MICHIGAN EMERGING TECHNOLOGIES FUND

The Michigan Emerging Technologies Fund (ETF) is designed to expand funding opportunities for Michigan technology based companies in the federal innovation research and development arena. To that end, the Small Business & Technology Development Center (SBTDC) through the Michigan Strategic Fund (MSF) is dedicating up to $1.4 million to match federal funding opportunities for exceptional commercial opportunities in Michigan.

ELIGIBILITY CRITERIA

Applicants

- Company must be a Michigan company or have its principal place of business in Michigan prior to the disbursement of funds.
- Company may not have more than two (2) SBIR/STTR Phase II federal grants within the previous five years.
- Company may receive no more than two (2) ETF awards per 12 month period.

Technology Sectors

- Life Sciences
- Homeland Security and Defense
- Advance Automotive, Manufacturing and Materials
- Alternative Energy

MATCHING FUNDS AVAILABLE

Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program Match

The ETF is a program to provide matching dollars for SBIR/STTR projects. Before submitting an SBIR/STTR proposal to the federal government, an applicant must first secure a matching commitment from the SBTDC. Preference will be given to those applicants who are able to demonstrate significant commercialization potential.

- The ETF will match 25% of phase I SBIR/STTR awards up to $25,000.
- The ETF will match 25% of phase II SBIR/STTR awards up to $125,000.
- ETF Funds must leverage third party commercialization funding. For purposes of this program, 'third party' is defined as a source of funding other than federal funds, ETF funds or other state of Michigan funds. 'Third party leverage' is defined as cash or a third party commitment to provide a match upon receipt of an ETF award.

AWARD

A matching award from the SBTDC will be provided in the form of a grant upon proof of a successful federal award. Recipients of matching awards will be required to enter into an award agreement with the SBTDC and agree to use the funds only for allowed purposes. This grant may be used for any expenditure allowed by matching funds under the federal program guidelines including direct or indirect cost sharing, or additionally, for the purchase of equipment, legal costs (including intellectual property), commercialization costs (marketing, business planning, advertising, sales, etc) or fund raising costs (venture fund or other future grant preparation, etc).

APPLICATION AND AWARD PROCESS

- Applicant submits an electronic application form via the Michigan Emerging Technologies web site at **mietf.org**.
- Applications must be submitted no later than 10 business days prior to the federal SBIR/STTR submission deadline.
- SBTDC reviews application to determine eligibility. Eligible applications will receive a letter of support from the SBTDC within five business days of submission.
- If the applicant receives the federal award, the applicant will submit the following to the SBTDC:
  - Proof in form of the signed contract agreement with the awarding federal agency or department
  - Proof of commitment/receipt of third party match. (Copy of closing documents, letter of commitment from third party.)

> A one-page summary on the use of ETF and third party match towards commercialization efforts

> SBTDC will send an ETF contract to the applicant.

> When the applicant sends the signed ETF contract to the SBTDC, the SBTDC will disburse the ETF award funds.

REPORTING REQUIREMENTS

On an annual basis, recipients will be required to provide the SBTDC with a short summary report describing specific results of the work funded, documenting expenditures made with the matching award, and forecasting the next steps of the project. The report will include revenue, the number of jobs created, the number of patents submitted, and the number of patents issued resulting from the project.

DISCLAIMER

All awards are subject to availability of funds. Final determination as to eligibility will be at the discretion of the SBTDC. Requests will be processed on a first come first serve basis. Maximum amounts are considered up to amounts and may be adjusted at the discretion of the SBTDC.

ELIGIBLE TECHNOLOGY DEFINITIONS

I. Advanced Automotive, Manufacturing and Materials Technology

A. *Advanced Automotive, Manufacturing and Materials Technology* mean any technology that involves one or more of the following:

- Materials with engineered properties created through the development of specialized process and synthesis technology.
- Nanotechnology, including materials, devices, or systems at the atomic, molecular, or macromolecular level, with a scale measured in nanometers.
- Microelectromechanical systems, including devices or systems integrating microelectronics with mechanical parts and a scale measured in micrometers.
- Improvements to vehicle safety, vehicle performance, vehicle production, or environmental impact, including, but not limited to, vehicle equipment and component parts.
- A new technology, device, or system that enhances or improves the manufacturing process of wood, timber, or agricultural-based products.
- Any technology that involves an alternative energy vehicle or its components, as alternative energy vehicle is defined under Section 2 of the Michigan Next-Energy authority act, 2002 PA 593, MCL 207.822.
- Advanced computing or electronic device technology related to advanced automotive, manufacturing and materials technology.
- Design, engineering, testing, or diagnostics related to advanced automotive, manufacturing and materials technology.
- Product research and development related to advanced automotive, manufacturing and materials technology.

