Advanced Manufacturing Office Small Business Innovation Research Small Business Technology Transfer Projects Portfolio

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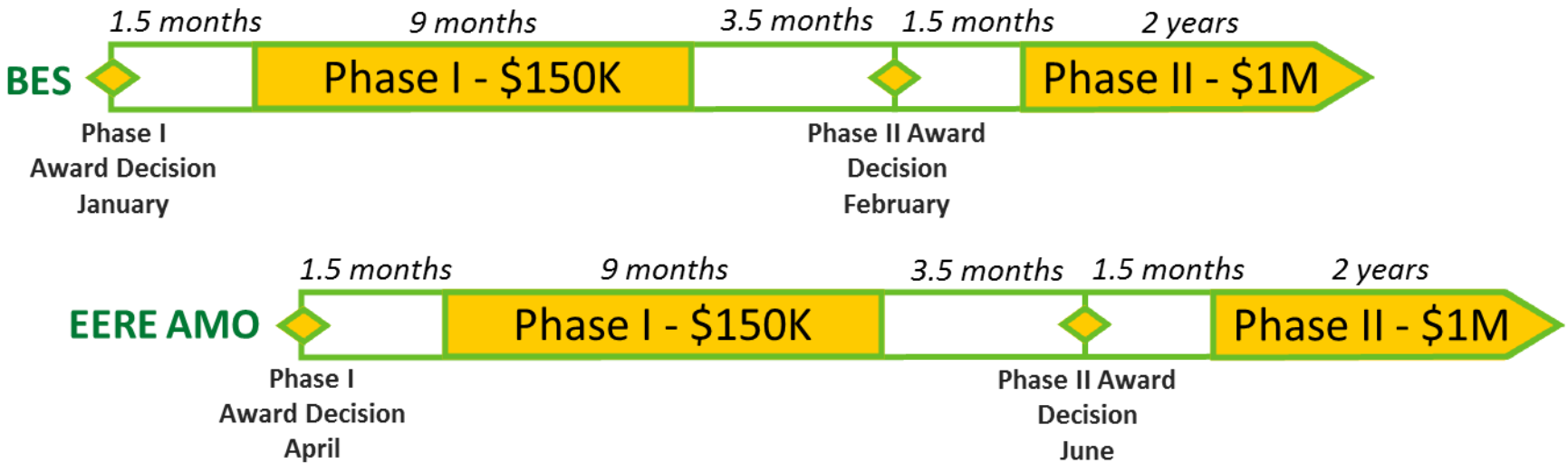
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy
ADVANCED MANUFACTURING OFFICE

SBIR/STTR PROGRAM

- AMO Technology Managers develop SBIR topics and write detailed sub-topics that support program goals.
- SBIR Projects follow one of two funding schedules
  - — Release 1 funded by the Office of Basic Energy Sciences (BES)
  - — Release 2 funded by the Office of Energy Efficiency and Renewable Energy's (EERE) Advanced Manufacturing Office (AMO)



- As of May 2015, the SBIR portfolio consists of:
  - 16 Phase I Grants ($2.4 M)
  - 15 Phase II Grants ($14.9 M)

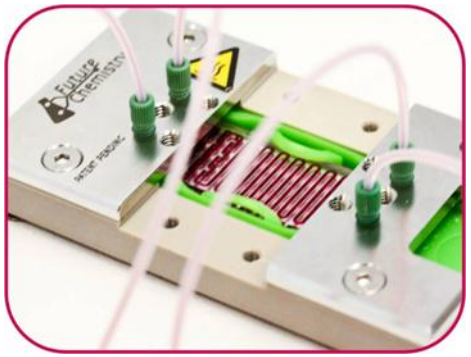
Current SBIR/STIR Projects

Next Generation Materials: Innovative materials with increased functionality in thermal and degradation resistance, high-performance, and lower-cost for energy systems. Breakthroughs offer major energy, carbon and economic benefits.

Phase	Title	Institution
I	Oxygen Separation with Dual Phase Nano-Composite Membranes	Global Research & Development, Inc.
I	High efficiency, high temperature heat recuperation for reduced plasma energy consumption	Advanced Cooling Technologies, Inc.
II	High Flux Ti Nanofiltration Membrane for Efficient Processing of Bioproducts	Cerahelix, Inc.
II	Cells, Membranes and Separators for Carbon Dioxide Conversion to Formic Acid	Dioxide Materials
II	Advanced Membrane Technology for Helium Recovery	Helios-NRG, LLC
II	Micro-Hole Membrane for Solid-Liquid Separation of Micron-Scale Particulate	Mound Laser & Photonics Center, Inc.
IIB*	Improved Hydrogen Purification	Compact Membrane Systems, Inc.

