalSEED has received applications from 20 counties in California. Through our comprehensive outreach strategy, we are continuing efforts to diversify the pool of applicants and expand our reach to all corners of California.

Across all the three cohorts

\$15

million CEC investment

68

awardees

20

counties represented across California



POWERED BY |

NEW ENERGY NEXUS