B. *Alternative Energy Vehicle* includes the following:

- Alternative Fueled Vehicle—A motor vehicle that can only be powered by a clean fuel energy system and can only be fueled by a clean fuel.
- Fuel Cell Vehicle—A motor vehicle powered solely by a fuel cell energy system.
- Electric Vehicle—A motor vehicle powered solely by a battery cell energy system.
- Hybrid Vehicle—A motor vehicle that can only be powered by two or more alternative energy systems.
- Solar Vehicle—A motor vehicle powered solely by a photovoltaic energy system.
- Hybrid Electric Vehicle—A motor vehicle powered by an integrated propulsion system consisting of an electric motor and combustion engine. Hybrid electric vehicle does not include a retrofitted conventional diesel or gasoline engine. A hybrid electric

vehicle obtains the power necessary to propel the motor vehicle from a combustion engine and one of the following:

> A battery cell energy system.

> A fuel cell energy system.

> A photovoltaic energy system.

C. *Advanced Computing* means any technology used in the design and development of one or more of the following:

- Computer hardware and software.
- Data communications.
- Information technologies.

D. *Electronic Device Technology* means any technology that involves microelectronics, semiconductors, electronic equipment, and instrumentation, radio frequency, microwave, and millimeter electronics; optical and optic-electrical devices; or data and digital communications and imaging devices.

II. Alternative Energy Technology

A. *Alternative Energy Technology* means applied research or commercialization of new or next generation technology in one or more of the following:

- Alternative energy technology as that term is defined in Section 2 of the Michigan NextEnergy Authority Act, 2002 PA 593, and MCL 207.822.
- Devices or systems designed and used solely for the purpose of generating energy from agricultural crops, residue and waste generated from the production and processing of agricultural products, animal wastes, or food processing wastes, not including a conventional gasoline or diesel fuel engine or retrofitted conventional gasoline or diesel fuel engine.
- A new technology, product, or system that permits the utilization of biomass for the production of specialty, commodity, or foundational chemicals or of novel or economical commodity materials through the application of biotechnology that minimizes, complements, or replaces reliance on petroleum for the production. Alternative Energy Technology also includes a new technology, product, or system that utilizes wind energy.
- Advanced computing or electronic device technology related to alternative energy technology.
- Design, engineering, testing, or diagnostics related to alternative energy technology.
- Product research and development related to alternative energy technology.

B. *Alternative Energy Technology* means equipment, component parts, materials, electronic devices, testing equipment, and related systems that are solely related to the following: (Note: See 2002 PA 593 for complete definitions)

- The storage or generation of hydrogen for use in an alternative energy system.
- A microgrid as defined as lines, wires, and controls to connect two or more alternative energy systems.
- The process of generating and putting into a usable form the energy generated by an alternative energy system. Alternative energy technology does not include those component parts of an alternative energy system that are required regardless of the energy source.

C. *Alternative Energy Systems* include the following:

- Fuel Cell Energy System—One or more fuel cells or fuel cell stacks and an inverter or other power conditioning unit. A fuel cell energy system may also include a fuel processor.
- Photovoltaic Energy System—A solar energy device composed of one or more photovoltaic cells or photovoltaic modules and an inverter or other power conditioning unit. A photovoltaic system may also include batteries for power storage or an electricity storage device.
- Solar-Thermal Energy System—An integrated unit consisting of a sunlight collection device, a system containing a heat transfer fluid to receive the col-

lected sunlight, and heat exchangers to transfer the solar energy to a thermal storage tank to heat or cool spaces or water or to generate electricity.

- Wind Energy System—An integrated unit consisting of a wind turbine composed of a rotor, an electrical generator, a control system, an inverter or other power conditioning unit, and a tower, which uses moving air to produce power.
- CHP Energy System—An integrated unit that generates power and either cools, heats, or controls humidity in a building or provides heating, drying, or chilling for an industrial process that includes and is limited to both of the following:
  - An absorption chiller, a desiccant dehumidifier, or heat recovery equipment.
  - One of the following:
    - An internal combustion engine, an external combustion engine, a microturbine, or a miniturbine, fueled solely by a clean fuel.
    - A fuel cell energy system.
- Microturbine Energy System—A system that generates electricity, composed of a compressor, combustor, turbine, and generator, fueled solely by a clean fuel with a capacity of not more than 250 kilowatts. A microturbine energy system may include an alternator and shall include a recuperator if the use of the recuperator increases the efficiency of the energy system.
- Miniturbine Energy System—A system that generates electricity, composed of a compressor, combustor, turbine, and generator, fueled solely by a clean fuel with a capacity of not more than two megawatts. A miniturbine energy system may also include an alternator and a recuperator.
- Stirling Cycle Energy System—A closed-cycle, regenerative heat engine that is fueled solely by a clean fuel and uses an external combustion process, heat exchangers, pistons, a regenerator, and a confined working gas, such as hydrogen or helium, to convert heat into mechanical energy. A Stirling cycle energy system may also include a generator to generate electricity.
- Battery Cell Energy System—One or more battery cells and an inverter or other power conditioning unit used to perform one or more of the below functions:
  - Propel a motor vehicle or an alternative energy marine propulsion system.
  - Provide electricity that is distributed within a dwelling or other structure.
  - Provide electricity to operate a portable electronic device including, but not limited to, a laptop computer, a personal digital assistant, or a cell phone.
- Battery Cell means a closed electrochemical system that converts chemical energy from oxidation and reduction reactions directly into electric energy with out combustion and without external fuel and consists of an anode, a cathode, and an electrolyte.
- Clean Fuel Energy System—A device that is designed and used solely for the purpose of generating power from a clean fuel. Clean fuel energy system does not include a conventional gasoline or diesel fuel engine or a retrofitted conventional diesel or gasoline engine. Clean fuels are defined as:
  - Methane.
  - Natural gas.
  - Methanol neat or methanol blends containing at least 85% methanol.
  - Denatured ethanol neat or ethanol blends containing at least 85% ethanol.
  - Compressed natural gas.
  - Liquefied natural gas.
  - Liquefied petroleum gas.
  - Hydrogen.

