CalTestBed
Entrepreneur Directory
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CalTestBed

An Initiative to De-Risk Innovations and Accelerate Commercialization.
CalTestBed Facilities

BERKELEY LAB
Bringing Science Solutions to the World

UC RIVERSIDE

UC SANTA BARBARA

UC San Diego

UCI

Berkeley

UC SANTA CRUZ

UC DAVIS

UNIVERSITY OF CALIFORNIA

UNIVERSITY OF CALIFORNIA

UNIVERSITY OF CALIFORNIA

Visit the Facilities Directory
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<thead>
<tr>
<th>Technology Types</th>
<th>Description</th>
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<tbody>
<tr>
<td>Building Technologies</td>
<td>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.</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>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.</td>
</tr>
<tr>
<td>Energy Storage</td>
<td>Hardware or integrated enabling technologies for lithium-metal and lithium-sulfur batteries, Ultra- or super-capacitors, Non-lithium battery chemistries, enabling technologies for green hydrogen for long duration, energy storage (including technologies such electrolyzers).</td>
</tr>
<tr>
<td>Grid Technologies</td>
<td>Hardware or integrated solutions that modernize the electric grid, through enabling more clean energy and energy efficiency such as demand response, distribution energy resource management systems, electric vehicle to grid integration, etc.</td>
</tr>
<tr>
<td>Industrial &amp; Agricultural Innovation</td>
<td>Hardware or integrated solutions that work in industrial and/or agricultural context to enable clean energy and/or energy efficiency in industrial and agricultural processes.</td>
</tr>
<tr>
<td>Internet of Things</td>
<td>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.</td>
</tr>
<tr>
<td>Material-Based</td>
<td>Hardware or integrated solutions that utilize novel materials to enable clean energy generation or greater energy efficiency.</td>
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<tr>
<td>Renewable Generation</td>
<td>Hardware or integrated renewable energy technologies that advance electricity, heat, and/or fuel from renewable sources including solar, wind, heat-exchange, and bioenergy technologies.</td>
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<tr>
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<td>Hardware or integrated technologies that enable electric and alternative fuel vehicles, and related electric charging and alternative fueling infrastructure.</td>
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<tr>
<td>Water Technologies</td>
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</tbody>
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Cohort 1
ALD Technical Solutions

UCLA: Smart Grid Energy Research Center

Point of Contact: Dr. Davoud Zamani
Phone: 857.756.8465
Email: davoud@aldtechnicalsolutions.com
Website: https://aldtechnicalsolutions.com/research/

Company Region:
Greater San Diego, San Diego County

Company Description:
ALD Technical Solutions is a woman owned clean tech startup founded in 2018 in San Diego California to develop innovative applications of advanced composite materials in clean and renewables energies.

Designation Status:
Woman Owned Small Business (WOSB)
ALD Technical Solutions

UCLA: Smart Grid Energy Research Center

Technology Readiness Level: 5

Technology Type: Grid Technologies

Innovation Description:
ALD Technical Solutions Composite WiRE Wrap (CWW) technology is novel, lightweight, fast and easy to install. The long lasting, reliable, environmentally friendly and cost effective structural composite reinforcement system will be installed and cured in-place around existing Aluminum Conductor Steel Reinforced (ACSR) transmission lines. The purpose is to increase electric power capacity and decrease the sag of transmission lines.

The composite reinforcement system is a multilayer hybrid composite system consisting of high tensile strength carbon fiber as a structural reinforcement component embedded in basalt fiber as a barrier layer to prevent galvanic corrosion between the carbon fiber and metals with a low longitudinal coefficient of liner thermal expansion.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation
- Transmission line operators and contributors to partner on an onsite demonstration
Alionyx Energy Solutions

UC San Diego: Energy Storage Integration Lab

Point of Contact: Mike Nagus
Phone: 403.689.0939
Email: mnagus@alionyx.com
Website: https://alionyx.com/

Company Region:
Greater Los Angeles, Los Angeles County

Company Description:
Alionyx Energy Systems (AES) has created a new class of batteries based on redox active polymers to store energy. These polymers, developed and manufactured by AES, are drop-in replacement energy storage materials for existing technologies. It is these proprietary polymers that allow AES to build batteries that set them apart from the competition.

The world is becoming more reliant on lithium, cobalt and other rare earth minerals to satisfy the ever increasing need to store and use energy. AES offers an opportunity to rid batteries of one of their metals which stabilizes the system, allowing for more cycles, longer life and decreasing costs as we replace an expensive, toxic and reactive metal for a polymer.
Alionyx Energy Solutions

UC San Diego: Energy Storage Integration Lab

Technology Readiness Level: 5

Technology Type: Grid Technologies

Innovation Description:
AES has developed a novel organic aqueous battery system using our patent pending polymer energy storage materials. AES’s first chemistry, Poly-K uses our patent pending Redox active polymer as a potassium ion receptor to store energy. Precursor materials for manufacturing the polymer are ubiquitous and abundant, which makes a material that is both supply chain independent and cost-effective. The system is aqueous and non-toxic so the manufacturing costs are significantly less than competing technologies and the system is inherently safe (non-flammable/no thermal-runaway). Projected costs of this new system at scale are < $100/kWh. The polymer is also extremely stable, allowing cycles in excess of 13,000 at 100% DOD and 3C rates.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation

Alionyx currently produces D and pouch cells

R&D Lab in Monrovia, California
Alpine Hydromet

UC Riverside: CE-CERT Sustainable Integrated Grid Initiative (SIGI) Test Laboratory

Point of Contact: Anne Heggli
Phone: 503.830.1830
Email: anne@alpinehydromet.com
Website: https://www.alpinehydromet.com/

Company Region:
Central Valley, Placer County
Northern California

Company Description:
Alpine Hydromet’s foundation is meteorology and water resource management with over 50 years of combined experience. Alpine Hydromet focuses on improving real-time monitoring solutions for increased reliability and ease of use by researching scientific and technological developments.

Since 2016, we have focused on the development of the Fluidless Snow Pillow (FSP) and Cosmic Ray Detector (CRD) for snow water content monitoring to enhance hydropower generation.
Alpine Hydromet

UC Riverside: CE-CERT Sustainable Integrated Grid Initiative (SIGI) Test Laboratory

Technology Readiness Level: 5

Technology Type: Renewable Generation
Hydropower Optimization

Innovation Description:
The Cosmic Ray Detector (CRD) is a unique technology that vastly improves the reliability of snow water content monitoring used for grid-scale energy management and reservoir operations.

Cosmic rays routinely enter the earth's atmosphere sending a shower of passive secondary cosmic radiation into the earth's environment. The cosmic rays penetrate many terrestrial objects including snow, where the signal is weakened based on the quantity of water in the snow, regardless of the phase of the water. The attenuation of the signal through the snowpack measures the quantity of water present in the snowpack.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
Battery Energy Storage Technologies, LLC (BEST)
Battery Energy Storage Technologies, LLC

UC San Diego: Energy Storage Integration Lab

Point of Contact: Sri Narayan
Phone: 626.233.4350
Email: sri.narayan@usc.edu
Website: www.batteryenergystoragetechnologies.com

Company Region:
Greater Los Angeles, Los Angeles County

Company Description:
Los Angeles, Los Angeles County Company Description Best Energy Storage Technologies (BEST) is a USC spin-off for the commercialization of durable, inexpensive and scalable organic/inorganic flow batteries for a wide range of energy storage applications.

“The extraordinary durability of the iron/AQDS battery combined with the low cost of materials, presents a unique opportunity for meeting the requirements of “mega”-scale energy storage applications” – Journal of the Electrochemical Society 167 (2020) 060527: DOI: 10.1149/1945-7111/ab84f8
Battery Energy Storage Technologies, LLC
UC San Diego: Energy Storage Integration Lab

Technology Readiness Level: 5

Technology Type: Energy Storage

Innovation Description:
Our innovation is an inexpensive, robust, inherently safe, and sustainable battery solution for long-duration energy storage. Central to this innovation is a water-based redox flow battery (RFB) that uses inexpensive and robust materials such as iron sulfate and an organic substance called anthraquinone disulfonic acid (AQDS).

