October 25, 2012

Space Coast Energy Consortium Response to Request for Information on Proposed New Program: National Network for Manufacturing Innovation (NNMI)

The following was developed by the Space Coast Energy Consortium's Advanced Manufacturing Working Group, a diverse range of industry stakeholders in Florida, during the Working Group's meeting on October 17, 2012. The response is a consensus view and reflects the group as a whole and not any individual member.

1. What criteria should be used to select technology focus areas?
    - Impact across multiple industries/Cross cutting
    - Pervasiveness
    - Giant leap potential
    - Identified in multiple technology roadmaps over recent years
    - Replicable
    - On radar but hard to implement or execute
    - Economic impact
    - Emerging Technology – has some risk – need government support
    - Productivity that levels (mitigates) international competition
    - Efficiency
        - resource use
        - capital use
        - labor use
    - Making things economically
        - Complex shapes
        - High tolerance
        - Cost effective
    - Uses modeling for integrated life-cycle
    - Reduce cost of
        - Labor
        - Capital Equipment
        - Energy
    - Technologies that improve performance
        - Tolerances
        - Extreme Environments

    - High Performance
- Link with academia

2. What technology focus areas that meet these criteria would you be willing to co-invest in?
    - Advanced Manufacturing
    - Additive Manufacturing & 3D Printing
        - Metals
        - Plastics
        - Composites
    - Joining Technologies
    - Joining of disparate materials
    - In-Situ metrology and process controls
    - Powder metallurgy processes
    - Turbine Components
    - Modeling
        - Integrated Design Cycle
        - Structures & Parts
    - Electron Beam
    - Powder
    - Advanced Magnets
    - Cryogenic Materials/Techniques
    - Metrology & Process Controls
    - Coatings
        - Thermal
        - Wear
        - Protective
    - Repair Technologies - Repair Weld
    - Reconstruction Technologies
    - Composites
    - Laser Powder/Laser Wire

5. What business models would be effective for the Institutes to manage business decisions?

- Fraunhofer Institutes
- EWI – formerly known as the Edison Welding Institute

6. What governance models would be effective for the Institutes to manage governance decisions?

- CMTC - U.S. Navy's Center of Excellence for Composites Manufacturing Technology
    a. Liked its virtual center approach
    b. Sustainability mandates used in its business model

- The suggestion was also made to leverage existing or established research institutes within universities or established non-profits that have strong private sector involvement and/or leadership built into their governance structures, to build upon existing state and private resources while ensuring relevance and receptivity to industry needs.

13. What actions or conditions could improve how Institute operations support domestic manufacturing?

- Act like a consortium and be able to do small batch prototyping as a stepping stone to larger-scale production– (integrated with design and engineering process, non-competitive with existing capabilities)
- Define procurement time
- Define manufacturing timeline

Questions 10 – 16 (The group came up with common themes across these multiple questions.)

- The federal government needs to acknowledge that matching funds are not unlimited even for large companies and especially for small businesses, non-profits and educational institutions
- Accept higher level of in-kind effort/and existing research as match
- Waive match requirements for small business partners and for others in distressed areas
- Use "tech shop" type cooperative structure
- Make use of existing infrastructure (federal, state, local) and include physical & "virtual" components.

Questions 17 – 21 (The group came up with common themes across these multiple questions.)

- Ensure there are career and training pathways from junior high to high school to job.
- Ensure there are certifications for the specific (perhaps new) manufacturing technologies, tied to specific industry requirements.
- Along these lines, we have attached information on the Florida Advanced Manufacturing Pathways for certification of manufacturing-related skills, developed by the state-wide Banner Center for Advanced Manufacturing at Polk State College, an academic partner and participant in the Consortium's Advanced Manufacturing Working Group. These pathways were developed as part of the Manufacturing Skills Stackable Credentials program in coordination with the Manufacturers Association of Florida and the Manufacturing Institute (the non-profit educational arm of the National Association of Manufacturers). More information on this credential pathway (a nationally-recognized best practice) is available at: www.banner-mfg.org

- Work with universities and manufacturing associations for advanced levels of techpoint training.

