Advanced Management and Protection of Energy-storage Devices (AMPED) Teaming List (Updated: April 4, 2012)

This document contains the list of potential teaming partners for the Advanced Management and Protection of Energy-storage Devices (AMPED), solicited in DE-FOA-0000675 Funding Opportunity Announcement (FOA) and is published on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov), ARPA-E's online application portal. This list will periodically undergo an update as organizations request to be added to this teaming list, and will stop updating once the AMPED FOA DE-FOA-0000675 closes. If you wish for your organization to be added to this list please refer to https://arpa-e-foa.energy.gov/ for instructions, or follow https://arpa-e-foa.energy.gov/FileContent.aspx?FileID=990f3d40-a651-4e97-8676-2201981e48a4 to the specific announcement.

Organization Name	Contact Name	Contact Address	Contact E-mail	Contact Phone	Organization Type	Focus Areas	Capabilities
A123 Systems	Dr. Mike Marcel, P.E.	39000 7 Mile Road, Livonia, MI 48152	mmarcel@a123systems.com	(734) 772-0587	Publicly Held company	Energy Storage (High Volume manufacturing, Research and Development of Li-Ion Batteries)	A123 Systems, with corporate headquarters in Watertown, MA, employs over 2000 employees in multiple locations worldwide. They occupy over 1,000,000 square foot of manufacturing facilities in the United States (Massachusetts and Michigan) to include the largest cell manufacturing facility in Livonia, MI. A123 is currently underway expanding its capability in Michigan with more manufacturing capability in Livonia, MI and a Powder coating facility in Romulus, MI. A123 employs one of the largest lithium battery development teams in the country. The team is organized into research, cell development, manufacturing, and military product groups who will be involved in this program. The research group capabilities include laboratory and pilot scale production of a wide range of electrode powders, as well as laboratory and pilot scale facilities to mix and coat new electrode materials. Electrode and cell development is supported by both first principles and finite element design tools. Cell prototyping is available in a variety of formats, including coin, Swagelok, single layer pouch, 63450 and small prismatic cells, and 18650 or 26650 cylindrical cells. The small prismatic cells are produced in a semi-automated assembly shop operated in a 730 sqft dry room. All of the processes from the manufacture of raw materials through final pack assembly are performed at A123Systems facilities, which are ISO9001, and ISO14000 certified.
A123 Systems	Mike Wixom	3850 Research Park Drive, Ann Arbor, MI 48108	mwixom@a123systems.com	N/A	Business > 1000 employees	battery manufacturing, grid-scale energy storage, battery safety	A123 is a vertically integrated battery OEM, with all of the resources needed to integrate advanced management and protection technology into high volume production of electric vehicle and grid energy storage batteries. The research plan will be executed by technical staff at laboratory and development sites in Waltham, MA and Ann Arbor, MI. R&D and product development occupy >30,000 sq ft, with a staff of 70 scientists and engineers. Capabilities exist for the development of new battery active materials and other components, continuous processing of electrodes, fabrication of prototype rechargeable batteries of a wide range of prismatic and cylindrical form factors, system integration, and comprehensive testing of assembled cells and packs for performance, safety, and life.
Advanced Transportation Electric Center	Mo-Yuen Chow	Advanced Transportation Energy Center North Carolina State University Campus Box 7571 Raleigh, NC 27695-7571	chow@ncsu.edu	919-515-7360	Academia	battery manufacturing, electric vehicles, grid-scale energy storage, electric vehicle charging, battery safety, controls, and power electronics	• Develop battery and power electronics technologies to help the automobile industry develop better and more efficient PHEVs and PEVs, hence allowing our nation to move away from gasoline based vehicles. • Develop fundamental and enabling technologies that will facilitate the electric power industry to actively manage and control large amount of plug-in hybrid vehicle (PHEV) and plug-in electric vehicle (PEV).
AES Energy Storage LLC	Casey Jacobson	4300 Wilson Blvd, Arlington VA 22203	casey.jacobson@aes.com	(703) 682-1254	Business; Energy storage system operator and developer	Grid-scale energy storage systems	AES Energy Storage LLC is an energy storage owner and operator with over 70 MW of battery systems in operation in the U.S. and Chile providing frequency regulation and reserves services. We have the ability to develop, model, and test new operational control methods and software algorithms for optimizing storage asset utilization

Angstron Technologies Inc.	H. J. Wu	1240 McCook Ave. Dayton, Ohio 45404	giantpower1@gmail.com	1-408-663-9137(Wu); 1-937-331-9881 (Ron Beech)	Private Company	Battery Safety, Thermal Management Solution and Design, Heat Sink, Heat Spreader, Graphene Film, and Thermal Modeling for lithium-ion Batteries, Waste Heat Recovery, Thermal Energy Storage, etc.	Battery Safety, Thermal Management Solution and Design Focus on thermal solutions design and customization for Grid-scale Energy Storage, HEV/NEV Battery System, LNG –bus Heat Recovery, and Data Center Energy Storage Systems.
Applied Power Systems	Peter Dowling	124 Charlotte Ave. Hicksville, NY 11803	pdowling@appliedps.com	T: 516-935-2230 C: 516-659-6148	N/A	N/A	Applied Power Systems is a US manufacturer of power conversion products (cage code 1NRQ4). We are experts in the control of power electronics used as inverters, converters, power supplies and battery chargers. We have standard designs for converting AC-DC, AC-AC, DC-DC, and DC-AC. We have also developed a wide range of custom products. We are a large user of IGBTs and SCRs and have excellent relationships with the leading manufacturers of these components. Our products are used in a variety of industrial, military and commercial applications. We have designed and built high precision, high power magnet power supplies for US DOE Labs. We design our own controllers and have a wide variety of air and liquid cooled thermal management solutions.
Aquion Energy	Jay Whitacre, Ph.D.	32 39th Street, Pittsburgh, PA 15201	jwhitacre@aquion-energy.com (Cc: to jsorensen@aquion-energy.com)	412-268-5548	Privately Owned Company	Battery Manufacturing	Aquion Energy is producing a safe, reliable, affordable means to manage and store energy. The cornerstone of the technology is a novel sodium-ion battery optimized for stationary storage applications with a commercial release in 2012 to applications such as micro-grid support, off-grid generator optimization, and grid-level energy services. The centerpiece of the technology is an innovative aqueous electrolyte sodium based hybrid energy storage chemistry. Over the last two years, the chemistry has been rigorously proven in a laboratory environment and certified by independent third party testing. The electrochemical couple that has emerged from this process is one that combines a high capacity carbon anode with a sodium intercalation cathode capable of thousands of complete discharge cycles over extended periods of time. The materials couple can deliver over 30 Wh/l as packaged. The device functions in a broad range of ambient temperatures and can be repeatedly cycled with little to no loss in delivered capacity. Rapid cycle testing indicates at least 5000 cycles with no fade in delivered capacity, while ongoing calendar life testing shows stable performance for over a year of continuous deep cycle use. Aquion is currently cabable of manufacturing up to 100 kWh of batteries per month in their Pittsburgh, PA pilot facility. They will open a full-scale manufacturing facility in 2013 capable of producing over 100 MWh/year (scaling to over 500 MWh/year by 2015).
Argonne National Laboratory	Mark C. Petri	Argonne National Laboratory 9700 South Cass Avenue Building 208 Argonne, Illinois 60439	mcpetri@anl.gov	630-252-3719	National Laboratory	1) Electric Vehicles: Battery Safety / Controls / Power Electronics / Charging / Modeling & Simulation 2) Electrochemical Energy Storage: Materials Scale-Up / Cell Fabrication / Post-Test Analysis / Modeling 3) Grid Scale Energy Storage Analysis: Modeling & Optimization / Forecasting	Focus area 1: Electric Vehicle Systems: EV Testing; Battery Performance & Safety; EV Charging Infrastructure & Connectivity to Smart Grid; Power Electronics and Controls for Micro Grid Management; Modeling & Simulation Expertise for Battery Sizing and Component-in-the-Loop Analysis A. Argonne tests electric vehicle (EV) systems utilizing state of the art chassis dynamometer facilities (2 EV-capable test cells). • Vehicle performance testing, efficiency, controls optimization, and performance benchmarking. • Battery pack systems testing in vehicle applications—battery range, SOC studies, Battery state of health studies, and safety Possess an Environmental Test Cell for vehicle testing capable of 0o F to 100o F range of temperature plus solar UV radiation. Enables real world testing of EVs to measure impact of temperature on performance; evaluation of battery BMS controls, hot/cold battery efficiencies; climate and accessories usage impacts on battery range and SOC studies. B. Argonne designs and analyzes power electronics for electric vehicles and energy storage including their interaction with the power grid. • EV Charging systems, charging equipment efficiency studies, innovative approaches for designing low-cost charging systems • Argonne serves as DOE's lead lab for EV Codes and Standards development and EV connectivity and communications to Smart Grid • Develops hardware and software support for controlling bi-directional energy management for V2G and G2V implementation. • Integrates power electronics applications for aggregation of power sources from 500 kW to 3 MW and provides load management controls • Scalable integration of renewable energy sources like solar PV and bio-fuel generation C. Argonne has more than 12 years expertise in modeling, simulation and control of advanced vehicles with the development of tools such as Autonomie (www.autonomie.net). • Autonomie was used to perform the analysis of battery requirements (i.e., power, energy) and battery usage during standard drive cycles as well as real world drive cycles D. Argonne has more than 10 years expertise with component-in-the-loop (CIL) methodology. • CIL allows engineers to evaluate the performance and fuel displacement potential of advanced technologies within an emulated environment. For example, a battery pack (hardware) can be connected to a DC power source which emulates the rest of the vehicle through Autonomie (software). Battery-in-the-loop is now increasingly used by industry for example to evaluate the thermal impact of battery on the rest of the vehicle during cold or hot conditions.

Argonne National Laboratory	Mark C. Petri	Argonne National Laboratory 9700 South Cass Avenue Building 208 Argonne, Illinois 60439	mcpetri@anl.gov	630-252-3719	National Laboratory	1) Electric Vehicles: Battery Safety / Controls / Power Electronics / Charging / Modeling & Simulation 2) Electrochemical Energy Storage: Materials Scale-Up / Cell Fabrication / Post-Test Analysis / Modeling 3) Grid Scale Energy Storage Analysis: Modeling & Optimization / Forecasting	Focus area 2: Electrochemical Energy Storage The Electrochemical Energy Storage Theme is largely focused on advanced Li-ion, Lithium metal and other beyond Li-ion technologies that hold the promise for dramatically reducing the cost and increasing the energy density as compared to commercially available technologies such as lead-acid batteries. A. Argonne has recently added three new facilities, with DOE-EERE and ARRA funding, to help speed the development cycle of translating laboratory inventions to real world products. • Materials Engineering Research Facility (MERF) which is capable of scaling up newly developed anode, cathode, and electrolyte materials. • Cell Fabrication Facility (CFF) which is capable of coating electrodes and fabricating commercial-grade 18650 cylindrical cells and multi-electrode stacked pouch cells. • Post-Test Facility (PTF) which is a dedicated facility for conducting post-test diagnostic studies to identify performance and life limiting phenomena for different battery technologies. This new facility is closely linked to Argonne's independent battery test facility. B. Argonne has a range of modeling expertise for electrochemical energy storage. • Cell-level "between the current collectors" numerical models that account for the appropriate physical driving forces using concentrated solution theory. • Macroscopic battery performance and cost models (www.cse.anl.gov/batpac) that quantify materials breakdown and cost for battery packs designed for a set power and energy. • Atomistic modeling capabilities to calculate material properties ab-initio C. Argonne is an internationally recognized center for battery R&D focusing on all aspects of the battery but with a particular focus on materials development. • Materials discovery and optimization • Electrochemical, spectroscopic and chemical characterization • Home to the Center for Electrical Energy Storage Energy Frontier Research Center • Home to one of the DOE-EERE independent battery test facilities
Argonne National Laboratory	Mark C. Petri	Argonne National Laboratory 9700 South Cass Avenue Building 208 Argonne, Illinois 60439	mcpetri@anl.gov	630-252-3719	National Laboratory	1) Electric Vehicles: Battery Safety / Controls / Power Electronics / Charging / Modeling & Simulation 2) Electrochemical Energy Storage: Materials Scale-Up / Cell Fabrication / Post-Test Analysis / Modeling 3) Grid Scale Energy Storage Analysis: Modeling & Optimization / Forecasting	Focus area 3: Grid Scale Energy Storage Analysis A. Argonne has extensive experience in the modeling and analysis of electric power systems and grid-scale energy storage technologies and is currently leading a large DOE-sponsored study for the modeling and analysis of value of advanced pumped-storage hydropower in the United States. • Optimizing the management of hydro and pumped-storage reservoirs. • Creating of dispatch schedules, estimating optimal power purchase and sale transactions, and allocating of hourly hydropower generation to individual customers. • Assisting with firm power purchase decisions and estimating the economic value of energy storage resources under a wide range of environmental constraints. B. Argonne is researching the integration of wind energy and solar PV into the electric power grid. • Focused on the use of forecasting and improved operational methods to efficiently address the uncertainty and variability from renewable resources. • Analyzing how energy storage can help address these integration challenges and, potentially, play an important role in facilitating a large-scale expansion of renewable energy in the United States.
Auburn University	Song-Yul Choe	Mechanical Engr., 1418 Wiggins Hall, Auburn University, AL 36849	choe@auburn.edu	334-844-3328	Academia	Multi and Multi scale electrochemical, thermal and mechanical stress modeling, Reduced order modeling, Model based SOC estimation, Normal and fast charging, SOH, testing and characterization	Auburn University developed a quasi-three dimensional electrochemical, thermal and mechanical stress model (Full Order Model) for Lithium Polymer battery that is validated for 1C..5C charging and discharging within a temperature range from 0-40C. Based on this complex model, a reduced order model (ROM) for real time applications is developed for control purposes and validated for 1C-5C within 0-40C, which is ten times faster than the full order model. New SOC estimations based on the ROM is proposed, which accuracy reaches around 3%. In addition, a new charging method is proposed , which allows a reduction of charging time in 30-40%, while degradation rate is maintained. AU has six test stations developed by the research group that allow for AC charging and discharging profiles up to 20kHz and 20A and DC up to 200A for single cells. Dimensions, temperature, heat source terms and EIS are measured during charge and discharge process. A procedure is developed to open tested cells and SEM, XRD, STM and TEM are used to characterize materials and morphology.