This new RFB overcomes the principal limitations of lithium–ion batteries, vanadium RFB, and other technologies to deliver an affordable, safe, durable and sustainable solution for behind-the-meter use, microgrids and grid-scale applications.

Our laboratory tests project a lifetime of >20 years and a LCOS of $0.05/kWh, just 10% of that of SOA lithium–ion batteries

Seeking These Next Level Partners:
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
Blue Frontier
UC Davis: Western Cooling Efficiency Center

Point of Contact: Gregory Tropsa
Phone: 970.222.2987
Email: Gregory.Tropsa@bluefrontierac.com
Website: https://bluefrontierac.com/

Company Region:
Greater Los Angeles, Orange County

Company Description:
Blue Frontier is committed to reducing the carbon footprint of buildings and enabling the cost-effective adoption of sustainable energy. Blue Frontier and its industry thought-leading partners have reinvented human comfort to greatly improve occupant health and productivity while slashing the environmental impact of cooling on buildings – a top driver of global electricity demand. Blue Frontier’s patented solutions include hyper-efficient compressorless comfort space conditioning, low-cost energy storage, and the Utility Managed Virtual Power Plant. Consumers can expect a 60%–90% reduction in their energy usage. Additionally, embedded energy storage soaks up low-cost and excess renewable energy, then intelligently shifts its use to cool buildings as the sun begins to set, avoiding peak demand charges.

The extraordinary flexibility of our product enables digital service solutions for the grid and behind the meter. These cloud enabled services are based on AI multi-level optimizations and Digital Twin technology. Blue Frontier’s digital services leverage our unique capacity to independently control temperature, humidity, and outdoor air ventilation, such that the overall energy required to condition a space can be reduced while the comfort and health of tenants is optimized. Blue Frontier’s low-cost, efficient, long-duration energy storage and control optimizes electricity consumption to augment building owner energy bill savings, while at the same time aggregating a dispatchable fleet of units for the benefit of the grid.
Blue Frontier
UC Davis: Western Cooling Efficiency Center

Technology Readiness Level: 7-8
Technology Type: Energy Efficiency
Load Shifting Energy Storage

Innovation Description:
Increasing human comfort and health with a novel hyper-efficient, compressorless commercial building packaged rooftop air conditioning unit with embedded lowcost, long duration energy storage.

Utility Managed Virtual Power plant digital services that optimize end user savings while being aggregated and dispatched for grid reliability.

Seeking These Next Level Partners:
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
- Government Officials wanting to learn more about the innovation

CalTestBed.com
Coreshell Technologies, Inc.

Lawrence Berkeley National Lab: Central Computing Facility at MAterial Project

Point of Contact: Jonathan Tan
Phone: 415.314.9926
Email: jonathan@coreshelltech.com
Website: https://www.coreshelltech.com/

Company Region:
San Francisco Bay Area, Alameda County

Company Description:
Coreshell is solving the key degradation issue in rechargeable batteries with our nanolayer electrode coating technology.

Our unique thin-film electrode coating process enables greater capacity, safer operation & up to 50% lower cost/kWh batteries for the next generation of electric vehicles & energy storage.
Coreshell Technologies, Inc.

Lawrence Berkeley National Lab: Central Computing Facility at MAterial Project

**Technology Readiness Level:** 5

**Technology Type:** Energy Storage

**Innovation Description:**
Coreshell Technologies is solving a fundamental issue in all rechargeable batteries: electrode surface instability. We view this problem as the biggest technical barrier to battery performance improvement—regardless of the chemistry of the anode or cathode. By preventing internal degradation resulting from electrode instability, our technology will enable batteries with significantly reduced cost/kWh, increased lifetime, and improved safety. This would provide the impetus needed for wider deployment of electric vehicles and energy storage, both at utility and residential scale.

Coreshell’s unique solution to the problem is a liquid-phase deposition of protective coatings on battery material surfaces to passivate these degrading reactions.

**Seeking These Next Level Partners:**
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Investors interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation
Element Energy, Inc.

UC San Diego: Energy Storage Integration Lab

Point of Contact: Seth Kahn
Phone: 650.814.9983
Email: seth@elementenergy.com
Website: https://elementenergy.com/

Company Region:
San Francisco Bay Area, San Francisco County

Company Description:
Element Energy’s Cell-Level BMS (CLB) utilizes adaptive cell-learning algorithms to improve the safety, energy throughput and lifetime of large lithium-ion battery packs.

We aim to make grid-tied energy storage safer and more dependable, with levelized cost of storage up to 50% lower than is possible with conventional battery management systems (BMS).
Element Energy, Inc.
UC San Diego: Energy Storage Integration Lab

Technology Readiness Level: 5–6

Technology Type: Energy Storage

Innovation Description:
Element Energy’s Cell-Level BMS (CLB) utilizes adaptive cell-learning algorithms to improve the safety, energy throughput and lifetime of large lithium-ion battery packs. This is achieved by providing innovative, independent software control of the charge and discharge of each cell using a proprietary hardware platform that distributes the traditional pack-level DC-DC converter and BMS function out to all cells.

No longer must every cell in the pack be charged or discharged at the same rate, or the pack ceases discharging when the weakest cell is depleted, or energy be wasted from fully charged cells so that the others may continue charging.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Investors interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation
Feasible Inc.
UC Davis: Green Technology Laboratory

Point of Contact: Shaurjo Biswas
Phone: 734.757.0131
Email: shaurjo@feasible.io
Website: https://www.feasible.io/

Company Region:
San Francisco Bay Area, Alameda County

Company Description:
Feasible, a pioneer in advanced battery diagnostics using ultrasound and machine learning, was founded and is led by top technologists from Princeton University and moved to the Bay Area in 2016.

We are now accelerating the massive shift to electrified mobility by commercializing a technology that will have a significant, near-term impact on the cost of batteries. This is crucial for our clean energy future and it’s an opportunity to create billions of dollars per year in economic value.
Feasible Inc.
UC Davis: Green Technology Laboratory

Technology Readiness Level: 5
Technology Type: Energy Storage

Innovation Description:
Feasible's EchoStat Ultrasonic Battery Inspection Platform consists of

(1) Production-Grade Hardware that integrates into any battery production line
(2) Electronics and Sensors for quickly collecting rich ultrasound data on any type of battery, and
(3) Software Analytics that deliver valuable insights based on data streams from across the production process.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation
flux technology

Advanced materials for gas separations.
Flux Technology

Lawrence Berkeley National Lab: Miller’s Lab

Point of Contact: Jonathan Bachman, Ph.D.
Phone: 630.677.2961
Email: jonbachman@fluxtech.io
Website: www.fluxtech.io

Company Region:
San Francisco Bay Area, Alameda County

Company Description:
Flux was founded in 2017, by Jonathan as a graduate student at U.C. Berkeley alongside Prof. Jeffrey Long, based on the development of metal–organic framework/polymer composites for membrane–based gas separations. Flux can produce large area thin–film composite membranes that can be fabricated into standard spiral–wound membrane elements.

We have identified a biogas producer in Oroville, CA who we can partner with and install a membrane system for biogas upgrading. Using a Flux separation process, our customer can produce carbon-negative bio-CNG for a local trucking company while generating lucrative Low Carbon Fuel Standard credits.
**Flux Technology**

Lawrence Berkeley National Lab: Miller’s Lab

**Technology Readiness Level:** 6
preparing milestones for reach TRL 7 full-scale test

**Technology Type:** Energy Storage

**Innovation Description:**
Flux's innovative membrane technology has achieved a breakthrough in gas separation performance and productivity, enabling high yield and energy efficient separations. Flux has achieved this through the development of a unique polymer/metal–organic framework composite material that has incorporated simple and repeatable membrane elements.

These low cost and modular membrane elements are the building blocks for any gas separation process and can be scaled to any size application.

**Seeking These Next Level Partners:**
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation

CalTestBed.com
Future Motors LLC
UC Riverside: CE-CERT Electric Motor Systems

Point of Contact: Reginald Garcia
Phone: 760.951.6927
Email: goreggie2@verizon.net

Company Region:
Greater San Diego, San Bernardino County

Company Description:
Future Motors strives to discover new and innovative ways of providing 100% green energy to a world that sorely needs it.

