



Soldier Innovation Center

**A Partnership with Massachusetts and its Universities, Companies, and
Communities**

Soldiers

Every day heroes

- Every day, thousands of Soldiers – Marines, Airmen, and Sailors as well as First Responders – put their lives on the line to help us.
- Do these Soldiers have the best equipment that today's technology can deliver?

The Need

New tools for safety and effectiveness

- Soldiers (including First Responders) need new systems for improved:
 - Communications
 - Navigation and location
 - Physiological monitoring
 - “SOS” signaling
- The new equipment needs to be:
 - Light weight
 - Reliable
 - Accurate
 - Affordable

Architecture

To Augment Cognitive & Social Performance



Link the individual to knowledge repositories and live assistance

Hyper-sensing of the local environment

Physiological & cognitive work state

Our Proposal

State supported center

- Form the Soldier Innovation Center
 - Locate at (or adjacent to) Natick Soldier Systems Center (SSC)
 - Obtain support to jump start the center
 - Initial cadre of engineers & researchers
 - Establish and equip facility
 - Conduct basic research to get data necessary to respond to BAAs and write proposals to apply for federal and foundation grants
- Leverage and complement work being done at Natick SSC

Soldier Innovation Center Concept

Building a Team

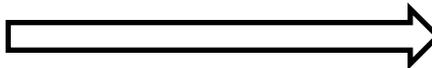
Natick SSC

- **Soldier system domain expertise**
 - Insights into soldier's needs, problem prioritized
 - Institutional knowledge, lessons learned from past efforts
- **Evaluation of effectiveness**
 - Laboratory facilities to measure effectiveness
 - Trusted role as part of service, government
 - Access Government Testing Capabilities
- **Direct industry performers**
 - Direct work toward Army/soldier's needs

- Technology identification, assessment
- Engineering first of a kind prototypes
- Technology transfer

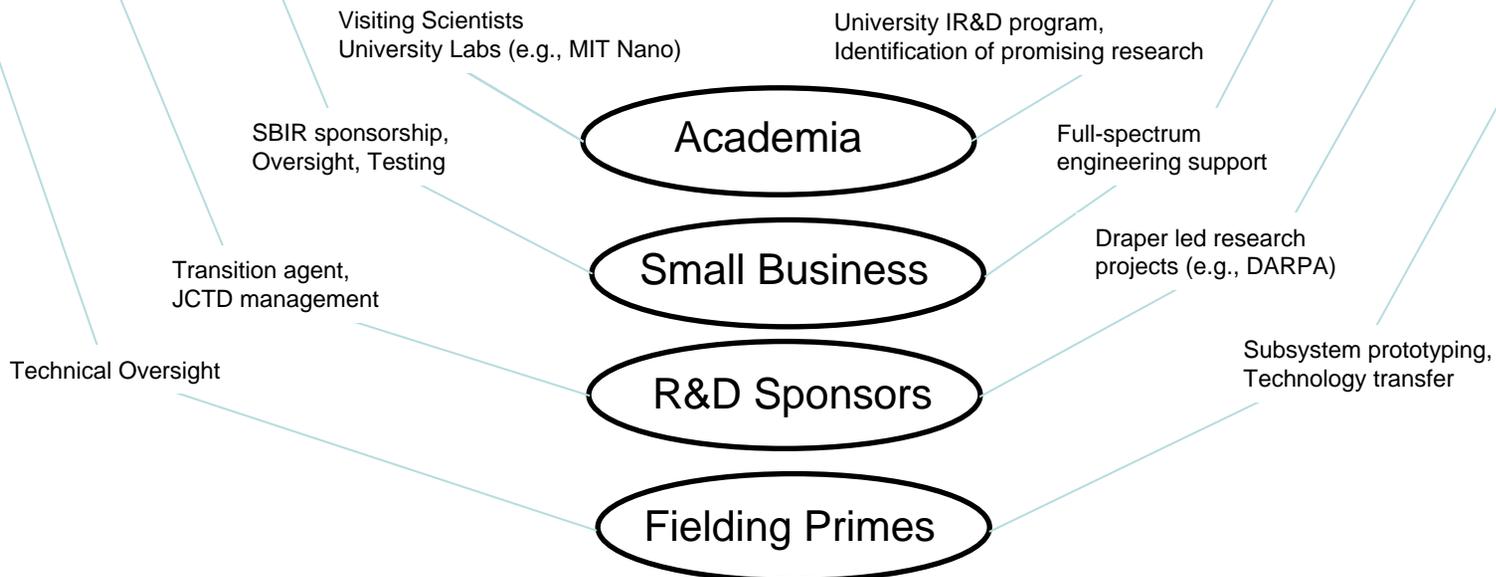


- Translate soldier needs into technical challenges
- Subject matter experts for Human Systems Collaborative design
- Access to develop and test facilities, infrastructure, testbeds



Draper Laboratory

- **Core engineering capabilities**
 - Guidance, Navigation, and Control
 - Information, Decision, Exploitation & Networking
 - Miniature, Low-Power Electronic and Mechanical Systems
 - Biomedical Engineering
- **Not-for-profit R&D lab**
 - Unbiased source for technology assessment
 - Access to advanced technology
 - Charter to transfer technology to government and industry



Our Approach

Listen, leverage, partner

- Listen to what Soldiers are asking for
 - Interview
 - Observe
- Leverage technology from other applications
 - Emerging portable power technologies
 - Ad hoc mobile communications
 - Navigation in denied environments
 - MEMS bio sensors
- Partner with the best
 - Universities
 - Companies