Beckett Energy Systems, a Division of RW Beckett Corporation	Brad Moore	38251 Center Ridge Road North Ridgeville, OH 44039	bmoore@beckettcorp.com	440-353-6257	Private Corporation – Systems Integrator, Manufacturer	Grid-scale energy storage, Power Electronics	Beckett Energy Systems is a manufacturer and integrator of the best available technologies to offer solutions for the emerging markets of energy storage, renewable energy integration and micro grids. Our products include 1 kWh Li-ion battery modules, multi kWh battery packs, and fully integrated, modular distributed energy storage systems of 25 kW – 100 kW with storage capacity of 1 – 4 hours.
Bendors LLC, Eastern Michigan University and Thin Red Line Aerospace, Inc.	Benedict Ilozor	Eastern Michigan University, Roosevelt Hall 206, Ypsilanti, MI 48197	bilozor@emich.edu	734-487-1299	University and corporations	Energy generation and storage without batteries	Collaboration between Michigan University's renewable energy futurist technology and a high-tech Thin Red Line Aerospace, Inc. who are leaders in deep sea energy storage systems.
Black & Veatch Corporation	Sam Scupham	11401 Lamar Ave., P3F1, Overland Park, KS 66211	ScuphamSK@bv.com	913-458-7959	Engineering, Procurement, Construction	Balance of plant design, interconnection engineering, SCADA, construction, construction management, renewable energy integration	Black & Veatch is experienced in design and construction of substations and power plants. We apply our knowledge of these power systems to provide engineering and optimization of energy storage systems for developers and utilities. We also provide strategic planning support for utilities to determine how to integrate energy storage and renewables into their system planning.
Bloomy Energy Systems	Jonathan Murray	257 Simarano Drive, Marlborough, MA 01752	jonathan.murray@bloomy.com	508.281.8288	Consulting	Energy Storage Systems – control, monitoring, and test	Bloomy Energy Systems provides monitoring, control, and test products that enable battery, grid storage, and automotive companies to improve quality and reduce time to market for energy storage solutions. As a business unit of Bloomy Controls, Inc., our extensive experience in test systems, data acquisition, control, and embedded systems reduce the risk and cost of developing high performance energy storage systems.
C&C TECHNOLOGIES, LLC.	STEPHANE CHERBAN	2915 OGLETOWN ROAD - NEWARK - DE 19713 - USA	candc.tec@gmail.com	302 476 2559	SMALL BUSINESS	ON EARTH TRANSPORT VEHICLES	N/A
CALCE (Center for Advanced Life Cycle Engineering), University of Maryland	Michael Pecht	CALCE, University of Maryland, College Park, MD 20742	Pecht@calce.umd.edu	(301) 405-5278	University	Battery and systems reliability, battery safety, prognostics and systems health management, power electronics	CALCE is a world leader in physics of failure reliability assessment, prognostics and health management, and sustainment of electronics systems. CALCE consists of over 100 faculty, staff and students engaged in leading-edge research with customers that range from military and avionics, to automotive, telecom medical and consumer electronics. Battery reliability and health management work at CALCE includes the development of failure-mechanism specific sensing capabilities, damage accumulation techniques, remaining useful life estimation including advanced SOC and SOH analysis, optimal decision making based on prognostics, rapid charging, cell balancing, and return-on-investment/business case generation for health management technologies. CALCE has extensive accelerated testing and failure analysis laboratories that include: materials and chemical characterization, electrical stress analysis, thermal shock, temperature-humidity cycling, HAST, HALT, vibration and shock, high-altitude simulation, high-temperature storage, and corrosion testing.
California Center for Sustainable Energy	Michael Ferry	8690 Balboa Ave, Suite 100 San Diego, CA 92123-1502	heather.shepard@energycenter.org	858-244-7287	Non-profit sustainable energy organization	Clean transportation, EV battery/2nd life applications and energy storage, Advanced vehicle technology demonstrations, Electric Vehicle and EV charging market development, community energy storage	Technical analysis, research, program management/administration, market development applications

Camgian Microsystems	David R Lamb	2500 Maitland Center Parkway Suite 203 Maitland FL, 32751	dlamb@camgian.com	407 660 9900 ext 102	HUB Zone small business	wireless sensor systems for monitoring remote assets.	Systems - end to end architecture User interface – data base and display Hardware/software – integrated sensors, signal processing, communication (terrestrial and satellite) FPGAs/ASICs
CanmetENERGY, Natural Resources Canada	Karl Rasmussen	1 Haanel Drive; Ottawa, Ontario; K1A 1M1; Canada	krasmuss@nrcan.gc.ca	613-523-3042	Energy Research Laboratory, Canadian Federal Government	Energy technology research and development	CanmetENERGY is the Canadian leader in clean energy research and technology development. Our unique facilities in Devon, Alberta; Ottawa, Ontario; and Varennes, Quebec enable leading edge research in energy efficiency and clean energy technology for Buildings and Communities, Clean Fossil Fuels, Bio Energy, Renewables, Industrial Processes, Oil Sands, and Transportation. Our activities in Advanced Management and Protection of Energy-Storage Devices include advanced battery technology and related vehicle components for hybrid and electric vehicles; electric vehicle charging stations; on-board energy-storage mediums, such as batteries and fuel cells; nano-materials for hydrogen storage and ceramic materials for Solid Oxide Fuel Cells; flow battery electrical energy storage; super capacitors; hybrid energy storage systems; renewable energy integrated systems; short-term and long-term thermal energy storage; power electronics testing; modelling, controls and monitoring; and energy management strategies and smart grid applications. Our laboratories enable product development and system integration, our Canadian Centre for Housing Technology provides real-world testing and demonstration for residential applications, and our broad business network facilitates partnerships for the demonstration and deployment of promising, innovative technologies.
Carnegie Mellon University	Abraham K. Ishihara	Carnegie Mellon University Building 23 (MS 23-11) Moffett Field, CA 94005	abe.ishihara@west.cmu.edu	(650) 335 2818	University	Battery Control and Diagnostics	(1) Physics-based modeling of electro-chemical plants; chemical kinetics; quasi-static electrodynamics (2) Physics-based Bayesian diagnostic and prognostic algorithms for monitoring the health of complex plants, such as electrochemical energy storage devices – based on partial sensory data. We have applied these algorithms to solar arrays to detect and estimate failure modes. (3) Adaptive control algorithms that leverage online Bayesian diagnostic information
Center for Electrochemical Engineering Research (CEER), Ohio University	Prof. Gerri Botte	165 Stocker Center, Athens, OH 45701	botte@ohio.edu	740-593-9760	University	Battery Safety, Grid-scale energy storage, and Battery manufacturing	CEER is dedicated to entrepreneurial electrochemical research, innovation, education, and to economic growth. CEER emphasizes a very collaborative and interdisciplinary approach to these goals. CEER establishes partnerships with companies to support commercialization of technologies by leveraging electrochemical expertise, and over $4 million in state-of-the-art facilities and infrastructure. The center operates a state-of-the-art electrochemical analytical laboratory for in situ electrochemical dynamics characterization of electrochemical technologies such as batteries, fuel cells, sensors, and electrolyzers. Researchers at the Center has significant expertise on modeling batteries, predicting thermal performance, in-situ characterization, and developing new chemistries for grid scale energy storage and materials (such as graphene, carbon nanotubes, and metals recycling).
Center for the Evaluation of Clean Energy Technology CeCeT	David D. Gower	3933 US Route 11	david.gower@intertek.com	607.423.8085	Testing, Validation, & Evaluation	Preparation for certification testing across clean energy technologies. Access to testing facilities and members with expertise and resources to help facilitate market commercialization of clean energy technologies. CeCeT's parent company, Intertek provides testing for all of the following:	CeCeT's parent company and lead member Intertek is provides testing and certification services to all of the Focus Areas mentioned above. In addition, CeCeT has a membership of Universities with expertise and testing facilities that add to the capabilities. We would be happy to partner and/or provide additional due diligence checks on the evaluation and selection of projects. http://www.intertek.com/energy/renewable/
CFD Research Corporation	Vernon Cole	215 Wynn Drive, Suite 501, Huntsville, AL 35805	jvc@cfdrc.com	256-726-4852	For-Profit Technology Development and Research; Small Business, Woman-Owned	Grid-scale Energy Storage, Sensors, and Controls	CFDRC has expertise in several areas relevant to this opportunity. Our experience in detailed, predictive modeling of batteries, flow batteries, and fuel cells can be leveraged to analyze cell designs for improved controllability, safety, and lifetime. These same modeling tools can be used both for sensor development efforts, guiding selection of sensor locations and analyzing the response of cells or short stacks to various control strategies; and for prognosis and diagnosis of stack-scale thermal management issues. We have developed highly efficient model order reduction techniques based on subspace project method and demonstrated their use in extensive real-time simulation and control applications, including spacecraft and missile thermal analysis, large-scale microfluidics modeling and design, as well as AeroServoElasticity (flutter mitigation by smart material-based control); the resulting software can be packaged as an integral component of sensing, control, and health-monitoring systems. In addition to modeling, CFDRC has complementary prototyping and testing capabilities. These include the ability to synthesize novel electrodes, assembly battery test cells, and evaluate electrochemical performance
CILLCO	DAVID BOYD	425 WEST UNIVERSITY PARKWAY, JACKSON, TENNESSEE 38305	cillco@gmail.com	731 695 3914	POWER GENERATOR	INDUSTRIAL, MUNICIPAL, UTILITIES AND GOVERNMENT ENTITIES REQUIRING POWER	Our power source is Fuel Cell Technology. Yes, the same that has been used since the space program was developed. Obviously, we have made substantial modifications and can now power cities with our renewable technology. We propose to construct at our expense a Power Generating Plant for any utility, industry or government. We would like to be paid for the power generated only after we have started producing power. Our desire is to sign a power purchase agreement with a customer. We can generate the contracted power need in approximately 18 months There are zero emissions, no waste disposal, and no water treatment required for our fuel cell generator. We feel this technological advance will revolutionize power generation and distribution within our country and globally. We look forward to working with your department on this breakthrough.

Cleantech Institute, Inc.	Lloyd L. Tran, Director	NASA Ames Research Center P.O. Box 151 Moffett Field, CA 94035-0151	LTran@cleantechinstitute.org	800-567-8184	A Private Research and Consulting Firm specializing in Advanced Clean & Renewable Energy.	Nanomaterials, Carbon Nanotubes, Lithium Air Battery, Zinc Air Battery, Battery Management Systems, Battery Safety, Thermoelectric, Electric Vehicle Design, Electric Vehicle Charging, Sensors, Permanent Magnet Brushless DC Motor, Grid-scale Energy Storage, Power Electronics	N/A
Clever ECOlutions / Green Fleet Solution	Yvette DeLaune	1977 Hwy 568, Ferriday, LA 71334	YDeLaune@YDeLaune.com	919.449.4713	N/A	Alternative Energy Technologies supporting Electric Vehicles and Mobile Energy Power Systems	Project Management with development partners, commercialization colleagues and active demonstration sites ranging from federal installations to commercial entities in accordance with the guidance of fleet procurement professionals and energy managers
Corvus Energy Ltd.	Darron Craig	Unit 110 – 13160 Vanier Place Richmond , B.C. V6V 2J2	Dcraig@corvus-energy.com	604-227-0280	N/A	N/A	Corvus Energy is a committed group of scientists, engineers, business professionals and entrepreneurs forming an innovative team focused on the challenges and opportunities of bringing high power lithium ion battery technology to industry. Corvus Energy now designs and manufactures the world's most powerful lithium ion-polymer batteries and battery management systems for commercial applications. The unparalleled energy density and power output of our patent-pending technology is ideal for hybrid and fully-electric solutions in marine and heavy industrial applications. Corvus technology also enables megawatt power storage and distribution solutions for renewable energy producers and off-grid installations. Corvus battery modules are 6.5 kWh units which can be scaled to meet mega-Watt power demands.
Curtis Instruments Inc.	Steven Waite	200 Kisco Ave, Mt Kisco NY 10549 USA	waites@curtisinst.com	914-242-6561	Engineering and Manufacturing electronics for electric vehicles	Curtis provides a wide range of instrumentation, controls, and integrated systems for all types of electric vehicle manufacturers from forklifts, wheelchairs, airport tug vehicles, to light on-road cars and golf cars. We provide motor controllers, battery sensors for battery safety, throttle controls and instrumentation for any battery electric-powered vehicle.	Although we are a small company, Curtis has a very large global footprint with engineering and manufacturing operations throughout Europe, Asia and the Americas. This global positioning earned Curtis an invitation to the Nov. 6 meeting in Mumbai, India, where President Obama met with Curtis CEO Stuart Marwell and other business leaders. Visit our website at www.curtisinst.com, and if I can be of further assistance please contact me.
Dow Kokam LLC	Mitch Mabrey	2901 NE Hagan Road, Lee's Summit, MO 64064	mmabrey@dowkokam.com	816-272-7123	Small Business	Dow Kokam is dedicated to solving our world's energy challenges by pioneering advanced energy storage solutions for applications including transportation, defense, industrial equipment, and stationary applications such as power utilities, telecommunications, and uninterruptible power supply (UPS).	Dow Kokam is a global player with an existing manufacturing footprint and assets greater than $ 400M. By the end of 2012 production capacity will exceed 600 Mwh. Dow Kokam has the backing and financial support of a Fortune 50 company, The Dow Chemical Company, who also brings world class material science expertise and material production scale up capability. Dow Kokam has a broad commercialization plan with awarded contracts in transportation, marine, energy storage, and defense applications.
Dr. Douglas L. Schulz	Dr. Douglas L. Schulz	402 9th Avenue South	douglas_schulz@hotmail.com	701-799-9119	Small business, technology consultant and manager	Small business, technology consultant and manager	grant-writing, technology discovery and documentation, patent literature reporting, project management.
EaglePicher Technologies, LLC	Dave Lucero	N/A	Dave.Lucero@eaglepicher.com	Cell Phone: (719) 330-8018 Office: (417) 623-8000 ext. 662	N/A	N/A	EaglePicher Technologies (EPT) is a large business focused on battery manufacturing and battery technology development for defense, aerospace, and commercial applications. We currently employ more than 800 employees, ~160 of which are engaged in engineering activities. Although we produce a wide range of cell types, encompassing more than 10 electro-chemistries, the majority of our battery products are large, multi-cell, high performance batteries, many of which require battery management and control systems. We currently design and produce management systems for our battery products; however, improved control techniques are desirable for improved safety and reliability of large energetic systems.
Earl Energy, LLC	Doug Moorehead, President	500 Crawford Street, Suite 401, Portsmouth, VA 23704	dmoorehead@earlenergy.com	757-328-3309	For profit, LLC	Off-grid energy management and storage	Battery integration, hybridized power generation, grid-scale energy storage, off-grid platforms, battery safety, sensors, controls, and power electronics