Using new progressive technologies, we strive to replace current inefficient motors with our new patented green motors and batteries.

Future Motors has engineered “A Switch Reluctance Motor” (SRM) that enhances machine performance both at low and high speeds.
Future Motors LLC

UC Riverside: CE-CERT Electric Motor Systems

Technology Readiness Level: 5

Technology Type: Energy Efficiency

Innovation Description:
Our motor, software, and battery can make a motor run at minus 67% less energy than today’s motor doing the same amount of work. We look forward to testing it thoroughly and introducing it to the world as quickly as possible.

The way the technology works is when the current goes through the coil and the power is disconnected, a radiant energy field is created. An electroradiant event occurs on the collapsing of the electric motor coil. This is a second field that combines with the electric field which gives our motor its efficiencies.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation
GreenTech Motors Corporation

UC Riverside: CE-CERT Electric Motor Systems Testing Laboratory (EMSTL)

Point of Contact: Burnet D. Brown  
Phone: 805.405.8199  
Email: burnet@greentechmotors.com  
Website: https://www.greentechmotors.com/

Company Region:  
Central Valley, Humboldt County

Company Description:  
GTM is a California clean energy company developing high efficiency density (HED) integrated electric motor and drive technologies.

Using advanced aerospace engineering originally developed by engineers at Boeing’s Phantom Works research and development test facility, GTM has designed a plug-and-play, drop-in-replacement technology that solves the problem of dimensional incompatibility, a problem that has impeded wider efficiency gains and prevented the strengthening of motor efficiency standards.
Technology Readiness Level: 5

Technology Type: Renewable Generation

Innovation Description:
GTM HED motors utilize a combination of proprietary windings, magnetics, and power electronics to produce drop-in-replacement motors that provide unprecedented efficiency (>97.5%) in a smaller (up to 70%), lighter (up to 70%) package compared to conventional motors.

To enhance electrical power efficiency and address other power demand challenges, GTM HED motors facilitate retrofit integration into existing systems as well as OEM applications that demand the combined advantages of high efficiency, small size and light weight. GTM technology is scalable across a wide output range and addresses multiple pain points for customers, energy providers, and societal stakeholders.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation
- Electric utilities with efficiency incentive and rebate programs
Helicoid Industries Inc.

UC Irvine: Engineering Laboratory Facility

Point of Contact: Chad Wasilenkoff
Phone: 604.816.7888
Email: chadw@helicoidind.com
Website: https://www.helicoidind.com/

Company Region:
Greater San Diego, Riverside County

Company Description:
Helicoid Industries emulates the incredible strength of the Mantis shrimp and as a result makes composites lighter, stronger, more impact resistant, and all at a lower production cost.

Helicoid is focusing on a Leading-Edge Protection technology that will reduce weight, increase life cycles and increase energy output of wind turbine blades.

Chad Wasilenkoff
CEO
A proven leader of a variety of technology companies coupled with an extensive background in capital markets globally.

Pascal Joubert des Ouches
President
With over 25 years’ experience in the composites industry, including leading roles in Sales, Marketing, R&T and Innovation.

Doug McCarville
CTO
Over 35 years of experience working at Boeing. One of Boeing’s most prolific inventors, holding 64 composite-related patents.

William Spathelf
CFO
40 years’ experience with Citi as a senior international banker. Focus on building and growing businesses, strategy, credit risk mitigation, and financial models.

Anita Beishuizen
Marketing & Communications Director
Over 15 years’ experience including project management, marketing, finance, investor relations, and communications.

Pascal Scaramuzzino PhD.
Defense Technology Director
20 years’ experience in industrial applications, mechanical and ballistic protection, including regional and global leading roles in Sales, R&D, Tech Marketing and Innovation.
**Helicoid Industries Inc.**

**UC Irvine: Engineering Laboratory Facility**

**Technology Readiness Level:** 5

**Technology Type:** Material-Based

**Innovation Description:**

Mantis shrimp have an internal structure to protect its hammer-like club that pulverizes prey with incredible speed and force. University of California has spent >11 years and >$10 million dollars reverse engineering the club and has determined that it is not the material, but the architecture that provides the strength and toughness. The material is organized in sheets of locally parallel fibers that are stacked, and each layer is rotated.

This unique patented architecture is called a helicoid and is ready to commercialize in numerous composite materials. Our first target market will be Leading Edge protection for wind turbine blades.

**Seeking These Next Level Partners:**

- Testbed facilities interested in partnering
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
HyperBorean
UC Davis: Western Cooling Efficiency Center

Point of Contact: Todd Gentry
Phone: 620.229.0001
Email: todd.gentry@coldfromheat.com
Website: www.coldfromheat.com

Company Region:
Central Valley, Fresno County

Company Description:
HyperBorean has developed a novel air-conditioning compressor that is powered by heat rather than by electricity. Our compressor provides off grid cooling powered by concentrated solar or other no-cost sources of heat.

Our technology is built on the vapor compression platform which makes our heat powered compressor compatible with all vapor compression air-conditioning equipment.

This compatibility also makes the compressor serviceable by HVAC technicians with only minimal additional training.
HyperBorean

UC Davis: Western Cooling Efficiency Center

Technology Readiness Level: 5

Technology Type: Building Technologies

Innovation Description:
HyperBorean has developed a novel air-conditioning compressor that operates with heat as its energy input rather than being powered by an electric motor.

The compressor is designed to either replace the electrically powered compressor in a standard vapor compression A/C unit, or alternatively, to be integrated into a standard vapor compression unit in parallel with an electrically powered compressor.

By operating from a source of heat like concentrated solar (CSP), the compressor can operate off-grid, which dramatically reduces the energy required for producing cooling. An advanced control system has been developed which provides real-time energy savings data to our customers.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation

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KIGT

UC Riverside: CE-CERT Sustainable Integrated Grid Initiative (SIGI) Test Laboratory

Point of Contact: Paul Francis
Phone: 909.245.1503
Email: paul@KIGT.co
Website: https://www.KIGTinc.com/

Company Region:
San Diego, San Bernadino County

Company Description:
KIGT designs, engineers, and manufactures the pound for pound smallest, smartest, fastest, and most flexible Level 2 Electric Vehicle Charging Station for home, commercial, and fleets.

KIGT's vertically integrated network software Charge Cloud™ Operating features an intuitive user interface and seamless billing software, with power throttling and Vehicle to Grid (V2G) capability.

Designation Status:
Minority Business Enterprise (MBE)
KIGT

Technology Readiness Level: 9
Technology Type: Transportation

Innovation Description:
KIGT Smart EV Charging Stations include a vertically integrated software platform, which features KIGT’s Charge Cloud Operating System Software Network. KIGT created an easy-to-use intuitive user interface, seamless billing software, and mobile app, with back-end grid management administrative software for property owners and utilities.

KIGT’s Level 2 hardware is also Vehicle to Grid (V2G) capable, meaning KIGT eChargers can facilitate the bi-directional flow of power from V2G capable EVs back to the grid. KIGT manufactures in Southern California, and we have the capacity to produce several thousand EV charging stations monthly.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Investors interested in learning about new clean energy investment opportunities
- Government officials wanting to learn more about the innovation
Lucent Optics

Lawrence Berkeley National Lab: FLEXLAB

**Point of Contact:** Sergey Vasylyev  
**Phone:** 916.226.1763  
**Email:** svasylyev@lucentoptics.com  
**Website:** www.lucentoptics.com

**Company Region:**  
Central Valley, Sacramento County

**Company Description:**  
Lucent Optics is dedicated to creating impactful technology solutions for energy efficiency and renewable energy.