The Benefits

A Cluster of Innovative Organizations

- To *Soldiers*
 - Improved tools to do their job more effectively
 - Improved safety
- Massachusetts
 - Economic Growth in High-Tech sector
 - National leader in this important area
- Universities
 - Increased federal research grants
 - New opportunities for faculty and students
- Local companies
 - Increased business
 - Influx of new technology
- Draper Laboratory
 - Mission of solving important problems in the national interest
 - Business growth and diversification

Our First Opportunity

Truly Portable Power for Soldier Systems

- Accelerate Energy Solutions for the Soldier:

- Broadly disseminate the soldier need – align existing company and university research
- Develop applications in parallel with energy solutions
- Demonstrate energy solutions during the development process – focus development work on Soldier and First Responder needs
- Combine NE resources – applied development, prototyping

Solar	Fuel Cells	University	Wind
Active Surface Technologies Inc American Solar Technologies BlueLine Photovoltaic Semicon Cape & Island Cell Balance Center for Ecological Technology Central New England Solar Store Clear Solar Crystal Systems, Inc. Environmental Solar Systems Hampshire Farms Co Inc - Power Products HelioEnergy, Inc. Insulation, Inc. Kohala Energy Ink KonaKa Technologies, Inc. Kosmosolar KukaSolar Electric Lowes Energy Design Magnolia Optical Technologies, Inc. Mass Holbow Inc. Nano C Inc. New Energy Options, Inc. New England Solar Electric, Inc. Northern Energy Solutions, LLC Novasolar, Inc. Pioneer Valley Photovoltaics Cooperative Practical Solar Inc. Prism Solar Technology Inc. Saahine Power Co. Sarnika Technologies Solar Design Associates Inc. Solar Marketing Inc. Solar Ware Energy Solar Works, Inc. Solutia Renewable Sokot, Inc. South Mountain Company Spire Corporation Stekare Corporation Stivali Etron Sun Energy Sun Tech Solar Service Sustainable Energy Solutions, Inc. Under the Sun Village Power Design Associates Zapotec Energy Incorporated Zales Energy Associates Zoran Energy Design Evergreen Solar Inc Mimetec PolySun SIOprimo	Anafix Power LLC CMK Fuel Cell Fuel Cell Scientifics H.C. Starck Holmgren & Voss Company Phoenix Innovations Inc Alumenthos Corporation Ballard Materials Products CCI Energy CellTech Power LLC EledoChem, Inc. Gibbard Research & Development Corp. Omnia, Inc. & Other Electrochemical Systems, LLC H2G Corporation Hyperion Catalyst Proton, Inc. Lilliputan Systems Lion Spring Lion Star Nanospek Noreva Fuel Cells Osho Hydrogen LLC Strategic Energy Systems Ztek	WindTechCo Boston College Boston University Brandeis College Center for Industrial Competitiveness, UMass Lowell Five College Energy Inc. Harvard University M.I.T. Center for Energy and Environmental Research (Cambridge) M.I.T. Laboratory for Energy and The Environment Mt. Wachusett Community College Nanocatalytic and Energy Laboratory Northeastern University Woods Hole Research Center Worcester Polytechnic Institute, Fuel Cell Center Bio Energy ACF Inc. Inc. ADGO agriada Akva Renewable Energy Finance, LLC Berkshire Biovent BioEnergy Partners, LLC Catamount Pellet Fuel Corporation Catalent Corp. Cleaves & Company Ethco Industries Associates Feed Resource Recovery Geospower Holdings LP GreenFuel Technologies Corporation HealthNet Mass Biofuel New Energy Solutions Inc Northeast Biodiesel Company, LLC Proxigen Corporation Russel Biomass LLC Sprague Energy SunEthanol C Corp Sustainable Resources Group Tamaskan Energy Inc. Twin River Technologies World Energy Alternatives, LLC YellowBioset Zengen Inc. Synthetic Osmosis, Inc.	American Superconducting Boreal Renewable Energy Development (BRED) Bower CO Cape Wind Community Energy, Inc. Community Wind Power, LLC Cost Containment Inc. Endless Energy Corporation Energy Management Inc. General Compression Corporation Kama Laser End Design, Inc. LIPAC Energy/Turbine Turbines Lighthouse Electrical Contracting Inc. Loran Energy Systems Mass Massachusetts Wind Power Inc. Monitor Berkshire North Shore Solar & Windpower Company Onea Wind Technology LLC PPM Energy Second Wind Inc. Silva Energy Sustainable New Energy UPC Wind Management LLC Wind Works Wave AquaEnergy Group, Ltd. Ocean Power Delivery Current to Current Corporation Ocean Power Renewables (OPRC) Renewable Strategies, Inc.
	Geothermal Coppus Steam Turbine (Dresser Rand) EarthSource Energy Solutions, Inc. One Drilling of New England GeoThermal Drilling of New England Iost Inc Turbo Care		
	Hydro 374r Electric Power Corporation Consolidated Edison Energy Solutions ElobaStar Natick Energy Spencen Systems Swift River Company Aquafuel Energy Group, Ltd Ocean Power Delivery		

- Natick SSC Application Areas for Energy:

- Ground Soldier Systems ensemble
- Shelters
- Medical
- Small Unmanned Air Systems

Over 100 local firms addressing Solar, Fuel Cell, Geothermal, Bio, Wind, Hydro and Wave Energy technologies

Next Steps

Prepare the business plan

- Get support from all appropriate parties
- Prepare “customer” requirements
- Define sources of funding
- Write business plan
- Secure local and regional public sector support