EC Power	Christian Shaffer	200 Innovation Blvd., Suite 250, State College, PA 16803	christian@ecpowergroup.com	814-861-6233	LLC	EC Power is a leading provider of battery and fuel cell solutions for vehicle electrification, renewable energy storage, and power grid management.	Our suite of software tools for large-format Li-ion battery cells and packs focuses on addressing barriers to mass adoption of Li-ion energy storage systems, such as improving safety, reducing cost (both via reducing time to market and by improving active material utilization in large-format cells), enhancing performance, and increasing battery life. All of our software tools have electrochemical-thermal coupling, which facilitates the advanced and accurate study of safety events, such as internal short circuiting, and the assessment of vehicle charging strategies on pack efficiency, life, and performance.
ECOtality, North America	Tom Garetson	430 S. 2nd Avenue Phoenix, AZ 85003	Tgaretson@ecotality.com	602-345-9020	N/A	Electric Vehicle Charging Equipment Battery testing, storage, discharge and safety	ECOtality North America (ECOtality) has years of laboratory and field experience dealing with Electric Vehicles (EVs) and Electric Vehicle Supply Equipment (EVSE), which includes but is not limited to, all aspects of battery testing, storage, discharge and safety regarding EVs. ECOtality is the leading installer and provider of charging infrastructure for EV's and has been involved in every major EV or plug-in electric vehicle (PHEV) initiative to date in North America. ECOtality is currently working with major automotive manufacturers, utilities, the U.S. Department of Energy (DOE), state and municipal governments, and international research institutes to implement and expand the presence of this technology for a greener future.
Eetrex Incorporated	Kathryn Miles	4900 Pearl East Circle #110, Boulder, CO 80304	kathryn.miles@eetrex.com, susan.nedell@eetrex.com	303-717-9508	Engineering Design and Manufacturing	Electronics and Battery Packaging	Eetrex Incorporated, in partnership with Methode Electronics, develops efficient high voltage power electronics, power distribution, and battery systems for the transportation, telecommunications, data centers, and military markets. Since its inception in 2006, Eetrex has designed, tested and produced a variety of electronic systems to meet the growing demand for clean, safe and reliable power solutions. Eetrex has battery manufacturing, electric vehicle, electrical vehicle charging, battery safety, controls and power electronics as part of our product portfolio.
Element Energy Corp	Eric Macris	10 Tamalpais Commons Lane Mill Valley, CA 94941	eric@elementenergy.com	650-296-1706	Private Corporation	Development and commercialization of advanced hardware/software systems for the management of large, multi-cell battery packs	Element Energy has deep expertise in electrochemistry, power electronics, digital electronics, control systems, and software. The company has invested more than 20,000 engineering hours into a cost-effective battery management system that allows continuous, independent software-based control of each individual cell in a battery pack. The company is currently testing proof-of-concept systems.
EMF1V, Incorporated	Charles J Scuilla	6520 Raftelis Road, Burke, VA 22015	Charlie@emf1v.com	703-869-9319	Private – for Profit	Remanufactured Used EV batteries and Hybrid, Design and Battery Pack Configurations, Battery Cell and Battery Pack Manufacturing, Special Programs Consulting, Really Smart BMS designs	E.M.F. 1 V is a new battery company. We are seasoned battery engineers. We established EMF 1v to offer new products and services beyond present commercial capabilities. E.M.F. 1 V is an Adaptive Power Systems Company, the industry's only provider of Adaptive Hybridized Power Solutions focusing on emerging applications, advanced battery designs, and the environmental aspects of "UpCycling Battery Materials™" needed in the new millennium. This unique approach delivers a variety of energy sources that are for existing and next generation electronic devices for commercial and military use. Our first product released the end of September 2011 was a Prius Remanufactured Ni-MH battery (2004-2009 year car replacement). Our first year of operation ended with a revenue of $100K. EMF1v Staff and Consulting Services have focused on emerging technologies, M & A tech-transfer issues, and commercialization. Our Consultants have made contributions to business development and strategic alliances, directly in the power sources area. We have a safety testing capability in Idaho, with experience in primary and secondary batteries. We transform across all types of application areas, from consumer mobile products, to laptops, to medical, to stationary power to military, to aerospace and to intelligence applications. We also have broad experience with big system integrators and small companies. We are interested in long term teaming relationships in battery manufacturing, electric vehicles (second life) , grid-scale energy storage, electric vehicle charging, battery safety, sensors, controls, and power electronics.
EnHill LLC	Muhammad Nawaz	4411 Dusty Meadow Ln, Sugar Land, TX, 77479	minawaz@enhill.com	281-201-4620	Company < 500 employees	Grid Scale Energy Storage; Consulting in renewable energy	Screening of aquifers gas storage fields,protection of energy storage devices, reservoir characterization and 3D geological modeling, reservoir simulation (using AEC McIntosh plants performance parameters).
Exponent, Inc.	Quinn Horn, Ph.D., P.E.	9 Strathmore Road, Natick, MA 02138	qhorn@exponent.com	508-652-8571	Engineering and Scientific Consulting	battery manufacturing, electric vehicles, grid-scale energy storage, electric vehicle charging, battery safety, sensors, controls, and power electronics	Exponent is an engineering consulting firm dedicated to failure analysis and failure prevention. The firm has 690 technical consultants, over 80% of whom have advanced degrees in their fields of study. Over the last 20 years, Exponent has investigated and determined root cause of more than a thousand battery-related failures in multiple industries and markets, including consumer electronics, medical devices, electric and hybrid vehicles, grid storage, military and aerospace applications. We have a multi-disciplinary team of engineers and scientists that address all aspects of battery system performance and safety, including cell-level electrochemistry and manufacturing, electronic system controls, battery diagnostics and fire/explosion mitigation. Exponent has extensive laboratory and testing capabilities, ranging from small cell fabrication to full system-level abuse and destructive testing of both small and large battery systems, including full vehicle crash testing.
FastCAP Systems Inc.	Jamie Beard	21 Drydock Ave. Boston, MA 02210	jamie@fastcapsystems.com	(857) 239-7500	Small Business	Energy storage and power systems	FastCAP Systems Inc. is located in a 17,000 sq. ft. state of the art research and small-scale manufacturing facility in Boston's Innovation District. We specialize in engineering and customization of high performance ultracapacitors, as well as power electronics design and fabrication for energy storage systems and DC interfaces.

Future Renewable Electric Energy Delivery and Management (FREEDM) Systems Center	Dr. Alex Huang	FREEDM Systems Center North Carolina State University Campus Box 7571 Raleigh, NC 27695-7571	aqhuang@ncsu.edu	919-513-4176	Academia	Grid integration of energy storage systems, Li-ion battery development, community energy storage systems, electric vehicle and grid interface systems, charging system modeling and controls, solid state protection systems, and power electronics.	The FREEDM Systems Center has extensive experience in the development of energy storage systems for vehicles and the grid. We have developed scaleable vehicle charging architecture systems with our utility partners and are also directly involved in high efficiency wireless charging systems. The center's expertise also includes development of power electronic systems and advanced algorithms for battery system modularization, controls for energy storage integration in microgrids, battery management systems, and also high efficiency converters for vehicle to grid operation.
Gannon Motors and Controls, LLC	Chris Mi	513 Torrington Drive West, Canton, MI 48188	mi3032@gmail.com	(734)765-8321	Private small business	Battery management systems, electric vehicles, plugin electric vehicles, battery balancing, modeling, battery health monitoring, diagnostics and prognostics	Gannon Motor and Controls, LLC is specialized in battery management system, in particularly they have developed proprietary management, monitoring, balancing and protection system for lithium ion batteries for electric and plugin hybrid electric vehicle applications.
GigMedia	Louis J. Skriba	188 E. Bluewater Ln. Vernon Hills, Illinois 60061-1220	director@gigmedia.com	779 -456-7812	Consulting Firm (strategic planning, marketing, product development/introduction.)	Wind-to-hydrogen-powered vehicles.	The persistent mass-market acceptance failure of electric vehicles is directly related to the strategic misdirection that the “vehicle” concept for the 21st century must be that of the 20th century automobile, with all its petroleum derived performance prejudices. The right 21st century “vehicle” needing electric power is a quiet, personal Vertical Take Off & Landing aircraft operating under UAV/autonomous navigation. The failure to widely adopt “renewable” energy solutions is directly related to the lack of energy storage solutions to deal with diurnal and seasonal variations of environmental sources in a low cost, distributed, non-grid connected context. The right renewable energy system that will survive for centuries is based on wind-to-hydrogen-storage. The failure to develop “energy storage” to meet the capacity, safety and most importantly cost requirements for “transportation” is directly related to the assumption that a chemical battery is now the only option. The right “energy carrier” (aka storage) technology, must be cryogenically cooled hydrogen generated locally, mostly from wind forces. The failure of the Hydrogen fuel-cell powered car strategy is directly related to the overly-simplistic idea that hydrogen has to be profitably sold at “gas-stations”. The survivable hydrogen/fuel-cell based energy system must generate its own hydrogen, locally and cheaply from environmental inputs. The above radical and irreverent energy philosophy is the main capability of our strategic planning, marketing, and product development consulting efforts to help get industry and science to embrace that which is already, and will continue to be, cost effective for massive numbers of end users without massive government and corporate subsidy/investment. Rather, our approach is to use tomorrow’s social networking communications to provide massive and rapid “pop” support and unconventional investment (via consortia, partnerships and Intellectual Property rights sharing) as well as the promotion of “distributed manufacturing”. We will help bring out of the national and university labs that which will actually work for the common citizen under his own investment criteria (called pop-culture “marketing”). That is, a “vehicle” that gets the independent end user off of the “grid” (highway or electrical) and which makes its own energy carrier is the game-changing breakthrough that we hope to help ARPA-E choose as its highest immediate priority.