Our products include ultra-thin and flexible LED lighting panels, daylight harvesting window films, and high efficiency signage.
Technology Readiness Level: 5
Technology Type: Building Technologies

Innovation Description:
Our novel solar control window film uses printed optical micro-structures to angularly redirect the incident sunlight, rejecting >60% of heat while preserving the view and redirecting the transmitted light deep into the space, enhancing natural lighting levels by 30–50%.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation
NEXT Energy Technologies

UC Santa Barbara: Optical Characterization Facility

**Point of Contact:** Jeffrey Horowitz  
**Phone:** 805.233.6993  
**Email:** jeff@nextenergytech.com  
**Website:** https://www.nextenergytech.com/

**Company Region:**  
Los Angeles, Santa Barbara County

**Company Description:**  
NEXT is developing game-changing transparent photovoltaic glass that allows architects and building owners to transform windows and glass façades into producers of low-cost, on-site, renewable energy for commercial buildings.

NEXT’s technology is enabled by proprietary organic semiconducting coatings that are earth-abundant, low-cost, and non-toxic, and are printed in a high-speed, low-cost, low-energy process to produce beautiful energy-harvesting windows.

Cost competitive with conventional energy sources, NEXT’s photovoltaic window technology delivers uncompromised aesthetics while generating low-cost, renewable power at compelling efficiencies. No other BIPV window technology can match NEXT’s transparency, aesthetics, cost, and performance attributes.
NEXT Energy Technologies

UC Santa Barbara: Optical Characterization Facility

Technology Readiness Level: 5
Technology Type: Material-Based

Innovation Description:
NEXT Energy makes it easy – and financially attractive – for architects and building owners to specify windows and glass façades that produce near no-cost, on-site, renewable energy for commercial and residential buildings.

NEXT’s game-changing photovoltaic window technology delivers architecturally approved color, clarity, and aesthetics while generating renewable power at compelling efficiencies not achieved by other solar technologies.

Seeking These Next Level Partners:
- Pilot/demonstration project partner
- Companies interested in new clean energy tech for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
OnTo Technology LLC

Lawrence Berkeley National Lab: Battery Research & Testing Facility

**Point of Contact:** Steve Sloop  
**Phone:** 541.410.9029  
**Email:** ssloop@onto-technology.com  
**Website:** www.onto-technology.com

**Company Region:**  
Bay Area, Alameda County

**Company Description:**  
OnTo develops methods to recycle advanced lithium-ion batteries. This comprehensive, patented suite of technologies improves safety and efficiency in the developing circular economy. Innovations include deactivation/de-powering of batteries to improve safety and cost of transportation and storage; and cathode-healing™, which is the most efficient recycling method applicable to any electric vehicle chemistry.

**Designation Status:**  
Women Owned Small Business (WOSB)
OnTo Technology LLC

Lawrence Berkeley National Lab: Battery Research & Testing Facility

Technology Readiness Level: 5–6

Technology Type: Energy Storage

Innovation Description:
OnTo’s battery deactivation innovation eliminated flammability and reactivity risks in lithium-ion batteries at their end-of-life, or at any time they may be considered a danger. The process can be applied in the field to address identified hazardous batteries, or at a destination facility to eliminate fire and storage risks.

The process uses low cost, benign material to eliminate reactivity inside lithium-ion, lithium metal, alkaline, and metal-hydride batteries. Batteries deactivated with this technology do not react when exposed to heat or other abusive conditions.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy technologies for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government officials wanting to learn more about the innovation

Battery Deactivation Opportunity

In 2030*:

$5B vs. $250M

*Est. global waste tonnage x Cost/ton = $5B
ReJoule, Inc.
ReJoule, Inc.

UC Riverside: CE-CERT The Sustainable Integrated Grid Initiative (SIGI) Test Laboratory

Point of Contact: Zora Chung  
Phone: 805.395.9268  
Email: zora@rejouleenergy.com  
Website: https://www.rejouleenergy.com/

Company Region:  
Los Angeles, Los Angeles County

Company Description:  
ReJoule's advanced diagnostic platform enables automakers to maximize the value of their electric vehicle batteries.

Our platform enables a fast and more accurate measurement of the battery’s health and can dynamically adjust for optimal performance even as it ages. This will help automakers scale their operations from the beginning to the end of the battery’s life.

Designation Status:  
Minority Business Enterprise (MBE)
ReJoule, Inc.

UC Riverside: CE-CERT The Sustainable Integrated Grid Initiative (SIGI) Test Laboratory

Technology Readiness Level: 5

Technology Type: Transportation – Battery Diagnostics

Innovation Description:
Our innovation streamlines health diagnostics across the battery life cycle to dramatically improve long-term life prediction of battery systems. This provides clarity where there was uncertainty and reduces the cost of battery validation, both during development and maintenance.

Our technology leverages a powerful battery characterization technique called electrochemical impedance spectroscopy that, currently, can only be used in a lab setting for single cells. Our solution makes this powerful technique possible at the module and pack level in real-world applications. The technology reveals unprecedented physical insights into the battery in its end application, allowing for a more accurate assessment of battery state-of-health.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy tech for potential acquisition
- Investors interested in learning about new clean energy investment opportunities
- Government officials wanting to learn more about the innovation
Point of Contact: Dr. Antoni Tong  
Phone: 530.304.5193  
Email: antoni@smartville.io  
Website: www.smartville.io

Company Region:  
San Diego, San Diego County

Company Description:  
Smartville is a clean energy technology company developing hardware, software, and advanced control solutions to enable used electric vehicle batteries to be repurposed for stationary energy storage applications in a manner that overcomes the four primary challenges of this market: cost, scalability, reliability, and safety.

Smartville Inc.  
UC Irvine: HIMaC2 Facilities, Engineering Gateway

Dr. Antoni Tong  
CEO

Mike Ferry  
President

Bill Torre  
Senior Engineer

Charlie Botsford, PE  
Bus Dev & Engineer

Grant Berman  
CFO

David Weisbach, PE  
Design Engineer
Technology Readiness Level: 6

Technology Type: Energy Storage

Innovation Description:
Smartville Inc. has completed component-level research and proof-of-concept testing for its Heterogenous Unifying Battery (HUB) system and is currently ready to demonstrate a 100kW/100kWh pilot system using Nissan and Tesla batteries.

The CalTestBed program will provide crucial support in validating key functions of the integrated HUB system including self-learning of battery health parameters, battery life balancing, and energy storage service capabilities. Smartville will achieve these results through innovative modular power converter control, life balancing to optimize battery cell group life cycles, and life cycle extension via improved cell-to-cell uniformity enabled through industry-first hardware functions and battery management algorithm software.

Seeking These Next Level Partners:
- Expert partners to help prepare for scaled-up product manufacturing
- Initial commercial customers for product sales and service: commercial and industrial customers for behind-the-meter energy storage installations and independent power producers seeking low-cost, large-scale energy storage assets
- Investors to provide working capital to achieve manufacturing scale-up
Stasis Energy Group

UC Riverside: CE-CERT: Sustainable Integrated Grid Initiative (SIGI) Test Laboratory

Point of Contact: Nick Brown
Phone: 714.984.3397
Email: nick@stasisenergygroup.com
Website: https://www.stasisenergygroup.com/

Company Region:
Los Angeles, Los Angeles County

Company Description:
Stasis Energy Group is bringing thermal energy storage solutions to commercial HVAC systems.

Stasis develops bio-based thermal energy storage systems (TESS) that retrofit existing roof-top-mounted packaged HVAC systems to replace air conditioning with TESS-cooling during the highest peak demand periods of 4-6 p.m. for small and medium commercial buildings.

Designation Status:
Minority Business Enterprise (MBE)
Stasis Energy Group

UC Riverside: CE-CERT: Sustainable Integrated Grid Initiative (SIGI) Test Laboratory

Technology Readiness Level: 7
Technology Type: Energy Storage

Innovation Description:
Stasis’s first-of-its-kind Thermal Energy Storage System (TESS) is a thermal battery made of plant-based Phase Change Materials (PCM) that is bolted into the supply ductwork of HVAC systems.

Paired with our proprietary controller, it shifts heating and cooling energy use out of peak periods, saving business owners money on their electric bills.