* *IIB awards allow a grantee to request additional financial support for new R&D tasks and activities that extend beyond the scope of the original Phase II grant.*

Current SBIR/STIR Projects

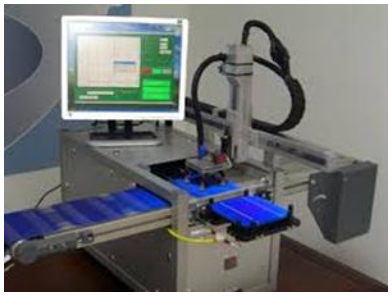


Next Generation Manufacturing Processes

New process technologies can open pathways to increased productivity enabling rapid manufacture of more cost-competitive products. R&D focus areas include reactions and separations, high-temperature processing, and sustainable manufacturing.

Phase	Title	Institution
I	Ultra Low Energy, Low Cost Industrial Nanomembrane Manufacturing for Desalination, Water Purification, and Remediation	Covalent
I	Upgrading of crude from direct gas-to-liquid processing Natural Gas Feedstock and Fuel Substitution for Energy Efficient Manufacturing	Thermosolv, LLC
I	Plasma process for production of carbon materials from natural gas	Lynntech, Inc.
I	Low cost modular plasma system for reforming of natural gas	Rivis, Inc.
I	Natural Gas Micro-Channel Reactor for Producing C_2 Hydrocarbons	Reactive Innovations, LLC
II	Novel Membranes for Olefin/Paraffin Separation	Compact Membrane Systems, Inc.

Current SBIR/STIR Projects



Next Generation Manufacturing Processes (continued)

Phase	Title	Institution
II	Novel Membrane Systems for Olefin/Paraffin Separation	Compact Membrane Systems, Inc.
IIB*	An Industrial Membrane System Suitable for Distributed Used Oil Re-refining	Media & Process Technology, Inc.
II	In-Line Quality and Process Control in Solar and Fuel Cell Manufacturing	Ultrasonic Technolgies, Inc.
II	CORE: Capability of Rolling Efficiency for 100m High Speed Rails	OG Technologies, Inc.
II	Single Step Manufacturing of Low Catalyst Loading Electrolyzer MEAs	Proton OnSite
II	Integrated DC-DC Converters Using Thin-Film Magnetic Power Inductors	Ferric Semiconductor, Inc.

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Current SBIR/STIR Projects

Combined Heat & Power (CHP)

Develop, test, and validate advanced CHP and distributed energy systems to pave the way for accelerated deployment in manufacturing and other applications.

Phase	Title	Institution
I	Low-Cost, High-Efficiency Direct Energy Conversion of Infrared Radiation to Electricity with Tunable Plasmonic Structures	ITN Energy Systems, Inc.
I	Magnetocaloric Generator for Waste Heat Energy Recovery	Aqwest, LLC

Current SBIR/STIR Projects

Wide Bandgap Power Electronics

Semiconductor and semiconductor products and power electronics based on these semiconductors for improved energy efficiency.

Phase	Title	Institution
I	AlN-Based Power Electronics Device Epiwafer Manufacturing	Kyma Technologies, Inc.
I	Oxygen Novel Ultra-High Rate Finishing Processes for Production of 100 mm Epi-ready GaN SubstratesSeparation with Dual Phase Nano-Composite Membranes	Sinmat, Inc.
I	Rapid thinning of GaN and SiC substrates for epi-ready and power devices by layer lift-off	OptiCOMP Networks, Inc.
I	Development of electrolytic in-process dressing (ELID) grinding of GaN wafers sliced from bulk GaN crystals by ammonothermal growth	SixPoint Materials, Inc.
I	Developing Epi-ready Gallium Nitride Wafer Surfaces	Adroit Materials
II	Quantifying Appropriate De-rating of SiC MOSFETs Subject to Cosmic Rays	Monolith Semiconductor, Inc.
II	Monitoring and Control of Chemical Composition of InGaN Layers During MOCVD	Accustrata, Inc.
II	11B FLAAT Growth Technology for Low-Cost, Thick, High-Quality GaN on 6 inch Sapphire with No Wafer Bow	Kyma Technologies, Inc.

Current SBIR/STIR Projects

Advanced Composites

Materials and processes for cost-effective and low energy-intensive production of high strength and lightweight materials.

Phase	Title	Institution
I	Low Energy Carbonization of PAN Fibers	TDA Research, Inc.
I	Novel Carbon Fiber Synthesis Process Based on Joule Heating	Vuronyx Technologies