Green Charge Networks	Kristen Cleven	5406 Bolsa Avenue, Huntington Beach, CA 92649	kcleven@greenchargenet.com	(847) 641-1440	smart grid technology company	battery management, software development, electric vehicle charging management, load control technology, smart grid controls.	Green Charge Networks specializes in energy storage solutions that enable the usage of high-powered electrical equipment, such as electric vehicle charging, without causing extreme energy consumption peaks. This avoids expensive demand charges on the electricity bill and utility infrastructure upgrades. The GCN team develops control software to optimize the system load, model future load, and respond to utility initiated commands.
HRL Laboratories LLC	Dr. Shuoqin Wang; Dr. Ping Liu	3011 Malibu Canyon Road, Malibu, CA 90265	swang@hrl.com; pliu@hrl.com	310-317-5183; 310-317-5474	research and development, large business (GM and Boeing as LLC members)	energy storage systems for automotive, aviation, and aerospace applications	1) Life testing, analysis and modeling of lithium ion batteries- large matrix testing, aging mechanism diagnosis, analytical tool development, and semi-empirical modeling. 2) Online battery state estimation-model development, programming, and validation on a hardware-in-the-loop system. 3) Material and cell design based solutions to facilitate battery analysis and control-electrode compositions to manipulate battery electric potential profiles and in-situ reference electrode development. 4) Non-electrical battery sensor development
HRL Laboratories, LLC	Kyung-ah Son	HRL Laboratories 3011 Malibu Canyon Road Malibu, CA 90265	kson@hrl.com	(310) 317-5977	Business < 500 Employees	Micro/Nano Sensors and Electronics	Development of novel micro/nano sensors and electronics for harsh environment, Development of solid-state chemical and physical sensors for a proof-of-concept study, Design, fabrication, characterization, and packaging of solid-state sensors and microelectronics, Design and fabrication of micro-integrated systems of sensors and electronics
Ideal Power Converters	Paul Bundschuh	N/A	Paul.Bundschuh@IdealPowerConverters.com	(512) 801-3679	Small Business	Bi-directional battery converters, bi-directional electric vehicle charging infrastructure	N/A

Impact Technologies – A Sikorsky Innovations Company	Carl Palmer	300 Canal View Boulevard, Rochester, NY 14623	carl.palmer@impact-tek.com	585-424-1990 x116	Large Business	Prognostics, diagnostics, sensors, controls, safety, logistics	Creation and application of systems for on-line prognostic assessment of batteries to enable optimal battery management, robust control, and enhanced logistics. Example parts of the continuous assessment includes Battery Health State and Remaining Discharge Time.
Indiana University	Professor. Jian Xie, PhD	723 West Michigan Street, SL 260M, Indianapolis, IN 46202-5132	jianxie@iupui.edu	(317) 274-8850	State University	Management System for Energy Storage, Battery Safety, Power Electronics, and Controls	Indiana University (Indianapolis campus) is a public state-owned university with more than 30,000 students. The Richard G. Lugar Center for renewable Energy is an energy research consortium with integrated research and development programs ranging from battery management and diagnostic systems, battery protection systems, materials, to energy storage/conversion systems for both batteries and fuel cells. The Center consists of a multi-/inter-disciplinary faculty team from mechanical engineering, electric and computer engineering, and biomedical engineering in the Purdue School of Engineering and Schools of Science, and Medicine, and Public Health. Currently, there are more than 7 faculty members, 8 research staff and 10 graduate students involved in battery related research. Their research areas include: electrode materials, electrolytes, separators, new battery chemistries, battery design and battery management and protect systems. In particular, battery management system and battery protection system are two major focusing areas for research and development. The team has received more than $20 million grants from federal government, state government, and industry in energy related research. Our research capabilities include: A. Characterization of battery cells, modules and packs for their behavior under different operating conditions and profiles, using different techniques (chemical, electrochemical, electric, and mechanical) including the use of synchrotron high energy x-ray diffraction for in situ monitoring of Li ion battery cells. B. Understanding of the battery failure mechanisms through study of the battery behavior, materials investigation, and in situ characterization of battery cell under operations. C. Development of management, control, and protection systems for energy storage systems in electric vehicles (EVs) and hybrid electric vehicles (HEVs) based on the characterization of the behavior of battery cells, module and packs and the understanding of the failure mechanisms. Battery pack management system has been developed for EVs and HEVs and constantly tested on HEV platforms. A unique battery protection system has been developed for early warning failure of lithium batteries. D. Fabrication of battery cells in coin cell and pouch cell configuration. E. Development of battery separators and polymer electrolytes. F. Development of all solid state lithium ion battery. G. Development of rechargeable lithium metal batteries. H. Development of high energy density battery cathode materials (>1000 Wh/kg)
Indy Power Systems, LLC	Steve Tolen	7702 Moller Rd. Indianapolis, IN 46268	Steve@IndyPowerSystems.com	(317) 370.0559	Private LLC incorporated in Indiana in 2007	Electric Vehicles, Grid-scale energy storage, Electric vehicle charging, Controls, Power electronics.	Indy Power Systems has a patented energy management and control system (System) that can optimize the flow of energy between any number of different sources and or loads regardless of voltage. The System is scaleable and upgradeable. Applications include Grid Storage, Microgrid management, and electric vehicle battery pack management and charging. The System is commercialized. When the System is applied to Grid storage, it can enable a Redundant Array of Inexpensive Batteries which can include different packs of used (repurposed) batteries. Different Power and Energy batteries can also be included and managed. When the System is applied to Microgrid management, multiple different combinations of battery storage, solar power, wind energy, and generators can be optimized with or without a Grid interface. When applied to Electric Vehicles, battery packs can contain two or more chemistries so that a price and performance target can be hit. System hardware, being scaleable and software-driven, can be applied to optimize vehicle charging. For additional information, see www.IndyPowerSystems.com

Integrity Industrial Ink Jet Integration, LLC	Dr Rich Baker	16 Airpark Road, West Lebanon, NH 03784 USA	richbaker@integrityintegration.com	+1 (603) 298 8300 ext 115	+2-year old start-up, ~10 people – R&D and Systems Integration.	Precision depositing of materials using inkjet. Ink jet processes and fluid formulation development; drop control processes; photonic sintering of nano metals onto low melting plastic substrates.	Industrial ink jet experts; process development; print system design and fabrication; chemistry; program management.
International water SAVER ENVIRONMENTAL SERVICES (IWSES)	Dr.JALAL UD DIN QURESHI	1000 Farrah ln , Suit 934 ,Stafford Tx 77477	iwses@live.com	832-217-6837	DBA	Reserch on water & energy Projects	Recognition of International Water Saver Environmental Services (IWSES) as AMPED Partner The International Water Saver Environmental Services (IWSES), a joint partnership Firm, was established in 2010 with the primary aim to promote scientific and technological innovations in the country to help in sustainable development. IWSES areas of interest include Renawable Energy , water resources, environment, and Agriculture . The Firm has its offices in Houston, Texas, USA . The Firm has been registered with the DBA , Houston, Texas, USA. The Firm has built formal partnership with M/s 3TM International and informal partnership with M/s Alt-Energy Tech Inc., both based in Houston, Texas USA for undertaking projects in the water and energy sectors. The key services the Firm can provide include: 1. Design, construction and supervision of civil engineering works related with small dams, canals, watercourses, surface irrigation works including trickle and the full range of high efficiency irrigation systems including sprinkler, drip, center pivot, solar powered water filtration and wastewater treatment plants. 2. Groundwater resource identification, exploration and development including the design and installation of tubewells and deep boreholes. 3. Geological, geophysical, hydrological, soil, topographic, and socio-economic surveys and investigations. 4. Technical studies in the field of water resources, Renewable energy, environment, and agriculture including project planning and feasibility studies. 5. Design and installation of solar and other Renewable energy systems for domestic and emergency use purposes.
Johnson Controls - Power Solutions	Thomas Falz	N/A	ps-arpa-epartners@jci.com	N/A	Automotive Battery Manufacturer	Batteries for Energy Storage	We are open to potential partnership discussions concerning: Battery Management systems - Sensors and Controls - Thermal management - System Modeling
KEMET Electronics Corporation	Rayna Handelman	N/A	raynahandelman@kemet.com	Office (954) 766-2819 Cell (248) 677 1738	Business	Energy Storage systems, BMS, and system integration	Design and development of battery manufacturing equipment, battery integration and BMS for Energy Storage (ES) systems, ES systems for fork lift application, ES for other stationary and vehicle systems
KnGrid, LLC	Stephen G. Davis	KnGrid, LLC 26602 Dapple Grey Drive Laguna Hills, CA 92653-5710	sdavis@kngrid.com	(858) 357-8790	Small Business	Developing intelligent vehicle charging/settlements platform to enable: - Regulation Market Participation - Seamless Roaming Developing Duty Cycles for "Second-Life" vehicle batteries: - Containerized Storage Systems capable of hosting 40 EV used EV batteries with one master controller Battery-backed DC Fast-charging EV's Oscillation Damping	Neutral Settlements and Aggregation of EV Charging for Market Participation Ancillary Services Market Participation Battery Duty-Cycle Analysis EVSE Communications and Control Systems C-Rate Analysis
Laserlith Corporation	Cassindy Chao	4775 Technology Circle, Suite 3, Grand Forks ND 58203	Cassindy@laserlith.com	701-772-1513	Corporation – Small Business – SDWOSB 8(a)	Sensors	Laserlith develops various MEMS Sensors including low-loss RF relays and switches – enabling lower power and weight while maintaining high performance.
Lawrence Livermore National Laboratory	A.J. Simon	Mail Stop L-103; 7000 East Avenue; Livermore, CA 94550	simon19@llnl.gov	925-422-9862	FFRDC	grid integration, battery safety, fundamental electrochemistry, high performance computing, modeling and simulation	Located about 40 miles East of San Francisco, CA, Lawrence Livermore National Lab (LLNL) delivers science and technology in the national interest in the areas of Defense & Global Security, Energy, Engineering, High Performance Computing, The National Ignition Facility, Photon Sciences and the Physical & Life Sciences. The Energy and Environmental Security Program at LLNL advances our nation's security through the production, development, and deployment of diverse, secure, and sustainable energy resources and technology while understanding and reducing their environmental impacts.

Lehigh University	Dr Karl Norian	Electrical and Computer Engineering Department, 19 Memorial Drive West, Lehigh University, Bethlehem,	khn0@lehigh.edu	610-758-4082	Research University	Rechargeable battery characterization. Battery measurements for efficient manufacturing. Battery charge–discharge	Battery measurements instrumentation lab. Published in battery theory.
Lockheed Martin MS2	Steven Sinsabaugh	1210 Massillon Road, Akron OH 44315	steven.sinsabaugh@lmco.com	(330) 796-6107	Large business	Energy storage	Lockheed Martin MS2 is actively working in multiple areas of grid-scale energy storage, as well as energy storage for DoD platforms. Relevant areas of interest, expertise and capabilities include hybrid storage system architectures, advanced low cost energy storage technologies, and systems integration.
LogiCoul Solutions	Larry LaFranchi	Advanced Technology & Manufacturing Center UMass Dartmouth, 151 Martine Street, Fall River, MA 02723	larry@logicoul.com	617-539-9285	Business < 500 Employees	Battery Charging Systems	LogiCoul Solutions has developed a patent pending method called Interfacial Process Stimulation (IPS) that significantly lowers internal resistance, thereby converting more of the battery's energy into useful energy rather than being lost as wasted heat. The LogiCoul test data for a variety of batteries has shown reductions in internal resistance ranging from 15% to 35% which has translated into extended runtimes of 25% to 45%. IPS is a charging algorithm that supplements rechargeable battery charging procedures. LogiCoul intends to commercialize this technology through partnerships with OEMs and suppliers of battery management systems for electric vehicles.
Los Alamos National Laboratory	Eric L. Brosha	Box 1663, MS D429 Los Alamos New Mexico 87545	brosha@lanl.gov	505-665-4008	National Laboratory	Sensors and applications to Safety (Non-invasive diagnostics) and Prognostics (Online sensing/characterization for fast monitoring and prediction.)	The MPA-11 group at Los Alamos has identified and developed numerous acoustic methods to non-invasively interrogate materials and systems for Industry, National Security, and Defense needs. Novel solutions have been demonstrated for a divers range of applications including ascertaining information on internal structure, composition, temperature, pressure, defect formation growth and propagation, determination of state-of-charge within energy storage systems, and online process interrogation/QA for manufacturing.
Machflow Energy, Inc.	Sergei Ivanov	Machflow Energy 950 Main St. Worcester MA 01610	sivanov@machflow.com	508-793-7759	Small Business	sensors, controls, and power electronics	We are a technology and instrumentation development company that is currently concentrating on a novel environmentally friendly cooling system. We have very extensive experience in complex sensor measurements and data acquisition systems. In addition, we have built high current pulsed power systems.
Massachusetts Institute of Technology	Richard D. Braatz	77 Massachusetts Avenue, Room 66-372, Cambridge, MA 02139	braatz@mit.edu	617-253-3112	University	Sensors; Controls; Robust Control; Diagnostics; Prognostics; Process Systems Engineering; Electrochemical Systems	• Quantification of uncertainties in electrochemical systems including batteries • Model predictive control of chemical processes • Optimal design of electrochemical systems • Multiscale modeling of electrochemical systems • Fast model predictive control algorithms • Systems engineering of electrochemical systems including batteries • Design of prognostic and diagnostic systems • Robust control theory and its application to nonlinear distributed parameter systems; including solid state and electrochemical systems
Mavizen	TBA	N/A	a@mavizen.com	(+)447803241478	Incorporated	Electric Motorsport Energy Management Systems Grid Integration and Billing Manufacturing and Logistics Lifecycle support (in field warranty/liability management, leasing	Mavizen founded a worldwide movement for electric motorcycle motorsport, the TTXGP. Now in its 4th season, racing has expanded to four regions including a vibrant US scene. 2012 world final will be in Daytona. The TTXGP has been a R&D platform that has expanded beyond motorcycles to cars and now grid. http://www.wired.com/autopia/2011/10/car-buyers-benefit-as-ev-racing-goes-from-two-wheels-to-four/ We are the worldwide distributors for motorcycle motorsport for A123 Systems Inc. We are focused on the total solution around energy management, containment, safety, logistics and integration. We service customers around the world with energy systems. Our vision is the to be the world's leading "refinery" for electrical energy for mobile and fixed applications.