For more information or clarification of any of these points, please don't hesitate to contact Michael Aller, Executive Director, michael.aller@spacecoastenergy.org or Tim Franta, Advanced Manufacturing Program Manager, tim.franta@spacecoastenergy.org with the Space Coast Energy Consortium, or via phone at 321-613-2973.

More information about the Consortium and the SCEC Advanced Manufacturing Working Group is available at the Consortium's website: www.SpaceCoastEnergy.org.

Thank you for the opportunity to provide feedback for this important national initiative to revitalize America's ecosystem for manufacturing innovation.

Employ Florida BannerCenter Advanced Manufacturing

FLORIDA ADVANCED MANUFACTURING PATHWAYS

ALIGNING EDUCATION, CERTIFICATION AND CAREER PATHWAYS

(Created by the Banner Center for Advanced Manufacturing and the FLATE Center)

EDUCATION & TRAINING PATHWAY		CERTIFICATION PATHWAY		CAREER PATHWAY
MASTERS & PH.D.	↔		↔	
BACHELORS - ENGINEERING / **BACHELORS - ENGINEERING TECHNOLOGY** / **BACHELORS - OPERATIONS MANAGEMENT**	↔	• (none – alignment with SME should be undertaken)	↔	• Manufacturing Engineer • Manufacturing Technologist • Management
ASSOCIATE IN SCIENCE – ENGINEERING TECHNOLOGY (60 Credit Hours)** • Degree Specializations: Advanced Manufacturing, Adv. Technology, Alternative Energy, Biomedical Systems, Digital Design & Modeling Electronics, Mech. Design & Fabrication, and Quality • 15 Short-term College Credit Certificate programs • Year-1 Core aligned with the MSSC CPT to allow for industry certification articulated credit	↔	• In process of integration into the ET Degree specializations: ○ ISA CCST & ISA84 Safety ○ SME/ASQ/Shingo – Lean Bronze ○ IFPS FPCT ○ ASQ CQIA • MSSC CPT *	↔	• Supervisor of Production • Manufacturing Technician • Engineering Technician • Maintenance Technician • Quality Technician
REGISTERED APPRENTICESHIP PROGRAMS • Adv. Mfg. Maintenance: EIA Technician & Mechanic/Millwright (Mosaic / Polk State) • Machining (SFMA)	↔	• MSSC CPT *, OSHA10, Rockwell Automation, IFPS • NIMS	↔	• EIA (Electrical Instrumentation & Automation) Technicians • Mechanical Millwright • Machinist
PSAV PROGRAMS (Offered by Technical Centers and/or FCS Colleges) • APT, Applied Welding, Machining Technology	↔	• MSSC CPT* • NCCER or AWS • NIMS	↔	• Production Technicians • Welders • Machine Operators
HIGH SCHOOL CTE & CAREER ACADEMIES • CAPE Legislation: Industry Certification + Career Academy format + College Credit = Bonus FTE Funding • **Automation and Production Technology (APT) FRAMEWORK** ○ Specifically Aligned with MSSC CPT • **PLTW Programs** ○ PLTW + MSSC CPT integration • **Engineering Technology Programs** ○ STEM/ENG with MSSC CPT integration	↔	• PLTW • Solidworks • Auto Desk • MSSC CPT * • RTW (NCRC)	↔	• Assemblers • Lift Operators • Entry Level Operator

INCUMBENT WORKER TRAINING & DISPLACED WORKER TRAINING

- Customized for local/regional needs
- Industry Certification aligned (where possible)
- Stackable credentials
- Subsidized funding using IWT, QRT, EWT, ITA workforce funds
- Articulated college credit (where statewide agreements exist)

* Statewide Articulation Agreement – Attainment of certification results in 15 College Credit Hours toward the Technical Core of the Engineering Technology AS Degree

** 10 FCS Colleges - Polk State College, St. Petersburg College, State College of Florida, Hillsborough Community College, Brevard College, College of Central Florida, Florida Gateway College, Florida State College at Jacksonville, Pensacola State College, & Daytona State College