

FY 2012 Phase I Release 3A SBIR/STTR Award Selections*

By Topic

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*The following small businesses have been selected for award; however, all awards are pending until negotiations are completed between each small business and the DOE.

TOPIC: 1 – ADVANCED MANUFACTURING

Company

Aspen Aerogels, Inc
30 Forbes Road, Bldg B
Northborough MA , 01532-2501

Title

High Performance Insulation for Industrial Processes

Summary

Benefits of the new insulation to the U.S. include significant energy savings. These savings will translate into more competitive domestic manufacturing, leading to job creation and reduced insulation requirements compared to current state-of-the-art carbon fiber insulation products.

Company

Xunlight Corporation
3145 Nebraska Avenue
Toledo OH , 43607-3102

Title

High Throughput, Energy Efficient Lamination Process for Flexible Solar Modules

Summary

This project will allow for the creation of equipment that will increase the throughput and energy efficiency of its flexible solar panel lamination processes. This equipment will help lower manufacturing and capital

costs for Xunlight and its equipment customers.

Company

Ceralink Inc.
105 Jordan Road Troy NY , 12180-8376

Title

Carbon Aerogel Natural Gas Sorbent Energy Storage Material

Summary

This project will develop the highest storage capacity carbon aerogel sorbent for use in natural gas vehicles. This technology will help enable the widespread adoption of natural gas vehicles by extending the driving range and making low pressure filling a commercial and residential reality.

Company

Radiation Monitoring Devices, Inc.
44 Hunt Street
Watertown MA , 02472-4699

Title

Energy Saving Through Advanced Photovoltaic Materials and Manufacturing Technology

Summary

The combination of the proposed efficient manufacturing technology and the enhanced performance of our advanced photovoltaic materials is expected to minimize both manufacturing cost and cost/watt for generating solar power. The proposed solar technology has the potential to provide up to 60% efficiency for single-junction solar cells, compared to 31% offered by current materials.

Company

Drs Research
1917 W.234th Street
Torrance CA , 90501-5532

Title

Novel Thermal Spray Lubricious Oxide Coatings

Summary

This project will develop and implement a novel solid lubricant oxide based coatings. These coatings are durable both at room temperature as well as at high temperature, making them useful in automotive and aerospace applications.

TOPIC: 2 – BIOMASS

Company

Tda Research, Inc.
12345 W. 52nd Ave.
Wheat Ridge CO , 80033-1916

Title

Conversion of Algal Biomass to Drop-In Fuels

Summary

This project will develop a process for producing renewable drop-in fuels from algal biomass.

TOPIC: 3 – BUILDINGS

Company

Xergy Incorporated
105 Park Avenue, Seaford Industrial Park
Seaford DE , 19973-9478

Title

Advanced Hybrid Water-Heater using ECC

Summary

This proposal is based on a transformational and disruptive technology of utilizing electrochemical compression to operate heat pump cycles.

Company

Promethient Llc
16663 Smokey Hollow Road Traverse City MI , 49686-8343

Title

Direct Insertion Ground Loop Heat Exchanger

Summary

This program supports the design and development of ground source heat pump equipment that will greatly reduce the cost of installing this energy efficient means of heating and cooling buildings.

Company

Advanced Cooling Technologies, Inc.
1046 New Holland Ave.
Lancaster PA , 17601-5606

Title

Fast-Payback Polymeric Solar Water Heaters with Controlled Heat Transfer

Summary

The objective of this SBIR Phase I proposal is to reduce the payback period of solar water heaters by replacing heavy and costly metal based solar collectors with lightweight, inexpensive polymer based solar collectors, enabled by an innovative, passive, thermal management system. The proposed technology will reduce the payback time of solar water heating systems to less than 5 years, making it more cost effective to participate in solar technologies.

Company

Mainstream Engineering Corporation
200 Yellow Place
Rockledge FL , 32955-5327

Title

Low-Cost Flat Panel Solar Hot Water Heaters

Summary

This project will develop a solar collector that will significantly reduce the cost of solar water heating systems. The unit is robust, easy to install, and will have efficiencies potentially greater than existing units. It has the potential to reduce the nation's energy burden by 14,000,000 barrels of oil each year.

Company

Solarno, Inc
153 Hollywood Dr
Coppell TX , 75019-7306

Title

Carbon Nanotube-based Solar Water Heater

Summary

This project proposes to significantly improve the evacuated solar tube collectors (ETC) by utilizing the "dry-drawable" carbon nanotube (CNT) sheets for solar energy absorption and CNT multifunctional nanocomposites with functional layers of heat accumulators and heat transporters.