MEMC Electronic Materials, Inc./SunEdison	Dr. Babu Chalamala, MEMC Fellow	501 Pearl Drive, St. Peters, MO 63376	bchalamala@memc.com	636-474-5486; 646-675-7162	Manufacturing and Renewables Deployment: Silicon wafers and PV modules manufacturing, engineering, construction and deployment of grid scale PV systems including energy storage; R&D in flow batteries	Grid-scale energy storage, Sensors, Controls, and Power Electronics	MEMC, based in St. Peters, Missouri, is a global leader in the manufacture and sale of silicon wafers and related products to the semiconductor and solar industries. Through its SunEdison subsidiary, MEMC is also a major developer of solar power projects and is a leading solar energy services provider. Our expertise is in the development of engineering, construction and deployment of grid scale PV systems. Over the last two years, SunEdison installed over 460 MW of solar energy capacity at 540 operational sites. With a growing pipeline of PV projects, we have extensive experience in technologies for robust control of energy storage including advanced monitoring, power electronics, sensors, and control systems.
Michigan Technological University	Dr. Bo Chen	Department of Mechanical Engineering--Engineering Mechanics 1400 Townsend Drive Houghton, Michigan 49931-1295	bochen@mtu.edu	(906) 487-3537	University	electric and hybrid vehicles, battery management, and embedded controls	• Real-time battery health monitoring • Battery modeling on SOC and SOH • Pattern-recognition-based damage and aging diagnostic and prognostic algorithms • Sensor technologies for real-time monitoring systems • Embeddable battery state estimation and model predictive control strategies • Advanced embedded control system development and testing facilities, including various industry standard ECUs, development software, and hybrid vehicle powertrain hardware-in-the-loop test-bed
Motiv Power Systems, Inc.	Jim Castelaz	1165 Chess Drive, Suite E, Foster City, CA 94404	jim@motivps.com	650-458-4829	Corporation	electric powertrains for heavy vehicles (specifically: electric vehicle charging, sensors, controls, and power electronics)	Motiv develops an electric Powertrain Control System for heavy vehicles. Our power electronics, software, and controls enable the easy, safe, and flexible integration of may different battery pack types and sizes into conventional truck chassis in a plug-and-play architecture. Motiv's expertise lies in power electronics for batteries and electric powertrains, controls thereof, motor controls, embedded real-time safety-critical software, advanced data telemetry, and ruggedized mechanical design and integration.
MPR Associates, Inc.	Ryan Downs	320 King Street, Alexandria VA	rdowns@mpr.com	(703) 519-0200	Medium-Sized Engineering Firm	Battery Safety Sensors, Controls and Power Electronics System & Component Engineering Reliability Engineering	MPR Associates is a global design and engineering firm providing a full range of engineering services to the Energy, Defense, National Security and Health & Life Sciences industries. MPR works alongside small businesses, manufacturers, power plants, utilities and regulatory organizations to implement new technologies, evaluate operational concerns, and ensure adherence to industry accepted standards. MPR's range of services can be tailored to the specific needs of a project or a customer. MPR often fills the capability gaps within teams and works to ensure success of the overall team's goals. MPR has significant experience with, and is currently involved in, developing technology and products related to battery safety systems. Past performances includes casualty characterization via cell & module level testing; development of casualty detection, containment and mitigation technologies; and design/build/qualification of casualty mitigation (safety) products. MPR performances include experience with various battery chemistries (including lithium batteries). In technology and product development, MPR applies its unique First Principles Development Process to consistently deliver innovative solutions from initial concepts to detailed designs for manufacturing. This process focuses on addressing risks early in the design process, involving manufacturers and customers in the initial development stages, and considers the reliability/maintainability concerns during the design process. MPR Development Processes ensures a smooth transition from idea to product while maintaining the voice-of-the-customer and business goals throughout all the development stages.

National Renewable Energy Laboratory (NREL)	Ahmad Pesaran	15013 Denver West Parkway, Mail Stop:1633, Golden, CO 80401-3305	ahmad.pesaran@nrel.gov	303-275-4441	Federally Funded Research and Development Center	NREL (http://www.nrel.gov/vehiclesandfuels/energystorage/) has unique expertise in battery thermal management, battery systems R&D, and multi-physics modeling, electric vehicles, power electronics, battery control and charge strategies, battery safety, electric vehicle grid integration, and renewable-grid connected energy storage. NREL is the lead national laboratory for the DOE Office of Vehicle Technologies program in Computer-Aided Engineering of Batteries (CAEBAT).	1. Physics-based battery modeling toolset –NREL computational models span material- to system-scale analysis of battery life, performance and safety, and range from empirical to 3D multi-physics models. Suitable for embedded control applications, NREL has developed fast-running models based on vector fitting, fractional derivative and other order-reduction techniques. The following control-oriented models include relevant battery physics necessary for uncertainty reduction in battery health diagnostics and prognostics: a) Control-oriented battery performance models – Reduced-order electrochemical/transport model supporting state-of-charge, state-of-power estimation and state-of-health diagnostics b) Battery life-predictive models – Describing failure mechanisms such as SEI growth, particle and binder failure, these model support remaining useful life (RUL) prognostics for optimization of duty-cycle and environment 2. Estimation algorithms – Kalman, Extended Kalman, and Particle Filter algorithms enabling real-time tuning of performance & life models on embedded controllers 3. Business decision models – Techno-economic models to quantify the value of primary and secondary applications of battery packs, such as management of vehicle fleets, electric utility storage, and alternative business models such as battery swapping and 2nd use 4. Robust fault detection – Fail-safe pack-level design architecture for cell fault detection and isolation (NREL IP) 5. Safety testing and thermal abuse modeling– On-demand internal short trigger for simulation of field failure in test articles (NREL IP). Also thermal abuse and internal short circuit modeling 6. Thermal monitoring and management – Unique test laboratory capabilities for thermal characterization as it relates to battery performance, life, safety & balance of plant systems 7. Electric vehicle simulation, testing, and evaluation - Simulation and testing based evaluation of advanced vehicle technologies to determine their impact on fuel economy, vehicle performance, exhaust emissions, vehicle component cost, and market potential 8. Electric Vehicle Grid Integration – Unique capabilities in the development and implementation of electrified transportation systems, particularly those that integrate renewable-based vehicle charging systems. 9. Power Electronics - Developing thermal management systems for advanced power electronics and looking at technologies to improve reliability, efficiency, and ruggedness.
Naval Surface Warfare Center Carderock Division - West Bethesda	Rebecca A. Smith	NSWCCD Attn: Rebecca Smith Blg.11, Rm 203 9500 MacArthur Blvd. West Bethesda, MD 20817	Rebecca.a.smith@navy.mil	301-227-5820	Navy Research and Development Laboratory	Electrochemical Power Sources	Electrochemical Power Source capabilities at the West Bethesda site range from basic electrochemistry research to performance and safety testing of large prototype systems including sensor and management systems that impact performance and safety. In an "Advanced Management and Protection of Energy-storage Devices" teaming effort NSWCCD-WB envisions use of its investigative diagnostics tools including X-ray Photoelectron spectroscopy (XPS), AC impedance spectroscopy and X-ray absorption spectroscopy (XAS) to investigate the interface chemistry of the anode and cathode and the surface and bulk changes in the structure of the active material due to the buildup of stresses. This can be done at various states in the cell's life cycle including after certain abusive environments. Synthesis labs, dry rooms, and cell prototype facilities are also available and can be used to support any synthesis or analysis deemed necessary for the effort. For the more advanced development efforts, NSWCCD-WB has both performance and abusive testing facilities and experience with large prototype batteries through their system development. We support Navy lithium safety testing on large format prototype electrochemical power sources under Instruction 9310.1b, Naval Lithium Battery Safety Program; Technical Manual (TM) S9310-AQ-SAF-010, Navy Lithium Battery Safety Program Responsibilities and Procedures; and TM SG270-BQ-SAF-010, High-Energy Storage System Safety Manual. System testing of up to 125kW including up to 445V and 530A is possible at the West Bethesda site. Abusive test capabilities include short circuit, overcharge, high temperature, and overdischarge in a facility designed and equipment designated for large system safety testing. Heat release rate studies per TM SG270 are also available. Inclusive in the safety testing capabilities is the evaluation of safety and management systems. We have considerable experien ce in this area since our safety evaluation mandate requires the testing of large Navy lithium systems with their electronic safety devices under abusive conditions.
North Carolina State University, Department of Materials Science & Engineering	Justin Schwartz	911 Partners Way Campus Box 7907	Justin_Schwartz@ncsu.edu	919-515-0493	University	grid-scale energy storage & power electronics	We have unique expertise in the stability and protection of superconducting magnets that are essential for superconducting magnet energy storage, fault current limiters, and other superconducting magnet based systems.

Ohio State University	Dr. Marcello Canova	930 Kinnear Road, Columbus OH, 43212	canova.1@osu.edu	614.247.2336	University	Advanced Battery Technologies and Applications: Systems Level Battery Applications: Electric Transportation Systems, Stationary Energy Storage Battery Aging Testing and Characterization Thermal Characterization and modeling Modeling: Electrochemical, Thermal Battery Prognostics and Diagnostics (SoC, Capacity, and SoH Estimation Algorithms) Battery Materials Characterization (Multi-scale Characterization): Physical/Morphological, Electrical, Electrochemical, Chemical and Chemical Structure Analysis	With over 20 years of experience, The Ohio State University is a leading research organization in the area of advanced battery technologies and energy storage systems. As one of the largest universities in the United States, OSU has the advantage of being able to support vast multi-disciplinary initiatives to explore and research the multi-faceted areas of advanced battery systems and associated applications. To this end, OSU took the initiative and formed an advanced battery group, comprised of five different scientific and engineering disciplines, numerous facilities equipped with testing and analytical equipment, and more than 50 researchers and research support staff dedicated to the advancement of battery technologies. With the collaboration of so many disciplines, OSU facilitates the entire spectrum of battery research including research at the materials level to system applications that utilize battery technologies such as electric transportation. At OSU, battery research is done using a system down approach. By taking a multi-level systems approach to battery research, innovative new battery system, pack, cells, and material designs and implementations are able to be identified, explored, and developed. OSU has the expert experience, knowledge, and facilities that are required to test and characterize numerous battery chemistries at the material, cell, and pack levels that enable the innovation of new and improved battery materials, manufacturing processes, management systems, control algorithms, thermal management, and life/aging and state-of-charge estimation algorithms. Taking a directed research approach of electrochemical energy storage devices and systems enables researchers at OSU and its industry partners to conduct system, subsystem, component, and materials-level research focused on life, performance, aging, and damage characterization on multiple layers of batteries enabling the commercialization of new, innovative approaches and designs to battery technology. The Ohio State University supports numerous testing facilities dedicated to battery testing and demonstration: Battery Aging Laboratory (20+ channels capable of testing all sizes and chemistries), Battery Thermal Characterization Laboratory, Material Characterization laboratories such as Coin Cell fabrication Calorimeters, Electron Optics Facility, Atomic Force Microscopy Labs, and System applications such as a Class 8 battery-electric truck (1000Hp, 60MPH, 60-150 mile range, PHEVs (EcoCAR), and the Buckeye Bullet (world's fastest electric vehicle).
Ohio State University	Prof. Junmin Wang	201 W. 19th Ave., Columbus OH 43210	wang.1381@osu.edu	614-247-7275	University	Modeling, sensing, and control methodologies and applications to electric vehicle estimation, fault diagnosis, and control, electric vehicle energy management and control strategies, real-time electric vehicle operational energy efficiency optimization.	Over $1M projects on electric vehicle modeling, fault diganosis, estimation, and control funded by Office of Naval Research, National Science Foundation, and others. A li-ion battery powered pure electric vehicle with in-wheel motors that is fully accessible, fully controllable, and fully instrumented with high-end sensing systems. Numerous publications on electric vehicle modeling, fault diagnosis, fault-tolerant control, energy management, and energy efficient control.
One-Cycle Control, Inc.	Gregory T. Smedley, Ph.D.	12 Mauchly, Bldg P, Irvine, CA 92618	gsmedley@onecyclecontrol.com	949-727-0107 x01	C-Corporation	Power Electronics & Battery System Integration for on-grid & off-grid	Brief Description of Capabilities: Team: World-Renowned experts in Power Electronics (Control, Topology, Magnetics) Technology: from Caltech and UC Irvine Power Electronics Lab. Government Contracts: DOD, DOE, CEC, CIEE. Awards: 2010 SBIR Army Achievement Award 3-Phase Converters: 10x smaller & 5x lighter than typical offerings; 40kW ~ 60 lbs & ~1.2 cu. ft. kW to MW, Modular, Scalable, Rackable, Adaptable Bi-Directional, 4-Quadrant, High-Efficiency 3-Phase Power Conversion with 100 micro-second rail-to-rail. Experienced in system integration for Wind, Micro-Hydro, On-Grid Energy Storage, Off-Grid Energy Storage, Mobile Power, alternative energy, advanced transportation, grid stabilization, power quality, variable-frequency, "wild power", etc. R&D, design, prototype, & on-site production with 95% domestic supply chain. UL-Approved products on the market. web: www.onecyclecontrol.com