Our system targets peak demand energy use and reduces cooling–related peak demand charges by up to 50%, costs about $6,500 for a 5-ton RTU and pays for itself in 5–6 years and provides savings for the life of the unit.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Government officials wanting to learn more about the innovation
System Z

UC Irvine: Grid Evolution Laboratory, Advanced Power & Energy Program

Point of Contact: Paul Donahue
Phone: 949.400.6393
Email: paul@neworld.energy

Company Region:
Los Angeles, Orange County

Company Description:
System Z has partnered with Neworld Energy to support the lab testing of The Energy Quarterback and Microgrid in a Meter.

The Energy Quarterback and patented Microgrid in a Meter enable a fast low-cost upgrade to any solar system.

It unlocks a fully resilient self-sustaining solar microgrid that safely powers a home or building from its installed solar (with or without batteries).
System Z
UC Irvine: Grid Evolution Laboratory, Advanced Power & Energy Program

Technology Readiness Level: 7
Technology Type: Internet of Things

Innovation Description:
The Microgrid in a Meter (‘MIM’) is a patent pending, easy to install device that plugs directly into buildings’ Smart meter socket.

MIM immediately transforms the facility’s solar and/or battery system into a resilient microgrid that addresses and meets the following California energy challenges:
1. Solar systems automatically shut down during grid outages, wildfires, and other PSPS events.
2. Solar often over-generates on the grid, creating costly grid imbalances.
3. Current backup battery systems require expensive hybrid inverters and electrical rewiring to deliver just a few hours of backup power to a limited number of circuits, devices, and appliances.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Government official wanting to learn more about the innovation
Takachar

UC Santa Barbara: Renewable Natural Gas Development Laboratory

**Point of Contact:** Kevin Kung

**Phone:** 857.600.0981

**Email:** kevin@takachar.com

**Website:** https://www.takachar.com/

**Company Region:**
Los Angeles, Los Angeles County

**Company Description:**
Takachar is focused on dramatically increasing the amount of waste biomass economically transformed into marketable products around the world.

Most crop and forest residues (biomass) are loose, wet, and bulky, making them difficult to collect and centralize. Imagine small-scale, low-cost, portable systems that can be latched onto the back of tractors and pick-up trucks to deploy to rural farms and hard-to-access logging landings to process the locally available residues into higher-value, densified bioproducts before transportation. This can save up to 90% of the logistical costs, dramatically altering the unit economics of biomass conversion.

**Designation Status:**
Minority Business Enterprise (MBE)
Takachar

UC Santa Barbara: Renewable Natural Gas Development Laboratory

Technology Readiness Level: 5

Technology Type: Renewable Generation

Innovation Description:

Takachar’s reactor is based a new chemical variant called oxygen-lean torrefaction, explored during co-founder Kevin Kung’s doctoral research, supported by the MIT Tata Center for Technology and Design.

We demonstrated that this process could yield a new class of simplified continuous biomass torrefaction reactors that can operate at steady state and can be tuned to produce products of different qualities desired by different end users.

Seeking These Next Level Partners:

- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Companies interested in new clean energy tech for potential acquisition
- Investors interested in learning more about new clean energy investment opportunities
- Government officials wanting to learn more about the innovation
- Regulatory agencies to help facilitate the certification process
twelve
Twelve

Lawrence Berkeley National Lab: The Energy Conversion Group
“Fuel Cell and Electrolyzer Testing Facility

Point of Contact: Etosha Cave
Phone: 281.235.2314
Email: operations@twelve.co
Website: https://www.twelve.co/

Company Region:
San Francisco Bay Area, Alameda County

Company Description:
Twelve has developed a device that recycles CO₂ into cost-competitive chemicals and fuels.

Our technology bolts onto any source of CO₂ emissions, and with only water and electricity as inputs, transforms that CO₂ into some of the world’s most critical chemical products.

We can reduce the carbon footprint of the world’s heaviest emitters, while creating a new revenue stream from what is discarded today as a waste product.
Technology Readiness Level: 5

Technology Type: Energy Storage

Innovation Description:

CO₂ electrolysis combines just three inputs: CO₂, water, and electricity, and converts them into cost-competitive fuels and chemicals. At a high level, CO₂ electrolysis can be thought of as reversing combustion: it combines CO₂, water, and energy to produce higher-energy products and pure oxygen.

CO₂ electrolysis can directly convert waste CO₂ emissions to useful fuels and chemicals enabling deeper penetration of renewable electricity into the electrical grid, reducing air, land, and soil pollution associated with conventional chemical and fuel production, and generating revenue in order to lower ratepayer costs.

Seeking These Next Level Partners:

- Pilot/ demonstration project partner
- Government official wanting to learn more about the innovation
UmidaAG

UC Riverside: CE-CERT and the College of Natural and Agricultural Sciences’ Agriculture Operations (AgOps)

**Point of Contact:** Joseph Gallegos  
**Phone:** 562.301.5598  
**Email:** joseph@umidaAG.com  
**Website:** https://www.UmidaAG.com/

**Company Region:**  
Central Valley, Fresno & Stanislaus County

**Company Description:**  
UmidaAG reduces farm irrigation power and water use. We are enabling flexible demand load on 240 terawatt hours of capacity in California alone, a $7.2 billion dollar untapped overcapacity in the energy wholesale market.

Think of our A.I solution as a marketplace where overcapacity of renewable power can be sold instead of curtail anytime of the day, essentially using the soil as a form of battery or capacitor at a .0125 KWh cost.

**Designation Status:**  
Minority Business Enterprise (MBE)
Technology Readiness Level: 7

Technology Type: Industrial & Agriculture Innovation

Innovation Description:
We take farm irrigation’s heavy 24 to 72 hours of uninterrupted power demand footprint and change it to three 5-minute bursts anytime of the day (Flexible on demand load).

Our CAL-ISO energy grid tool smooths out variable generation spikes and avoids overcapacity curtailment losses.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Investors interested in learning more about new clean energy investment opportunities
- Government officials wanting to learn more about the innovation
- Renewable energy utility plant or off taker with overcapacity/curtailment issues
- Grid balancing authority with overcapacity/curtailment losses
- Investors interested in negative wholesale price market arbitrage
- Offtaker with overcapacity/curtailment financial risk/losses

Impact of Storage on Curtailment as a Function of Wind and Solar

NREL TP-6A20-68960
West Biofuels

UC San Diego: Renewable Natural Gas Development Laboratory

Point of Contact: Michael Long  
Phone: 530.207.5996 ext. 108  
Email: Michael.Long@WestBiofuels.com  
Website: www.westbiofuels.com

Company Region:  
Central Valley, Yolo County

Company Description:  
WestBiofuels is a provider and developer of thermochemical systems for the conversion of biomass to power, fuels, and chemicals since 2007. In collaboration with national and international R&D partners, such as NREL, CSM, UC San Diego, UC Davis, BEST (Austria), PSI (Switzerland), and TUM (Munich), West Biofuels boasts low-carbon renewables pathways including biomass-based hydrogen, synthetic natural gas, diesel, aviation fuels and chemical alcohol production.

Commercial developments include two community-scale facilities that are currently under construction. West Biofuels offers advanced technologies for reaching a zero-carbon future, reducing threat of wildfires, utilizing agricultural waste biomass, and achieving community and sustainable development goals.
Technology Readiness Level: 5–8

Technology Type: Renewable Generation

Innovation Description:
Advanced biomass gasification technology produces high quality producer gas (39% H₂, 29% CO, 20% CO₂, 9% CH4) suitable for conversion into renewable natural gas (RNG). Fluidized-bed methanation catalyst technology converts all the CO and H₂ in producer gas to RNG without additional H₂ and reduces plant costs.