Company

Aspen Aerogels, Inc
30 Forbes Road, Bldg B
Northborough MA , 01532-2501

Title

Pressure Sensitive Aerogel Bead with PCM for Building Envelopes

Summary

Energy conservation in buildings and structures can be improved by utilizing high performance blown-in aerogel insulation enhanced with Phase Change Materials (PCMs). Aerogel insulation has the highest Rvalue per inch of all insulation materials and PCMs have high latent heat capacity which can shift energy peak energy loads from daytime towards cheaper night time.

Company

Heliotrope Technologies, Inc.
6137 Girvin Dr.
Oakland CA , 94611-2444

Title

Low Cost Nanostructured Smart Window Coatings

Summary

The objective of this project is to develop a low cost nanostructured smart window coating that reduces building energy consumption by dynamically optimizing solar gain.

Company

Heliocentric Llc
12341 E Windflower Lane
Salt Lake City UT , 84121

Title

Intelligent Building Controls Employing Adaptive Physical-System Models for Automatic Programming and Dynamic Commissioning

Summary

This project will develop a new approach to whole-building energy systems control. Advanced building controls will save the U.S. billions of dollars in energy costs by making buildings use energy more intelligently, thus reducing energy demand.

TOPIC: 4 – HYDROGEN AND FUEL CELL TECHNOLOGIES

Company

Composite Technology Development, Inc.
2600 Campus Drive, Suite D
Lafayette CO , 80026-3359

Title

Optimizing the Cost and Performance of Composite Cylinders for H2 Storage using a Graded Construction

Summary

The state-of-the-art H2 storage vessels for fuel cell cars are too expensive to manufacture because of high carbon fiber costs. The program will seek to reduce the cost of these vessels by 25% by using cheaper fibers from ORNL in a graded construction of the vessel wall.

TOPIC: 5 – SOLAR

Company

Black Hills Nanosystems Corporation
2445 Dyess Avenue
Rapid City SD , 57701-9301

Title

Optimal Multijunction Solar Cells for CPV under Realistic Conditions

Summary

The proposed project will provide a pathway for terrestrial CPV (500 to 700 Suns) multijunction solar cells that will maintain extremely high efficiencies at realistic operating temperatures. The thrust of the proposed project will adapt an integration approach from MEMS to III-V materials grown lattice-matched to gallium arsenide substrates.

Company

Cool Earth Solar, Inc.
4659 Las Positas Road, Suite C
Livermore CA , 94551-9631

Title

Research and Development of an Innovative Inflated Medium Concentrating PV Module for Achieving an Installed PV Module Cost of \$0.50/W Before 2020

Summary

Cool Earth Solar has an innovative concentrating photovoltaic (CPV) system design that promises to dramatically lower the cost of solar and meet the Department of Energy's SunShot goals of solar installed for \$1/W and an electricity cost below 6 cents per kilowatt-hour by 2020. This project develop a sub-scale prototype unit to test and validate the design.

Company

Next Energy Technologies Inc
5385 Hollister Ave, #115, Bldg 6
Santa Barbara CA , 93111-2391

Title

Reliability Improvement in Solution Processable Roll to Roll Photovoltaic Modules

Summary

Printable photovoltaics aim to produce megawatt scale energy generation within 5 years through the use of easily scalable, soluble small molecule technology

Company

United Silicon Carbide, Inc.
7 Deer Park Drive, Suite E
Monmouth Junction NJ , 08852-1921

Title

15 kV GTO Thyristor Module for Use in Small, Highly Efficient Current Source Inverters Utilizing AC-Link™ Technology

Summary

This project will develop SiC switch technology to address the need for cheaper power conversion and energy storage management, which further enable reliable penetration of renewable resources such as solar power.

Company

Hyper-therm High-temperature Composites, Inc.
18411 Gothard Street, Unit B
Huntington Beach CA , 92648-1208

Title

Ceramic Matrix Composites for Concentrating Solar Power Receivers

Summary

This project will encompass the design of a pressurized CMC tubular solar receiver; the demonstrated fabrication of receiver prototypes and material for coupon-level materials testing; and the evaluation of thermal and mechanical materials properties, as well as the structural and thermal performance of the solar receiver prototypes.