Palo Alto Research Center Incorporated (PARC, A Xerox Company)	Bhaskar Saha	3333 Coyote Hill Rd, Palo Alto, CA 94304	bhaskar.saha@parc.com	650-812-4844	Large business	grid-scale energy storage, battery testing, battery health, battery safety, battery manufacturing, sensors, power electronics, modeling, intelligent control and optimization.	PARC is in the Business of Breakthroughs®, creating new business options, accelerating time to market, augmenting internal capabilities, and reducing risk for our clients. PARC personnel have established expertise in relevant areas of decision theory, optimal control, system health monitoring, battery health management, deployable reasoning algorithms, hardware-in-the-loop testing, model development, optoelectronics, and sensing systems with acknowledged expertise in the following areas: • System health management with specific experience in battery health management • System health monitoring including developing customized sensor systems and intelligent algorithms for various industrial applications • Intelligent control and optimization algorithms with significant contributions to power grid modeling • Automated planning and machine learning • Experimental design and analysis • Testing procedures for electrical systems including cyclic voltammetry and electrical impedance spectroscopy • Embeddable fiber Bragg grating (FBG)/optical sensors and low-cost, compact, scalable demodulator systems. PARC has extensive experience in successfully leading, managing, and executing government-funded and R&D team projects in energy systems, system health management, optimal control and decision theory. PARC also has prototyping and testing facilities, advanced sensing systems, software and computing clusters that can be dedicated on a project-basis.
Panacis Inc.	Steve Carkner	15 Grenfell Ct. Suite 205, Ottawa, Ontario, Canada. K2G0G3	scarkner@panacis.com	+1 (613) 727-5775 x 727	Private Corporation	Battery Manufacturing, Electric Vehicle Charging, Grid-Scale Energy Storage, Battery Safety, Controls, Power electronics	Panacis is a global developer and producer of safe, reliable and scalable battery systems for telecommunication, defense and renewable energy applications. Panacis uses smart energy management technology to provide flexible and clean power that turns energy storage into a viable and unique competitive advantage for our customers. Unlike conventional technologies, Panacis provides lighter, smarter and more efficient energy storage products with complete local and remote management capabilities. Our systems deliver a reduced total cost of ownership that is unsurpassed in the industry today. For more information, please visit www.panacis.com Specialty: Mission critical systems, military and soldier power, silent watch systems, extremely low temperature operation to -50C, very high rate discharge of thousands of amps, mega-watt systems.
PB Energy Storage Services, Inc.	Liaqat Ali	N/A	Alil@pbworld.com	(281) 589-5859	Engineering and Construction	Grid-scale Energy Storage	PB Energy Storage Services, Inc. is wholly owned subsidiary of Parsons Brinckerhoff (PB). PB provides full suite of design, construction and implementation of the technology both in wind power and subsurface compressed air energy storage (CAES), a grid-scale energy storage system. PB is North America's leading designer and builder of subsurface energy storage in salt caverns, porous media and hard rock caverns. PB has developed more storage capacity in natural gas and petroleum product storage than any other company. CAES experience of PB is unrivaled. KBB (a former parent firm of PB Energy Storage Services Inc) was involved in the first CAES plant at Huntorf and later PB-KBB designed, constructed and operated the first CAES demonstration plant at Pittsfield aquifer in Illinois, USA. PB engineers also constructed the United States' first CAES facility at McIntosh prior to joining PBESS. The Huntorf CAES plant in Germany has a capacity of 290 MW with two to three hour storage and provides grid support services (to nuclear units) as well as peaking services. The plant has since been modified to help balance the wind output from North Germany. The McIntosh CAES plant in Alabama, USA was designed for 26 hours of generation at full power (and it must achieve full operational power from black start in 10 minutes). PB has also provided the turbomachinery and balance of plant engineering expertise in the development of several recent CAES development projects. PB is directly involved with the development of other turbomachinery CAES concepts, which promise to provide more efficient and cost-effective configurations that can be integrated with wind and other renewable energy systems. PB's wind power experience is equally unrivaled. PB has undertaken development and EPCM of the largest wind farm in New Zealand. Currently, PB is involved in the development of a large-scale farm project at Windy Hill in Australia and offshore wind farm developments in the UK at Blyth and Teeside. Selected recent projects: 1. 250 MW Wind Power Project, Northern Texas 2. Tararua 32 MW Wind Power Facility, Stratford, New Zealand 3. Crescent Ridge 51 MW Wind Power Project, Bureau County, Illinois 4. Confidential 100 MW Wind Power Project, Uinta County, Wyoming 5. Mill Run/Somerset 24MW Wind Power Project, West Pennslyvania 6. Offshore 60-90 MW Wind Power Project, Teeside, United Kingdom

PCTEST ENGINEERING LABORATORY INC.	JAESIK CHUNG Ph.D.	6660-B Dobbin Road Columbia, MD, UAS 21045	anto@pctestlab.com or info@pctestlab.com	410-290-6490 / 410-290-6652	N/A	Battery Safety and Reliability, Battery Risk Assessment, Cell Manufacturing Process and site Audit and Consulting	1) Li ion battery safety and reliability analysis. 2) Battery safety Certification: Cell manufacturing Site audit/ Cell /Battery pack/ Charging System/ Host system/ System base safety evaluations - CTIA battery safety certification: more than 15 ~20 models /Month - UN DOT Certification: 5 models/Month - Cell and Battery abuse test and approval test: - Aerospace application Battery evaluation - Military application battery testing - 3) Research for battery degradation and safety mechanism - Forensic Analysis - Field issue Analysis and Recall issue support - Diagnostic / Prognostic Analysis project. - Battery Thermal management
People Power Company	John Teeter - Chief Scientist	620 Lowell, Palo Alto, CA	john.teeter@peoplepowerco.com	208-875-2269	Post DoE SBIR Phase 2 Commercial	Microgrid control systems and Consumer facing Information Technologies	People Power is advancing the state of the art in DC microgrid control systems as well as energy and resource management consumer sustainability applications. We are supporting the open source development of key interoperability elements within the microgrid control domain, including the emerging Energy Interop and ASHREA FSGIM standards. Our particular expertise in highly scalable, cloud based, information systems and network management platforms positions us well for contributions in transformative control infrastructures for management of distributed energy resources.
PowerHub Systems	Glenn Skutt, Ph.D.	1700 Kraft Dr. Suite 1325, Blacksburg, VA 24060	gskutt@pwrhub.com	540-443-9214 x4271	Small Business, LLC	Community Energy Storage, grid-scale energy storage, power electronics, controls, electric vehicle charging	PowerHub Systems is a Virginia based design and manufacturing company concentrating on community energy storage (CES) and other grid-tied storage solutions. PowerHub has delivered CES units that are in used by the utility for solar firming and load shifting of distribution circuit (residential) loads in high penetration solar PV environments. PowerHub's expertise is in power electronics, embedded system design, control programming, communications, and the integration of emerging standards for the operation and integration of distributed energy resources and microgrids. Our first CES products are based on a 30kVA 4-quadrant power conversion unit combined with lithium-ion battery packs of various size from 25 kWH to 140 kWH.

Princeton Power Systems	Chris Mangone	3175 Princeton Pike, Lawrence, NJ 08648	cmangone@princetonpower.com	609-955-5390 x109	Small Business	Advanced Power Electronics/Inverters/Energy Storage Systems	Princeton Power Systems (PPS) is a New Jersey based manufacturer of advanced power conversion electronics for the renewable energy industry. PPS electronics are ideal for solar, wind, and energy storage systems. For more information, please visit www.princetonpower.com
Qnovo Corporation	Dania Ghantous	39655 Eureka Drive Newark, CA 94560	dania@qnovocorp.com	510.592.7728	Private Corporation	Sense and Control Systems for Lithium-Ion Batteries	Qnovo has developed unique advanced control systems based on adaptive charging of lithium-ion batteries. The Qnovo algorithm measures in-situ and in real-time the key parameters that impact degradation within the cell. It subsequently applies these measurements using a physical model to determine the best charging approach. This process is completely adaptive resulting in a reduction of degradation, extension of cycle life, and maximizing the utilizable capacity of the cell. The algorithm takes into account practical variables such as manufacturing variations, temperature and cell aging. Qnovo built its own custom test infrastructure to meet the unique diagnostic and adaptive control requirements. Each test channel uses an ARM processor with high speed A/D sampling and real-time feedback control at the cell. The Qnovo team combines expertise in battery materials, engineering and electrochemistry, as well as electronic systems engineering and mixed-signal design.
Quallion	Alex Fay	12744 San Fernando Rd, Sylmar, CA 91342	alexf@quallion.com	818 833 2029	Small Business	battery manufacturing, battery safety, sensors, controls, power electronics	Manufacturing of lithium ion active materials, cells and batteries, including BMS design, for medical, military, aerospace and transportation applications.
Quantum Fuel Systems Technologies Worldwide Inc.	Dr. Neel Sirosh	17872 Cartwright Road, Irvine CA 92614	nsirosh@qtww.com	949 399 4698	For-profit, public company	Electric Vehicles, power electronics	Quantum Fuel Systems Technologies Worldwide, Inc., a fully integrated alternative energy company, is a leader in the development and production of advanced propulsion systems, energy storage technologies, and alternative fuel vehicles. Quantum's wholly owned subsidiary, Schneider Power Inc., and affiliate Asola Solarpower GmbH complement Quantum's emerging renewable energy presence through the development and ownership of wind and solar farms, and manufacture of high efficiency solar modules. Quantum's portfolio of technologies includes electronic controls, hybrid electric drive systems, natural gas and hydrogen storage and metering systems and alternative fuel technologies that enable fuel efficient, low emission hybrid, plug-in hybrid electric, fuel cell, and natural gas vehicles. Quantum's powertrain engineering, system integration, vehicle manufacturing, and assembly capabilities provide fast-to-market solutions to support the production of hybrid and plug-in hybrid, hydrogen-powered hybrid, fuel cell, natural gas fuel, and specialty vehicles, as well as modular, transportable hydrogen refueling stations. Quantum's customer base includes automotive OEMs, dealer networks, fleets, aerospace industry, military and other government entities, and other strategic alliance partners.

Robert Bosch LLC	Dr. Nalin Chaturvedi, Dr. Jake Christensen, Dr. Aleksandar Kojic	4005 Miranda Avenue, Palo Alto, CA 94086	nalin.chaturvedi@us.bosch.com, jake.christensen@us.bosch.com, aleksandar.kojic@us.bosch.com	(650) 320-2967, (650) 320-2927, (650) 320-2920	Large Business	Energy storage systems for automotive and grid applications	1) Battery management systems, online battery state and parameter estimation development, optimal utlization stratgeies, and hardware-in-the-loop validation. 2) Physical and empirical modeling, testing, characterization, of lithium ion batteries, aging mechanism modeling & diagnosis. 3) Lab-scale cell design for analysis and in-situ reference electrode measurements.
Rutgers University - MSE Department	Dunbar P. Birnie, III	Department of Materials Science and Engineering Rutgers - The State University of New Jersey 607 Taylor Road, Piscataway, NJ 08854-8065	dunbar.birnie@rutgers.edu	(848) 445-5605	University	grid-connected rechargeable batteries	Recent work has included effort aimed at: 1) V2G -- vehicle batteries as connection to grid storage -- also connection to renewable power: D. P. Birnie, III, “Solar-to-Vehicle (S2V) Systems for Powering Commuters of the Future”, Journal of Power Sources, 186, 539-542 (2009). (DOI: 10.1016/j.jpowsour.2008.09.118). B. D. Viezbicke and D. P. Birnie, III, “Understanding Parasitic Energy Costs for PHEV Conversion Packs as we Move toward V2G”, International Journal of Electric and Hybrid Vehicles, 3, 309-317 (2011). (DOI:10.1504/IJEHV.2011.044386) 2) Stationary grid storage: My recent emphasis has been on sodium battery systems: I'm interested in processing and microstructure development as well as crystallography of the electrolyte. Here is a recent paper: Dunbar P. Birnie III, “On the Structural Integrity of the Spinel Block in the (DOI:10.1107/S0108768112002649) 3) Grid/Building energy balancing: This work was supported last year as part of a Rutgers team effort involved in the DOE GPIC HUB out of Philly. We were working on solar/building retrofit designs and energy optimization. Current work is aimed at understanding the magnitude of storage that would be optimum for buffering solar capture and local utilization. We are keen to model larger scale grid energy usage and have some vehicle/storage modeling underway, but still not submitted for publication.
Saft America, Inc., Space and Defense Division	Alex Bynum	107 Beaver Court, Cockeysville, MD 21020 USA	Alex.bynum@saftbatteries.com	410-568-2239	Large Business, for profit	Space and Defense, vehicles, grid energy storage, battery safety, controls	Lithium-ion and primary lithium: R&D, cell development, electronics development, software, battery design and battery manufacturing