Adding H₂ from the electrolysis of water (solar power to gas) all the CO₂ in the producer gas can be converted to RNG and output doubled, increasing efficiency and the GHG reduction potential. Optimizing methanation catalyst and operating conditions are required to maximize RNG production from the CO and CO₂ in producer gas.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/ demonstration project partner
- Investors interested in learning more about new clean energy investment opportunities
- Accelerator/ incubator that supports the commercialization of clean energy technologies
- Government official wanting to learn more about the innovation
Cohort 2
Anthro Energy

Lawrence Berkeley National Lab: Battery Research and Testing Facility

**Point of Contact:** David Mackanic  
**Phone:** 919.622.3825  
**Email:** david@anthroenergy.com  
**Website:** https://www.anthroenergy.com

**Company Region:**  
San Francisco Bay Area, Santa Clara County

**Company Description:**  
Anthro Energy is developing advanced battery materials to revolutionize energy storage. Our mission is to utilize cutting-edge polymer engineering techniques to create next generation batteries. By improving the materials inside lithium ion batteries, we aim to enable products that are safer, higher performance, and more functional. If Anthro Energy’s batteries are successfully commercialized, we will engender an acceleration of electrification and an increase in safety of energy storage.
Anthro Energy

Lawrence Berkeley National Lab: Battery Research and Testing Facility

Technology Readiness Level: 5

Technology Type: Material-Based

Innovation Description:
Anthro Energy uses advanced polymers to develop a robust LIBs. Our cell is structural, impact resistant, deformable, flexible, and safe. Compared to existing batteries, our cells can be used in locations that experience impact, stress, or deformation. Our prototype is a 500 mAh, 3.8V multi-layer pouch cell fabricated by our pilot manufacturing partner, the Battery Innovation Center. This pouch contains proprietary Anthro Energy polymers as a non-flammable electrolyte/separator. The cell features an innovative binder and novel current collectors that impact additional safety and structural integrity. We will subject our prototype to significant battery stress testing to highlight our value proposition.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Investor interested in learning about new clean energy investment opportunities
- Government official wanting to learn more about the program
Community Energy Labs
UC Berkeley: Center for the Built Environment

Point of Contact: Tanya Barham
Phone: 866.578.7118
Email: tanyab@communityenergylabs.com
Website: https://communityenergylabs.com/

Company Region:
Greater San Diego, San Diego County

Company Description:
Community Energy Labs (CEL) is a woman-owned and led energy technology company with a mission to enable affordable decarbonization of community buildings by 2030. CEL’s core AI-powered clean building control concept was one of only 12 regional winners of CleanTech Open’s 2020 international accelerator. It was the overall winner in the 2020 Madrona Venture Labs Go Vertical challenge and was recently selected to participate in EPRI’s 2021 IncubateEnergy cohort. As background, CEL emerged from the non-profit PECI as a nimble social enterprise with a suite of grid-edge and community-centric IT approaches to climate adaption, local empowerment, and clean energy. CEL brings nearly $1.5M in intellectual property value, market research, and project development work funded by and performed at PECI between 2016 and 2019.

Designation Status:
Women Owned Small Business (WOSB), Women’s Business Enterprise (WBE)
Community Energy Labs
UC Berkeley: Center for the Built Environment

Technology Readiness Level: 5

Technology Type: Building Technologies

Innovation Description:
Community Energy Labs is bringing to market the first truly scalable AI-powered clean building control platform. Geared for schools, municipal and public building operators who find it complex, frustrating, and expensive to meet new building energy goals, we install wireless sensors, equipment controllers, and use cloud-based software powered by data-driven energy models and machine learning. We autonomously predict and efficiently control how and when new and existing building equipment is operating so that more of it is powered by renewables. Building owners see higher levels of energy savings, lower carbon and up-front cost than expensive upgrades or DIY.

Seeking These Next Level Partners:
- Testbed Facilities interested in partnering
- Pilot/demonstration project partner
- Company interested in new clean energy technology for potential acquisition
- Investor interested in learning about new clean energy investment opportunities
- Government official wanting to learn more about the program
- We’re hiring for machine engineers, data scientists, field engineers, and project managers

Community Energy Labs
UC Berkeley: Center for the Built Environment
Cyclonatix

UC Riverside: CE-CERT: Electrical Motor Systems Testing Laboratory

**Point of Contact:** Jae Lim  
**Phone:** 714.501.8143  
**Email:** jyl.cyclonatix@gmail.com

**Company Region:**  
Greater San Diego, Riverside County

**Company Description:**  
The goals of Cyclonatix, Inc. are: 1) To be developing the best performing motor technology, 2) To be serving our customers with the best quality products at economy price, 3) To be benefiting back to local communities and be supporting disadvantages communities. Cyclonatix, Inc. has been developed and will soon manufacture and market our unique Brushless DC motor/controller systems which are very highly efficient, speed–torque controllable, low cost, compact size, and operable with AC or DC power source. Our business will promote our clients’ businesses of manufacturing machines, for example of air-compressor, air-conditioning and pumps, by supplying top performance motor system at an inexpensive price to solve the problems of their existing AC motors. Our company will also create hundreds of local jobs which will benefit local communities including disadvantaged/ low-income communities. The high efficiency of our product will lower power consumption and demand charge which will lead to lower electricity bill and ultimately help decrease economic burden for individuals and businesses. Our motor system demonstrates excellent energy saving capability and is an optimal fit for electric vehicles and solar systems and will therefore help increase access to clean energy and reduce air pollution.

**Designation Status:**  
Minority Business Enterprise (MBE)
Cyclonatix
UC Riverside: CE-CERT: Electrical Motor Systems
Testing Laboratory

Technology Readiness Level: 5

Technology Type: Energy Efficiency

Innovation Description:
Our innovation is a very unique high-efficiency, low-cost, non-REM-magnet Brushless-DC motor/controller-system, perfect for heat pump/HVAC, air compressor, pump and electric vehicles. Differentiated from other motors:
1. Partial-Square-Wave to eliminate Back-EMF problems at Pole-Changing-Area and bad effect of Power-Factor thus to maximize Efficiency and maximize cooling need
2. Spoke-shape-Magnetic-Array in Rotor to maximize Flux Concentration for maximum Torque and Efficiency
3. Advancing timing of excitation to raise RPM rapidly to much improve efficiency and torque
4. Minimal impact of power factor because our motor is intrinsically DC machine
5. Easy scalability/ low cost due to compact size, simple PWM control and minimal cooling needs

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Company interested in new clean technology for potential acquisition
- Investor interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- OEM/license manufacturing
- Joint Venture partners
EH Group Technologies, Inc.

UC Irvine: National Fuel Cell Research Center (NFCRC)

Point of Contact: Christopher Brandon
Phone: 805.886.4318
Email: cbrandon@ehgroup.ch
Website: https://www.ehgroup.ch

Company Region:
Greater Los Angeles, Santa Barbara County

Company Description:
EH Group aims to become a leading player in the emerging hydrogen economy, by making fuel cells a more efficient and cost effective solution for decarbonised future. Our value proposition is to fulfill the following objectives:
- An innovative fuel cell technology, based on a wholly redesigned microstructure that delivers a power density of 1.5–2 times that of leading competitors’ products;
- A transformative assembly and production by process innovation which aims to radically reduce the price of fuel cells;
- A greatly simplified fuel cell system with less parasitic loads (thereby cheaper and more efficient).

Our product will therefore directly address the challenge of current unsustainable or pollutive technologies that power our economy, but that are unfit for purpose in our times. For example, long term energy storage, as well as commercial transport that require extended use, range, and/or heavy payloads are primed for disruptive decarbonization that cannot be met by batteries alone (trucks, buses, trains, construction equipment, ferries, etc.). These are just some of the markets that are poised to benefit from the wide scale implementation of our innovative FC technology.
Technology Readiness Level: 7

Technology Type: Energy Storage

Innovation Description:
EH Group's core innovative fuel cell technology under development is based on:
- A uniquely simplified and re-designed fuel cell stack at the microstructure level, making it significantly (1.5-2X) more compact, lightweight and efficient.
- The invented technology allows our fuel cells to operate with minimal effects of gravity and in any orientation, and scales up to 250kW modules.
- Our innovatively designed fuel cell stack means that we are consequently able to simplify the complete fuel cell system—leading to higher overall system efficiencies with fewer components and lower costs.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Company interested in new clean energy technologies for potential acquisition
- Investor interested in learning about new clean energy investment opportunities
- Government officials wanting to learn more about the program
EnZinc, Inc.
UC Riverside: CE-CERT SIGI

Point of Contact: Michael Burz
Phone: 301.312.4780
Email: mburz@enzinc.com
Website: https://www.enzinc.com/index.html

Company Region:
San Francisco Bay Area, Contra Costa County

Company Description:
EnZinc, Inc. aims to accelerate the worldwide adoption of green renewable energy technologies by delivering a safe, low cost, high performance battery using the common and recyclable material zinc.
EnZinc, Inc.