TOPIC: 6 – VEHICLES

Company

Eskra Technical Products, Inc.
2595 Hwy I
Saukville WI , 55080-1511

Title

Low Cost Solvent Free Manufacturing of Lithium Ion Prosmatic and Bipolar Cell Development for Advanced Vehicle Applications

Summary

The project will benefit distributed energy systems such as smart grid, renewable energy storage such as used for wind and solar energy as well as consumer electronics and advanced automotive. Lower manufacturing cost as well as allowing flexible manufacturing will also allow for a more world competitive US battery industry

Company

Motiv Power Systems, Inc.
1165 Chess Drive, Suite E
Foster City CA , 94404-1113

Title

Motiv's Novel Charge-Pump Battery Management System

Summary

This project aims to develop and prototype Motiv's Battery Charge Management System (BCMS)

Company

Sinode Llc
600 Davis Street, 3rd Floor West
Evanston IL , 60201-4488

Title

High Energy Anode Material Development for Li-Ion Batteries

Summary

Development and commercialization of SiNode electrode materials for Li-ion batteries can double the storage capacities of state-of-the-art batteries for transportation, military, and portable electronics applications. These materials can be made through an easily scalable process that is much cheaper than competing technologies with comparable technical performance.

Company

Excellatron Solid State, Llc
263 DECATUR STREET
Atlanta GA , 30312-1705

Title

A High Energy, High Power all Solid State Battery

Summary

Further development of rechargeable lithium batteries that will make the batteries adequate for EV/HEV applications requires dramatic improvement of the energy storage capabilities of the batteries. This project proposes to fabricate novel high energy, high power all solid state batteries that have high performance and are safe in order to make the lithium batteries adequate for high energy applications such as electric vehicles.

Company

Nanohmics Inc.
6201 E Oltorf STE 400
Austin TX , 78741-7509

Title

Innovative NOx Sensor for Tailpipe Emissions

Summary

The development of new robust and cost effective sensors for chemical diagnostics will enable improved analysis of combustion products from diverse sources— from vehicles to energy generation in gas turbines. This enhanced analysis will provide the feedback necessary to run combustion these processes at their highest efficiency with the lowest pollution output.

Company

Brimrose Technology Corporation
19 Loveton Circle, P.O. Box 616
Sparks MD , 21152-9201

Title

Magnesium and Manganese Silicides for Efficient and Low Cost Thermo-Electric Power Generation

Summary

This project will investigate thermoelectric power generation technology that can utilize the wasted heat from vehicle emissions and convert it to electric power. Advancements in material and devices, which will lead to the production of \$1/Watt of electrical power can be implemented on a manufacturing level will be investigated

Company

Sheetak Inc.
4020 S Industrial Dr., Suite 100
Austin TX , 78744-1078

Title

High Efficiency Thin Film Thermoelectric Generators (HiE TFTEGs) for Vehicles

Summary

This project proposes to use its innovative thermoelectric manufacturing platform for bringing innovative materials developed by NASA's Jet Propulsion Lab to mass applications in automobiles and other appliances which has a potential to significantly improve energy efficiency of these products and thereby reduce USA's reliance on imported oil.

Company

Ngimat Llc
2436 Over Drive Suite B
Lexington KY , 40511-2637

Title

Nanocomposite Coatings for Low-Cost Motor Windings in Electric Vehicles

Summary

The project addresses development of a magnet wire insulation for electric vehicle motors containing high thermal conductivity nano-dielectric particles that will contribute significantly to improved motor heat dissipation and reduced motor operating temperature, size, and cost, thereby increasing power density and efficiency.

Company

Nanomech Inc
534 W Research Center BLVD
Fayetteville AR , 72701-6534

Title

Multicomponent Nanomanufactured Drop-in Lubricant Technology for Enhancing Engine Friction Reduction

Summary

This project will demonstrate feasibility to design and develop novel nanomanufactured multicomponent lubricant additives applicable for engine, especially engineered as additive for enhancing engine economy with at least 3%.

TOPIC: 8 – WIND

Company

Wetzel Engineering, Inc.
1310 Wakarusa Drive, Suite A
Lawrence KS , 66049-3854

Title

Field-Assembled Component-Based Rotor Blades

Summary

This project proposes research and development to engineer very large wind turbine rotor blades for land-based machines that avoid expensive and logistically challenging transportation requirements.

Company

Boulder Nonlinear Systems, Inc
450 Courtney Way
Lafayette CO , 80026-8878

Title

Compact, Low-power, Offshore 3D Wind Sensor

Summary

This effort will develop a compact, low-power wind sensor to monitor offshore winds and optimize wind power generation. Successful development of the technology will enable small wind sensors to be incorporated into many platforms including ocean-based buoys, wind turbine generators, gliders, unmanned air vehicles, and commercial aircraft.