Sail D. White Enterprises, Inc	Donald J. White	1212 S. Muskogee Ave. Russellville, AR 72801	sdwhite@centurylink.net	479-967-5277	Veteran owned small business with R&D focus on military mobility; electric transportation Intermittently driven flywheel/battery for on demand auxiliary burst of peak energy; (This is rapidly “charged” and capable of On-the-Go supplemental power peak demand)	Electric Vehicles and Electric Vehicle Charging and infrastructure improvements	Alternate energy resource for recharging EV’s while not on the road, i.e. parked at work or home (and other specific articulated mechanical attributes)
Sail D. White Enterprises, Inc.	Donald J. White	1212 S. Muskogee Ave. Russellville, AR 72801	sdwhite@centurylink.net	479-967-5277	Small R & D Business	electric vehicles, (weight saving energy absorbing frame system) grid-scale energy storage, electric vehicle charging, (vehicle specific charging and procedures) battery safety (monitoring suggestion and post accident safety rendering) Expediting Innovations	N/A
Sandia National Laboratories	Wahid Hermina	PO Box 5800 / Mail Stop 1078 Albuquerque, NM 87185-1078	wlhermi@sandia.gov	(505) 844-4759	Federally Funded Research and Development Center (FFRDC)	Sandia National Laboratories is a DOE/NNSA National Lab that carries out research and development in Nuclear Weapons, Defense Systems & Assessments, Energy, Climate & Infrastructure Security, and International, Homeland, & Nuclear Security. In support of the Advanced Management and Protection of Energy-Storage Devices (AMPED) FOA, Sandia labs has capabilities that include sensors, microsystems, controls, power electronics, battery safety/abuse capabilities, storage, and grid integration.	• Battery Manufacturing: We have material science expertise in battery electrodes for diverse battery chemistries and nanoscience diagnostic capabilities to explore battery chemistry. The Center for Integrated Nano Technologies (CINT) is a BES funded facility that provides industry access to these capabilities. Contact: Terry Aselage tlasela@sandia.gov (505) 845-8027 • Grid-Scale Energy Storage Sandia’s experience with control and protection methodologies reach from the grid application, through power electronics controls, to the chemical or mechanical operation of the energy storage device itself. Sandia has significant experience in grid analytics, power electronics development and controls for energy storage and the development and refinement of battery chemistries and materials, including lithium based systems, sodium based systems, flow batteries, as well as mechanical strength for flywheels and geological analysis for CASES systems. Sandia also has extensive test facilities to accommodate cell and strings of batteries, as well as a 1MW test pad for complete energy storage systems (batteries, flywheels, and others) that can be leveraged for this work. (Contact: Ross Guttromson, rguttro@sandia.gov, (505) 284-6096) • Battery Safety and Controls We have capabilities in engineered sensors and controls for safing battery systems in abnormal environments (e.g. post-accident); in-situ battery diagnostics and modeling for end-of-life prediction. Specific capabilities include battery material synthesis, prototyping, modeling, diagnostics, safety research and abuse testing, life cycle testing, materials analysis, sensors and controls (Contact: Tom Wunsch, tfwunsc@sandia.gov, 505-844-4359) • Sensors We have capabilities to develop, design and fabricate microsystems-based sensors for measuring physical and chemical environments. Physical sensors include MEMS-based sensors for measuring, among others, pressure, accelerations and stresses. Chemical sensors integrate MEMS, microfluidics and electronics into a sensor module to provide sensitive and selective measurements of diverse chemicals in both gas and aqueous environments. We have fielded autonomous sensors with onboard energy storage and with energy harvesting. We also develop wireless sensors that can be remotely powered and interrogated. (Contact: Wahid Hermina, wlhermi@sandia.gov, (505) 844-4759) • Power Electronics We have extensive capabilities in 3-5 semiconductor materials and device structure growth by MOCVD and MBE and characterization including an extensive effort in GaN-based devices. Electrical test and measurement facilities are available to characterize the performance, stability, and reliability of semiconductor devices. Also, a wide array of optical techniques for emitters as well as physical characterization techniques exist. These capabilities are centered in MESA with a 20,000 sf clean room coupled to a 130,000 sf light lab facility with greater than 250 staff. (Contact: Bob Biefeld, rmbiefe@sandia.gov, (505) 844-1556)

Seeo, Inc.	Peter Paris	402 9th Avenue South Fargo, ND 58103	pparis@seeo.com	510.782.7336	Venture-backed solid-state battery company	Battery manufacturing, battery safety, battery management and controls	Engineering expertise in Battery Management Hardware and Software, Automotive Control Systems, and Electric Propulsion. Core competencies in embedded control system design, safety and critical systems engineering, and power electronics control software. Specialists in development of advanced adaptive strategies to improve state-of-health determination and real-time battery models for state-of-charge estimation.
Sendyne Corp.	Ellen Gooch	250 West Broadway, 6th Floor, New York, NY 10013	egooch@sendyne.com	O +1 212 966 0600 ext. 223 / C +1 646 226 2990	Business < 500 Employees	Energy Storage System Design and Control, Sensors / IVT Measurement, Battery and Battery Systems Modeling	Power electronics, energy storage system controls, and model development.
Sequentric Energy Systems, LLC	Daniel Flohr	2840 South College Rd #210 Wilmington, NC	dflohr@sequentric.com	704 817 2080	Software, Hardware Services Provider	Real-Time network management of electric loads for demand response, supply/demand balancing, variability neutralization and energy storage	Sequentric has been supplying IP network based software and hardware solutions which allow, through real-time monitoring and dispatch, control of endpoint energy consuming devices. We are involved in a number of renewable generation projects where time-shiftable loads (i.e. commercial refrigeration and process heating, water heating, high temperature thermal storage, battery charging etc) are dynamically manipulated to store energy and/or reduce demand.

Southwest Research Institute	Sean C. Mitchem	6220 Culebra Road, San Antonio, TX 78228-0510	sean.mitchem@swri.org	210-522-2698	Private Non-profit (Large business size) applied research and development	Battery research, applied R&D, battery testing, electric vehicle battery testing consortium, electrochemistry, materials R&D, membrane development, sensor systems, electric vehicle development, environmental-fire-abuse testing (Destructive and non-destructive testing), control systems, grid cyber security, grid communications, power electronics, prototype development.	SwRI, headquartered in San Antonio, Texas, is one of the oldest and largest independent, not-for-profit, applied research and development organizations in the United States. Founded in 1947, SwRI provides contract research and development services to industrial and government clients. SwRI consists of 11 technical divisions employing over 3,000 staff members that offer multi-disciplinary, problem-solving services in the areas of engineering and the physical sciences. SwRI has world-class laboratory facilities located on our 1,200-acre property in San Antonio, Texas, with 2 million square feet of laboratories housing over $90 million of equipment. Our combined facility and equipment resources include both general-purpose facilities that may be used to support analysis, design, and fabrication activities as well as a number of specialized fabrication and testing facilities. SwRI has a fully equipped machine shop, specialized hybrid microcircuit fabrication lab, clean-room facility, printed wiring board fabrication facility, materials and components laboratories, and laboratories that are dedicated to environmental stress testing, structural dynamics testing, environmental testing, and nondestructive testing and evaluation to complement our extensive prototype and production fabrication laboratories. SwRI current manages the Energy Storage Systems Evaluation and Safety Consortium (ESSES) and is responsible for conducting electrical and safety testing on electric vehicle battery technology for 16 battery manufacturers and automotive companies.
Space Information Laboratories.	Edmund Burke, SIL CEO	2260 South Meredith Lane, Santa Maria, CA 93455	Edmund.Burke@spaceinformationlabs.com	805-925-9010	Small Business (< 50 employees), WOSB	Advanced Real-Time Power Management Systems, Battery Safety, sensors, controls and electronics	Design and Manufacturing of advanced Aerospace and Green-Tech power systems (Lii-Ion, Li-Ion Polymer, Hybrid Li-Battery/PEM Cell, etc.) with advanced real-time power management system for safety critical applications.
SRI International	Barbara Heydorn	333 Ravenswood Ave., Menlo Park, CA 94025	energy-center@sri.com	650 859 5717	non-profit contract research organization	battery research and prototyping, sensors and controls, power electronics	Silicon Valley-based SRI International performs sponsored R&D for governments, businesses, and foundations. SRI's 2,100 staff draw on expertise in the physical sciences, engineering, biosciences, information and computing sciences, and policy to address energy challenges. Batteries: SRI is developing batteries with novel chemistries and form factors. Projects range from understanding the fundamental science behind cell performance to prototyping and testing new cell, module, or system designs. SRI holds patents in the areas of non-flammable electrolytes for lithium batteries; high-power, high-energy lithium ion batteries; and water-activated, flow-through batteries with high energy densities. Sensors and Controls: SRI develops custom micro sensors and systems using wafer-level semiconductor fabrication methods. Power Electronics: SRI develops wide-bandgap materials, devices, and circuits for power handling and conversion, and designs and produces prototype DC-DC voltage converters. Current programs include the development of microelectromechanical systems (MEMS)-based power-handling and conversion devices, circuits for harsh environments, and smart power systems for small satellites. SRI's primary research facilities are in Menlo Park, California, and Princeton, New Jersey. Together these facilities include more than 1.8 million square feet of office and laboratory space.
SWG Energy Inc	Joseph Willix	3824 Cedar Springs Rd #537, Dallas, TX 75219	jwillix@swgenergy.com	214-870-4332	Renewable Energy	solar, wind, geothermal, solar LED streetlighting Focus Area: Provides unique ability to develop and implement innovative disruptive transformational technologies like the largest solar LED streetlight system in the U.S. Skill sets: battery technology, solar technology, renewable energy system construction, solar electric car chargers, and more.	SWG Energy Inc has developed innovative renewable energy showcase projects over the past 5 years. Being early to market, the company has focused on the implementation of renewable energy technologies in the marketplace. As important as research and development is having the ability to bring transformational technologies to the market will have equally important impact on our nation's energy future. Today market penetration of excellent technologies is too low. In the most advanced states like CA, NJ, MA, CO, AZ who have adopted renewable energy, the market penetration of those technologies is still much too low. SWG Energy Inc' s DOE - Energy Efficiency and Conservation Block Grant Solar LED Streetlight Systems is a perfect example, while others are still researching, SWG Energy installed a living laboratory of solar LED streetlighting on 5.5 miles of a major boulevard in a major US City. We look to replicate that same level of success as a team member.
Taskco Corporation	Kelvin Huang	1012 Crestfield Dr., Rockville, MD 20850	dragonpower101@gmail.com	1-240-230-7468	Private Company	Intelligent Battery/Energy Management Service Platform, Communication & Control, Battery-Net, grid-scale energy storage, electric vehicle charging, battery safety, sensors, controls, battery module design & manufacturing.	Cloud linked Intelligent Battery/Energy Management Service Platform. Focus on application design and customization for Grid-scale Energy Storage, HEV/NEV Energy Storage, and Data Center Energy Storage Systems.
Teledyne Scientific & Imaging	Dr. Vivek Mehrotra	1049 Camino Dos Rios, Thousand Oaks, CA 91360	vmehrotra@teledyne.com	805-373-4484	A large business	Power electronics, battery management systems, sensors and control	1. Methods and techniques to control battery lifetime, 2. Sensors and control for battery health monitoring, 3. Design of compact power electronics for batteries and other hybrid systems, 4. Grid-scale interfacing, and 5. Overall system health monitoring and integration with power electronics

Texas A&M University	Partha P. Mukherjee	Department of Mechanical Engineering Texas A&M University 316 Mechanical Engineering Office Building 3123 TAMU, College Station, TX 77843-3123, USA	pmukherjee@tamu.edu	979-862-6498	University	battery manufacturing, electric vehicles, battery safety, electric vehicle charging, grid-scale energy storage	1. morphology and microstructure detailed modeling along with mechanics and upscaling for performance/degradation/safety in lithium ion batteries 2. process-microstructure-property-performance interactions in electrochemical energy storage (lithium-ion, lithium-air, redox flow batteries) 3. experimental characterization/testing
Texas Instruments	Matthew Senesky	2900 Semiconductor Dr., M/S 33140, Santa Clara, CA 95051	matthew.senesky@ti.com	(408) 721-6289	Large company	Semiconductors for power electronics, analog and digital signal processing, sensors, digital controls	Semiconductors for power electronics, analog and digital signal processing, sensors, digital controls
TransLumen Technologies, LLC	Carol Sherman	175 East Delaware Place; Suite 6808, Chicago Illinois 60611	carol.sherman@translumen.net	312-337-8099	Service Disable Veteran Owned Small Business (SDVOSB)	Development of the Graphical User Interface (GUI), Human Factors, HMI, visualization and smart grid initiatives using these capabilities	TransLumen has expertise in building computer interfaces for alarms, alerts and notifiers with predictive visual indicator capabilities. TransLumen also has core technology that lends itself to these devices because of its inherent scalability and interoperability along with its potential as an aggregating one-button interface. Applying its algorithmic processes to visual interfaces will improve users' situational awareness. TransLumen provides software programs and apps for command and control, machinery control systems, service centers, mobile devices, tablets and desktop computers that enable visualization with more granulated and actionable displayed information.
Transportation Power, Inc	James S. Burns, Ph.D.	13000 Danielson St. Unit D.	jim@transpowerusa.com	858-248-4359	Electric Vehicle Manufacturer	electric vehicles, power electronics, grid-scale energy storage, electric vehicle charging, controls	Transportation Power, Inc. (TransPower), located in sunny Poway California, is a producer of stationary and mobile energy and power storage and conversion systems. TransPower is focused on supplying grid-connected battery-electric storage systems, whole vehicle and electric and hybrid drive system solutions, large-format battery modules, power-electronics including a line of novel high-power integrated inverter chargers and rapid-prototyped controls solutions. Our current products and projects include electric-drive drayage and short haul Class-8 trucks (both on and off-road), a prototype battery-electric school bus and megawatt-level, battery-electric, grid-connected storage.
United Technologies Research Center	Sorin Bengea	Mail Stop 129-85, 411 Silver Lane, East Hartford, CT 06108	bengeasc@utrc.utc.com	(860) 610-7603	Large business	Optimal and fault-tolerant control of multiple energy-storage systems	Advanced controls; power electronics; sensors; hybrid-electric vehicles; battery safety; flow-battery systems; and microgrid implementation.