UC Riverside: CE-CERT SGI

Technology Readiness Level: 5

Technology Type: Energy Storage

Innovation Description:

EnZinc, in collaboration with the Naval Research Laboratory, has developed a breakthrough zinc sponge anode that delivers a rechargeable, recyclable battery with the energy of Li-ion, the low cost of lead-acid, and is safer than either. EnZinc’s nickel-zinc battery is inherently scalable, therefore for risk management, we will start with a modest application and build from there. We will design an e-bike battery that can be scaled for larger applications. EnZinc will design, build, laboratory test, using CalTestBed awarded laboratory, and subsequently field test the prototype battery with California’s largest e-bike manufacturer.

Seeking These Next Level Partners:

• Testbed facilities interested in partnering
• Pilot/demonstration project partner
• Company interested in new clean energy technologies for potential acquisition
• Investor interested in learning about new clean energy investment opportunities
• Government official wanting to learn more about the program
EvoLOH, Inc.
Lawrence Berkeley National Lab: Fuel Cell and Electrolyzer Research & Testing Facility

**Point of Contact:** Jimmy Rojas  
**Phone:** 619.751.9978  
**Email:** jimmy@evoloh.com  
**Website:** https://evoloh.com/

**Company Region:**  
San Francisco Bay Area, San Mateo County

**Company Description:**  
We make low-cost electrolyzers for hydrogen production. Our team includes former industry executives and some of the best scientists in the field. We were recently awarded a multi-million dollar grant from Bill Gates’ Breakthrough Energy as well as government grants to scale up our electrolyzer and demonstrate it with our partners. While we focus on lowering CapEx, we also optimize for ease of manufacturability, easy of deployment and low maintenance.
EvolOH, Inc.

Lawrence Berkeley National Lab: Fuel Cell and Electrolyzer Research & Testing Facility

Technology Readiness Level: 5

Technology Type: Energy Storage

Innovation Description:
Our proprietary Anion Exchange Membrane (AEM) electrolyzer technology produces green hydrogen from renewable electricity. Our electrolyzer is an entirely novel solid-state device that eliminates the use of corrosive liquid electrolyte and expensive metallurgy. By reducing bill-of-materials cost by 6x, EvolOH enables a path toward $1 per kg which is a key price-point to enable widespread adoption of green hydrogen.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Investor interested in learning about new clean energy investment opportunities
- Government official wanting to learn more about the program
Gridware Technologies, Inc.

Lawrence Berkeley National Lab: Solar Optical Properties Laboratory

Point of Contact: Timothy Barat
Phone: 916.947.9747
Email: tim@gridware.io
Website: https://www.gridware.io

Company Region:
Central Valley, Sacramento County

Company Description:
Gridware Technologies, Inc. aims to prevent catastrophic failures by building a highly adaptable platform capable of answering any question about critical infrastructure to create a future where sub-urban wildfires are a thing of the past.
Gridware Technologies, Inc.

Lawrence Berkeley National Lab: Solar Optical Properties Laboratory

Technology Readiness Level: 5

Technology Type: Internet of Things

Innovation Description:
Gridware is building real-health monitoring devices for individual utility poles. Our technology catches and predicts grid equipment failures that lead to catastrophes like wildfire ignitions. Gridware identifies the highest risk components/ poles so that scarce maintenance and inspection resources can be efficiently allocated. By operating independently of the grid in an always-on fashion, we continue to report faults even during power shutoffs and extreme weather events, day and night. Utility companies can be confident in the health and resiliency of their infrastructure through the data and insights our solution provides.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Government official wanting to learn more about the program
Icarus RT, Inc.

UC San Diego: System Integration

**Point of Contact:** Mark Anderson  
**Phone:** 760.889.1327  
**Email:** manderson@icarusrt.com  
**Website:** [https://icarusrt.com](https://icarusrt.com)

**Company Region:**  
Greater San Diego, San Diego County

**Company Description:**  
Icarus RT, Inc.’s core mission is to safely empower its team, customers, and community with more reliable, less expensive, and cleaner global energy. To that end, Icarus is steadfast in its commitment to produce game-changing technology through innovation and focus.
Icarus RT, Inc.
UC San Diego: System Integration

Technology Readiness Level: 6
Technology Type: Renewable Generation

Innovation Description:
Icarus RT is an advanced engineering firm developing Quartet, a novel hybrid Photovoltaic/Thermal (PV/T) solar plus cogeneration system that cools PV panels, collects, and stores waste heat energy to generate hot water. Heat extractors attach to the back of standard PV panels while cooling fluid flows through the extractor. This lowers PV panel temperature and heats cooling fluid. The cooling fluid gets an additional thermal boost by passing through solar thermal collectors. The heated fluid is then stored to generate hot water for domestic use.

Seeking These Next Level Partners:
- Company interested in new clean energy technologies for potential acquisition
- Investor interested in learning about new clean energy investment opportunities
- Government official wanting to learn more about the program
Noon Energy, Inc.

UC Irvine National Fuel Cell Research Center: Advanced Power and Energy Program (APEP)

Point of Contact: Chris Graves
Phone: 650.308.9001
Email: chris@noon.energy
Website: https://www.noon.energy

Company Region:
San Francisco Bay Area, Santa Clara County

Company Description:
Noon Energy’s mission is to develop breakthrough low-cost energy storage technology that enables 100% renewable energy. This mission to make intermittent solar and wind power available 24/7 year-round will improve access to clean energy within disadvantaged and low-income communities, reduce carbon emissions globally, and eliminate the need for rare mineral mining, all accelerating us to the sustainable energy we need. By providing inherently low cost, safe, and compact energy storage using only earth-abundant, non-toxic materials, Noon’s new battery technology promises an ideal solution for California ratepayers to fulfill California’s state mandate of 100% carbon-free electricity by 2045.
Noon Energy, Inc.

UC Irvine National Fuel Cell Research Center:
Advanced Power and Energy Program (APEP)

Technology Readiness Level: 5
Technology Type: Energy Storage

Innovation Description:
Noon’s new carbon-oxygen battery will cost-effectively turn intermittent solar and wind electricity into on-demand power. It uses ultra-low-cost storage media, storing energy by splitting CO2 into carbon and oxygen and recombining them in discharge mode. Noon Energy has leveraged investor funds along with federal and state grants to advance this long-duration storage technology. Lab scale units require 3rd party testing to confirm system roundtrip efficiency, energy density, cycling duration, and storage capacity. Noon will utilize CalTestBed for lab scale 3rd party validation testing on completed units and additional characterization, while working under the CEC BRIDGE to scale for field-testing.

Seeking These Next Level Partners:
- Pilot/demonstration project partner
- Investor interested in learning about new clean energy investment opportunities
Parthian Energy

Lawrence Berkeley National Lab: Battery Research & Testing Facility

Point of Contact: Michelle (Mahshid) Roumi
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Company Region:
Greater Los Angeles, Los Angeles County

Company Description:
Parthian Energy’s goal is to solve current cost and safety challenges to the widespread adoption of lithium-ion batteries in motive and stationary energy storage applications through the successful commercialization of Parthian Electromagnetic Sensor (PES) technology. PES is a rapid battery diagnosis platform, developed by the founders at Caltech.