- Electricity Storage System—One or more electricity storage devices and inverters or other power conditioning equipment. An 'electricity storage device' means a device, including a capacitor, which directly stores electrical energy without conversion to an intermediary medium.

D. *Advanced Computing* means any technology used in the design and development of one or more of the following:
- Computer hardware and software.
- Data communications.
- Information technologies.

E. *Electronic Device Technology* means any technology that involves microelectronics, semiconductors, electronic equipment, and instrumentation, radio frequency, microwave, and millimeter electronics; optical and optic-electrical devices; or data and digital communications and imaging devices.

III. Homeland Security/Defense Technology

A. *Homeland Security and Defense Technology* means technology that assists in the assessment of threats or damage to the general population and critical infrastructure, protection of, defense against, or mitigation of the effects of foreign or domestic threats, disasters, or attacks, or support for crisis or response management, including, but not limited to, one or more of the following:
- Sensors, systems, processes, or equipment for communications, identification and authentication, screening, surveillance, tracking, and data analysis.
- Advanced computing or electronic device technology related to homeland security and defense technology.
- Aviation technology, including, but not limited to, avionics, airframe design, sensors, early warning systems, and services related to homeland security and defense technology.
- Design, engineering, testing, or diagnostics related to homeland security and defense technology.
- Product research and development related to homeland security and defense technology.

B. *Advanced Computing* means any technology used in the design and development of one or more of the following:
- Computer hardware and software.
- Data communications.
- Information technologies.

C. *Electronic Device Technology* means any technology that involves microelectronics, semiconductors, electronic equipment, and instrumentation, radio frequency, microwave, and millimeter electronics; optical and optic-electrical devices; or data and digital communications and imaging devices.

IV. Life Sciences Technology Definitions

A. *Life Sciences* means science for the examination or understanding of life or life processes, including, but not limited to, all of the following:
- Bioengineering.
- Biomedical engineering.
- Genomics.
- Proteomics.
- Molecular and chemical ecology.
- Biotechnology, including any technology that uses living organisms, cells, macromolecules, microorganisms, umbilical cord blood or substances from living organisms to make or modify a product for useful purposes.
- Biotechnology does not include any of the following:
  - > Activities prohibited under Section 2685 of the public health code, 1978 PA 368, MCL 333.2685.
  - > Activities prohibited under Section 2688 of the public health code, 1978 PA 368, MCL 333.2688.

> Activities prohibited under Section 2690 of the public health code, 1978 PA 368, MCL 333.2690.

> Activities prohibited under Section 16274 of the public health code, 1978 PA 368, MCL 333.16274.

> Stem cell research with human embryonic tissue.

B. *Life Sciences Technology* means any technology derived from life sciences intended to improve human health or the overall quality of human life, including, but not limited to, systems, processes, or equipment for drug or gene therapies, biosensors, testing, medical devices or instrumentation with a therapeutic or diagnostic value, a pharmaceutical or other product that requires United States Food and Drug Administration approval or registration prior to its introduction in the marketplace and is a drug or medical device as defined by the Federal Food and Drug Cosmetic Act, 21 USC 301 to 399, or one or more of the following:

- Advanced computing or electronic device technology related to life sciences technology.
- Design, engineering, testing, or diagnostics related to life sciences technology.
- Product research and development related to life sciences technology.

C. *Advanced Computing* means any technology used in the design and development of one or more of the following:

- Computer hardware and software.
- Data communications.
- Information technologies.

D. *Electronic Device Technology* means any technology that involves microelectronics, semiconductors, electronic equipment, and instrumentation, radio frequency, microwave, and millimeter electronics; optical and optic-electrical devices; or data and digital communications and imaging devices.