University of California, Los Angeles (UCLA)	Lei He	UCLA Boelter Hall 6731D, Los Angeles, CA 90095	LHE@ee.ucla.edu	626-354-2381	educational institute	battery modeling and control, electric vehicle charge, grid-scale energy storage	Have been working on battery modeling and control in the context of both academic and industrial settings, with ongoing projects on battery modeling on SOC and SOH, battery management system, battery-centric charging method, and online diagnosis for grid-scale energy storage
University of California, Riverside	Dr. Sadrul Ula	Winston Chung Global Energy Center (WCGEC) Center for Environmental Research and Technology (CE-CERT) Bourns College of Engineering 1084 Columbia Ave, Riverside, CA 92507	sula@engr.ucr.edu	951-781-5676(w) 307 399 6249(c); fax: 951-781-5790	University	Electric vehicles, grid-scale energy storage, electric vehicle charging, battery safety, sensors, controls, and power electronics	University of California – Riverside (UCR) has two research centers with expertise in these focus areas: College of Engineering-Center for Environmental Research and Technology (CE-CERT) and Winston Chung Global Energy Center (WCGEC). We are currently implementing an innovative project called "The New Grid: Integrating Photovoltaics, Energy Storage, and a Local Utility for Electric Transportation", supported by the South Coast Air Quality Management District in response to their program "Deployment of Five Megawatts or More of In-Basin Renewable Distributed Electricity Generation and Storage to Support Electric Transportation Technologies within the South Coast Air Quality Management District". with the coordinated support of: Riverside Public Utilities (RPU), the City of Riverside, UCR Physical Plant, UCR Transportation and Parking Services (TAPS), and UCR Capital and Physical Planning, Bourns Electronics, SolarMax, and the Riverside Transit Agency (RTA). These key participants will help integrate four primary project components: 1) up to two Megawatts (MW) of UCR integrated solar photovoltaics (PV); 2) two Megawatt-hours of Lithium-Ion battery energy storage; 3) several Level II electric vehicle charging stations and one Level III fast charging station; 4) An electric trolley route servicing the general UCR region. This CE-CERT effort builds upon existing strategic partnerships and planned programs in establishing an integrated solar, energy storage, and transportation program that is achievable within the defined scheduling constraints. This integrated renewable energy system is creating a unique utility-connected smartgrid research testbed which couples energy generation, storage, and electric transportation. The existing planned PV deployment of one MW on the West-UCR campus and an additional proposed one MW at the CE-CERT facility will provide up to two MW of renewable energy generation. One MW-hours of Lithium-Ion battery has been installed at the engineering building with another MW-hour planned for CE-CERT facility. These battery energy storages are being integrated to allow for energy captured from PV to be available to electric vehicle chargers and/or the electric grid during non-generating hours. The coordinated efforts with RPU will also allow for management of energy storage and vehicle charging to minimize distribution energy loads. Level II electric vehicle chargers distributed throughout the City of Riverside will be monitored and controlled to manage energy demand. An electric transit bus and a Level III fast charger are proposed to enhance the deployment of electric transportation within the UCR campus and surrounding community. The ultimate goal of the integrated project is to manage the PV energy production and battery energy storage to alleviate the energy distribution impacts of electric vehicle charging – a major concern of all electric utilities. The successful deployment of this integrated renewable energy generation and energy storage project for electric transportation is placing UC Riverside at the leading edge of advanced battery storage, electric vehicle and distributed energy management. In addition, the testbed system will allow for testing, validation, training and research in a variety of battery, power electronics, electric vehicles and smartgrid technologies. The testbed facility is available for testing a wide range of power conditioning and energy storage devices at sizes up to distribution grid level.
University of Colorado Boulder	Alan Weimer	Department of Chemical and Biological Engineering, 424 UCB, University of Colorado, Boulder, CO 80309-0424	alan.weimer@colorado.edu	303-735-2103	University	Battery manufacturing	ALD/MLD coatings for novel supercapacitor materials. Functional nanolayer coatings for particles
University of Colorado Boulder	Charles Musgrave	Department of Chemical and Biological Engineering, 424 UCB, University of Colorado, Boulder, CO 80309-0424	charles.musgrave@colorado.edu	303-735-1003	University	Battery manufacturing	ALD/MLD, nanotechnology, quantum mechanics to simulate molecular processes
University of Colorado Boulder	Conrad Stoldt	Department of Mechanical Engineering, 427 UCB, University of Colorado, Boulder, CO 80309-0427	Conrad.Stoldt@Colorado.EDU	303-492-7698	University	Battery manufacturing	Solid-state nanostructure composites for Li-ion battery anode optimization
University of Colorado Boulder	Alireza Doostan	Department of Aerospace Engineering Sciences, 429 UCB, University of Colorado, Boulder, CO 80309-0429	doostan@colorado.edu	303-735-1560	University	Battery manufacturing	Uncertainty modeling for battery materials
University of Colorado Boulder	Frank Barnes	Department of Electrical, Computer & Energy Engineering, 425 UCB, University of Colorado, Boulder, CO 80309-0425	Frank.Barnes@colorado.edu	303-492-3759	University	Grid-scale energy storage	Electrical energy storage for integration of renewable energy
University of Colorado Boulder	YC Lee	Department of Mechanical Engineering, 427 UCB, University of Colorado, Boulder, CO 80309-0427	Leeyc@Colorado.EDU	303-492-8225	University	Battery manufacturing	Packaging and integration
University of Colorado Boulder	Dragan Maksimovic	Department of Electrical, Computer & Energy Engineering, 425 UCB, University of Colorado, Boulder, CO 80309-0425	maksimov@colorado.edu	303-735-1560	University	Power electronics, Electric vehicle charging, Electric vehicles	Digital control of power converters, Adaptive power management and tuning for power amplifiers
University of Colorado Boulder	Kurt Maute	Department of Aerospace Engineering Sciences, 429 UCB, University of Colorado, Boulder, CO 80309-0429	maute@colorado.edu	303-492-7572	University	Battery manufacturing	Design optimization for structural and coupled multiphysics problems; Numerical methods and parallel computing
University of Colorado Boulder	Regan Zane	Department of Electrical, Computer & Energy Engineering, 425 UCB, University of Colorado, Boulder, CO 80309-0425	Regan.Zane@colorado.edu	303-735-1560	University	Power electronics, Controls	Adaptive power management systems, digital control and mixed signal IC design for power converters

University of Colorado Boulder	Ronggui Yang	Department of Mechanical Engineering, 427 UCB, University of Colorado, Boulder, CO 80309-0427	Ronggui.Yang@colorado.edu	303-492-3393	University	Battery manufacturing	Nano-structured materials, Thermal management
University of Colorado Boulder	Se-Hee Lee	Department of Mechanical Engineering, 427 UCB, University of Colorado, Boulder, CO 80309-0427	sehee.lee@colorado.edu	303-492-788	University	Battery manufacturing	Nanostructured battery materials, thin film rechargeable lithium batteries
University of Colorado Boulder	Steven George	Department of Chemistry and Biochemistry 215 UCB, University of Colorado, Boulder, CO 80309-0215	Steven.George@colorado.edu	303-735-0411	University	Battery manufacturing	Atomic/Molecular Layer Deposition (ALD/MLD), surface chemistry, thin film growth
University of Hawaii at Manoa	Bor Yann Liaw	Hawaii Natural Energy Institute, 1680 East-West Road, POST 109, Honolulu, HI 96822, USA	bliaw@hawaii.edu	(808) 956-2339; Cell: (808) 428-4976	Public research institution; university	Battery testing, modeling, diagnostic and prognostic analyses and integration	• More than 200 channels of battery testing capabilities, with testers from precision measurements to high power 60 kW (12 x 80 V-50 A per channel) and 120 kW (470V, 500A). • Modeling using COMSOL or MATLAB platform from electrochemical to electrical. • Diagnostic and prognostic analysis using temporal SOC and SOH tracking to identify degradation mechanisms and contributions. • Field testing capabilities and experiences with vehicle fleets and large scale field demonstrations in the past 15 years.
University of Hawaii at Manoa	Reza Ghorbani	Department of Mechanical Engineering H300, 2540 Dole Street University of Hawaii at Manoa Honolulu, HI, 96822	rezag@hawaii.edu	(808)956.2292	University	Electric vehicle charging, Battery safety, Controls	N/A
University of Maryland at College Park	Alireza Khaligh	2347 A.V. Williams Building, Electrical and Computer Engineering Department, College Park, MD 20742	Khaligh@ece.umd.edu	301-405-8985	University	Power electronics, electric vehicles, electric vehicle charging, power management, controls, energy storage.	The power electronics laboratory is equipped with sophisticated state of the art instrumentation, test equipment, microprocessor hardware and software development, and comprehensive collection of commercial software packages. The University of Maryland Energy Research Center (UMERC) brings together the research capabilities necessary to create a sustainable energy future, with faculty expertise in a variety of subjects from power electronics, battery manufacturing, fuel-cell manufacturing, and etc.
University of Michigan-Dearborn	Chris Mi	4901 Evergreen Road, Dearborn, MI 48128	chrismi@umich.edu	(734)765-8321	Academic institution	Electric and plugin hybrid electric vehicles	Energy storage systems for electric vehicle, plugin hybrid electric vehicles, and vehicle to grid (v@G) applications.

University of Nebraska-Lincoln	Wei Qiao	Department of Electrical Engineering University of Nebraska-Lincoln 223N Scott Engineering Center Lincoln, NE 68588-0511	wqiao@engr.unl.edu	(402) 472-9619	University	Electric vehicles, grid-scale energy storage, electric vehicle charging, battery safety, controls, and power electronics	Professor Wei Qiao is the director of Power & Energy Systems Laboratory at the University of Nebraska-Lincoln. The Laboratory houses approximately 800 square feet of office space and 3,000 square feet of experimental workspace. It has various state-of-the-art facilities, equipment, and resources to conduct research on power and energy systems. Professor Qiao's research group is very active in research and development activities on battery modeling and power management, power electronics, controls, optimization, and their applications to electric vehicles and power grids. Professor Qiao is currently the principal Investigator of multi-million projects funded by federal funding agencies and industry on these subjects. Particularly, Qiao's group has proposed and verified a novel power electronics-enabled self-X battery design, which enables a battery system to self-heal from failures of one or multiple cells or modules, self-balance from cell and module state variations, and automatically configure cell/module connections according to load conditions and the condition of each cell/module. Qiao's research on battery modeling and power management, power electronics, controls, and their applications to electric vehicles and power grids have been published in numerous peer-reviewed journals, presented at numerous conferences, and generated several pending patents.
University of North Carolina at Charlotte	Dr. Sukumar Kamalasadan	Department of Electrical and Computer Engineering, Woodward Hall 209 9201, University City Boulevard	skamalas@uncc.edu	704-687-7099	University	Modeling and Control of Energy Storage Systems, Grid-scale energy storage, electric vehicle charging	With over 20 years of research experience, The University of North Carolina at Charlotte has the capabilities in advance grid level storage sensing and control research. UNCC has the advantage of having capabilities to support vast multi-disciplinary initiatives to explore and research various aspect of grid level storage sensing and control as a part of Energy Production and Infrastructure Center (EPIC). At UNCC, battery research is performed using a holistic view of power grid. Multidisciplinary team consist of researchers in sensing, advance control technologies, power electronics experts, power system analysis and control, and innovative battery modeling including advanced identification methods. UNCC testing facilities include advance real-time digital simulators, hardware-in-the-loop test bed with amplifiers that can perform power and control functions, hardware and software based control architectures, innovative control functions, state of charge estimation and control. Research can perform holistic grid level optimization based cost and life analysis, impact of storage on the grid, charge and discharge cycles, grid level computation including multiple battery pack in the closed loop, commercialization opportunities with industrial partners and more.
University of Southern California, Los Angeles, CA	Prof. Sri Narayan	837 Bloom Walk, Los Angeles, CA 90089	sri.narayan@usc.edu	626 233 4350	University	Analysis of Health and Failure Modes of Battery Based Energy Storage	We investigate electrochemical processes in batteries using a variety of test methods including transient analysis, impedance spectroscopy and other standard cycling methods. Our interest in is in analyzing transient voltage and current signals from the battery to determine state of health and degradation rates for various processes and applying new methods to deter degradation.
University of Utah	Prof. Ravi Chandran	135 South 1460 East Rm. 412, Salt Lake City, UT 84112	ravi.chandran@utah.edu	801 581 7197	University	Sensors Brief	A technology is available to build sensors that can detect in-situ active element (Li/Na) activities/concentrations to ensure or monitor vehicle or grid scale battery safety. It can also serve as the state-of-charge indicator.
Washington University in St. Louis	Venkat R. Subramanian	One Brookings Drive, 1004 Brauer Hall, St. Louis, MO 63130	vsubramanian@seas.wustl.edu	N/A	Academia	Robust Control, Modeling, Sensing, Design and Control of Batteries	• Real-time electrochemical-thermal modeling and simulation • Physics based SOC and SOH algorithms based on model reformulation and spectral methods (CPU time < 50 ms) • Predictive modeling, multiscale modeling, first-principles modeling of capacity fade, stress behavior, thermal behavior, loss of active material • Model-predictive control, optimization for life, safety, energy and power density • Sensor-free/sensor-minimized stack modeling and control • Model validation and characterization of cells at different sizes/shapes, industrial validation and scale-up • Parameter estimation and uncertainty analysis • Power electronics, hybrid simulation and control, state and health monitoring and control • Battery management system based on electrochemical-thermal models • Phase change mechanisms, energy, mass, momentum and charge transfer, degradation mechanisms • High fidelity – lower cost monitoring and control, systems design.

ZEM AS	Salman Farmanfarmaian	Veritasveien 9 , P O Box 307, 1323 Hovik, Norway	salman@zemenergy.com	+1 415 992 6337	Company	Lithium Ion Batteries - Automotive and stationary applications	ZEM is involved in number of European projects related to the lifetime assessment of Lithium Ion batteries.