Designation Status:
Women Owned Small Business (WOSB), Women’s Business Enterprise (WBE)
Technology Readiness Level: 5
Technology Type: Energy Storage

Innovation Description:
PES is a rapid battery diagnosis platform, which converts a battery’s electromagnetic signature into a 2D contour map. It uses proprietary pattern-matching algorithms to detect defects and damage within the battery, while in-use or during manufacturing. PES, which works on both cell and module levels, is chemistry and size agnostic, and it works with any battery format. It is the only cost-effective solution that we are aware of that is capable of direct and immediate detection of micro-short circuits and other battery faults—well before traditional measurement technologies are able to register the problem.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Company interested in new clean energy technologies for potential acquisition
- Investor interested in learning about new clean energy investment opportunities
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government official wanting to learn more about the program
Paulsson, Inc. (PI)
Paulsson, Inc.
UC San Diego: Pinyon Flat

Point of Contact: Bjorn Paulsson
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Company Region:
Greater Los Angeles, Los Angeles County

Company Description:
Provide robust, accurate and cost-effective all-optical pressure, vibrational, temperature, and strain sensors to characterize and monitor the subsurface and subsurface installations to significantly increase production of safe geothermal energy, assure permanent sequestration of CO2 and safeguard underground storage of natural gas and natural gas mixed with hydrogen.
Paulsson, Inc.

UC San Diego: Pinyon Flat

Technology Readiness Level: 5

Technology Type: Renewable Generation

Innovation Description:
Paulsson, Inc. has invented and is developing high-temperature fiber-optic pressure sensor array technologies that can be developed and operate in geothermal boreholes at 650°F. The array can also be incorporated with other fiber-optic sensors providing high resolution recording of temperature, acoustics and strain. Currently, there are no pressure sensors for geothermal wells so this development will fill a much needed technical and operational need for the geothermal industry by generating real time actionable data, processed by machine learning, to provide guidance for fluid injection and extraction, reservoir stimulation, and accurate characterization for Enhanced Geothermal System (EGS) reservoirs.

Seeking These Next Level Partners:
• Testbed facilities interested in partnering
• Pilot/demonstration project partner
• Investor interested in learning about new clean energy investment opportunities
• Accelerator/incubator that supports the commercialization of clean energy technologies
• Government official wanting to learn more about the program
Portable Solar, Inc.

UCLA: Smart Grid Energy Research Center (SMERC)

Point of Contact: Dennis Nickerson
Phone: 305.798.8241
Email: dennis@portablesolar.io

Company Region:
Central Valley, Monterey County

Company Description:
Portable Solar employs novel designs of thermoplastics technology to create PV panel mounting systems that the end-user can assemble in about an hour, place on the ground and call an electrician. Bypassing rooftops and the labor-intensive installer model that has dominated residential solar leads to installed costs per Watt about half the industry average.
Portable Solar, Inc.

UCLA: Smart Grid Energy Research Center (SMERC)

Technology Readiness Level: 5

Technology Type: Renewable Generation

Innovation Description:
We cut the $/Watt cost of residential solar in half by substituting racking systems and teams on the roof with a UL-compliant chassis that securely holds a panel in place, is shipped direct to the doorstep, and can be assembled by anyone in under an hour. Since the bulk of our cost consists of modules and inverters—which are often not affixed to the roof—both renters and homeowners alike will now have a viable low-cost solar option.

Seeking These Next Level Partners:
- Pilot/demonstration project partner
- Company interested in new clean energy technologies for potential acquisition
- Investor interested in learning about new clean energy investment opportunities
- Government official wanting to learn more about the program
- Leasing companies
Sylvatex, Inc.

UC Riverside: CE-CERT: Sustainable Integrated Grid Initiative (SIGI) Test Laboratory

Point of Contact: Virginia Klausmeier
Phone: 415.662.3835
Email: admin@sylvatex
Website: https://www.sylvatex.com

Company Region:
San Francisco Bay Area, San Francisco County

Company Description:
Sylvatex (SVX) is a climate tech company utilizing sustainable chemistry and materials science to accelerate the shift to electrification of transportation by increasing production throughput while lowering the cost and carbon footprint of the biggest bottleneck in the lithium-ion battery, the cathode.

Sylvatex's mission enables the shift to a 100% renewable energy future through bio-based chemistry and materials science innovation.

Designation Status:
Women Owned Small Business (WOSB)
Sylvatex, Inc.

UC Riverside: CE-CERT: Sustainable Integrated Grid Initiative (SIGI) Test Laboratory

Technology Readiness Level: 5

Technology Type: Energy Storage

Innovation Description:
SVX's sustainable platform (MicroX™) affords a breakthrough process to synthesize high-Ni cathodes. This technology is designed to integrate into the current cathode manufacturing process. It uses a single reactor to complete the one-pot cathode precursor synthesis affording a uniform dispersion of lithium and transition metal cations, shorter reaction time, and lower energy consumption. In this proposed CalTestBed program, we plan to leverage CalTestBed's resources to characterize SVX's high-Ni cathodes' electrochemical performance and demonstrate the commercial feasibility and scalable production of SVX innovation.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot and demonstration project partner
- Investor interested in learning about new clean energy investment opportunities
Tectonicus LLC

UC Merced: Advanced Solar Technologies Institute (UC Solar)

Point of Contact: Ben Lepley
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Website: http://tectonicus.com/

Company Region:
Greater Los Angeles, Los Angeles County

Company Description:
Techtonicus Constructs LLC is an agriculture, research, and prototyping firm, whose mission is to make the biggest impact to reducing climate change possible through creative and deployable solutions. We at Techtonicus feel that some solutions to climate change are not necessarily high tech or difficult, they are just augmentations on available technologies, or implementations thereof. We feel that these creative ideas and solutions could be at any scale, any location, and any budget. Currently, we are focused in the realms of solar energy and its application to pumping water and reducing the water–energy footprint. Transporting water across the western US is the single biggest energy user, thermal energy production is single biggest user of water in the western US, we aim to help solve this inefficient and carbon intensive water–energy loop.
Technology Readiness Level: 5
Technology Type: Industrial & Agricultural Innovation

Innovation Description:
If Solar River structures are deployed along canals that have significant water pumping or other agriculture industry electric loads nearby, the strain on local or regional grids will be reduced by shortening the transmission length and amounts. This direct conveyance of generation to usage on an agricultural scale not only reduce costs for grid upgrades, but if co-located next to hydro–water storage facilities could greatly flatten the duck–curve by pumping water for storage or agricultural usage when the sun is shining, and feeding into the grid when peak demands are present.

Seeking These Next Level Partners:
- Pilot/demonstration project partner
- Accelerator/incubator that supports the commercialization of clean energy technologies
- Government official wanting to learn more about the program
UCAP Power, Inc.


Point of Contact: Troy Brandon
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Website: https://www.ucappower.com

Company Region:
Greater San Diego, San Diego County

Company Description:
UCAP Power, Inc. brings commercially available Ultracapacitor technology into the mainstream. The founders, proven leaders formerly from Maxwell Technologies’ leadership and product management teams, formed UCAP Power after Maxwell’s recent acquisition by Tesla. UCAP Power develops innovative, adaptable products for a range of applications that make it easier for our clients to choose superior power storage solutions. The company’s near-term profitability focuses on cultivating existing pipelines of opportunity and leveraging deep relationships established during management experience at Maxwell and other industry leaders. Presently, profit targets include “retrofit” replacement strategies for lead-acid battery technology in wind energy, transportation, and generator reserve power.
UCAP Power, Inc.

UC San Diego: Zero Net Energy Warehouse:
Battery Energy Storage Systems – Module Level

Technology Readiness Level: 7

Technology Type: Energy Storage

Innovation Description:
HIGH POWER, LONG LIFE: Rated >2,000 amps of instantaneous power. Designed for typically 15+ years of maintenance-free life in most backup and starting applications.
SAFE & SUSTAINABLE: Much safer and more environmentally friendly than typical batteries. Over the operating lifetime, each POWERBLoK™ can eliminate the need for several lead-acid battery replacements.
MODULAR & SCALABLE: Easily customize power and energy as needed by connecting modules in series or parallel, up 150 volts.
EASY CONVERSION: Smaller, lighter, and much more powerful than comparable lead-acid batteries. The integrated charger plugs into universal AC or 24V DC sources common in renewable systems.

Seeking These Next Level Partners:
- Testbed facilities interested in partnering
- Pilot/demonstration project partner
- Company interested in new clean energy technology for potential acquisition
- Investor interested in learning about new clean energy investment opportunities
- Accelerator/incubators that supports the commercialization of clean energy technologies
- OEM/license manufacturing
- Joint Venture partners