



The Manufacturing Council

July 22nd, 2011

The Honorable Gary Locke
U.S. Department of Commerce
Washington, D.C. 20230

Dear Mr. Secretary,

Leaders in manufacturing and the organizations that support this vital sector were encouraged when President Obama recently used a manufacturing facility as a backdrop for his news conference promoting the importance of manufacturing in America. Members of the Manufacturing Council – representing leaders from businesses across our nation – hope the President’s commitment to manufacturing in America helps drive what this Council proposes: A shared strategy for decisive action to prepare more young people for careers in manufacturing and engineering, and a systematic review of the efficacy of workforce development activities funded by the federal government. Now is the time for industry and government to work together to ensure that America will retain its globally competitive manufacturing industry.

Currently, members of the Administration and Congress are involved in initiatives that are intended to fill the pipeline with qualified candidates. The Obama administration has committed resources to revitalize the manufacturing sector. The President’s National Export Initiative, which aims to double U.S. exports by 2015, commits resources to open markets and assist U.S. manufacturing to reach the 95 percent of the world’s consumers who live outside our borders. The Departments of Labor, Education and Commerce share agendas that focus on keeping America’s manufacturing key to the global economy. But the efforts of these federal agencies are not as well coordinated as they could be, which leads to certain inefficiencies at both the federal and state level.

Industry wants to take an active role with government in workforce development. We welcome the opportunity to share concerns and ideas that can be applied to policy. There is much to be done. Consider these points:

1. Global competitors are gaining strength in innovation and applied research and development. We can’t rest on our current manufacturing base to keep up with global competition. Industry needs to continuously reinvent and re-engineer the best products and processes to stay ahead.
2. 2.7 million manufacturing employees will likely retire during the next 10 years, yet only an estimated 750,000 young adults are enrolling in educational programs in 2011 – degreed and skilled – to fill the pipeline. That number further plunges to 350,000 by 2025.

3. Young people have misperceptions about manufacturing. Most critically, they believe that America is not committed to remaining a manufacturing powerhouse in the world and that all manufacturing will eventually be done outside our borders. Despite these false perceptions, manufacturing and engineering are at the core of high-tech, innovative fields like medical technology, biosciences, semiconductors and alternative energy vital to our economy.
4. Few math and science educators, including teachers and counselors, present career options in manufacturing to students of all ages.
5. In May 2011, 223,000 jobs in manufacturing were available (unfilled). These jobs cannot be filled by those currently unemployed who are not qualified for them. To prepare candidates for these open jobs, we need next-generation manufacturing technical and degree programs nationally. Additionally, the Department of Labor reports that more than 600,000 unemployed workers with manufacturing experience have education beyond high school. These workers need to be connected to industry.
6. Manufacturing industries have among the highest indirect job-creation ratios, with industry published statistics as high as 10:1. Jobs in manufacturing lead to other jobs in society, such as suppliers, food service, entertainment and education. This is particularly true in small communities where manufacturers are often the major employer.

There are some successful programs and initiatives already underway that have begun to show results. For example, technical colleges and universities are adding skilled and degreed programs that have been developed in collaboration with local manufacturers, setting examples for others to emulate. In regional areas where this is working best, industry works closely with colleges to form a public/private relationship and develop programs and curricula that will impact the qualified workforce available to work. Additionally, this work is being supported by assistance from the Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant program, announced in January 2011. TAACCCT leverages industry input, shares curriculum among community colleges, and focuses skill development required to fill jobs on a regional level.

Work is already underway to expose our youth to careers in manufacturing. Organizations are providing scholarships to qualified candidates and curriculum to middle and high schools. Project Lead the Way, FastTrack, SkillsUSA, Dream It Do It, and I Make America represent proven programs. Funding for students is attainable through organizations like the SME Education Foundation, the National Academy for Minorities in Engineering and corporate foundations committed to funding STEM initiatives. We need to accelerate current programs to close the gap between unemployment and the jobs that manufacturers need to fill in order to grow their business in the United States and compete on a global level.

Requests by the Manufacturing Council

The Manufacturing Council is requesting better collaboration between the Departments of Education, Commerce and Labor to support the programs that will prepare our future manufacturing workforce. The Council believes government can add more efficiency and improve utilization of funding for education without adding resources. Together with industry, we can close the gap between high unemployment, unfilled jobs and available training resources.

The Council requests that:

1. The Department of Labor creates a focused ad campaign in conjunction with industry which illustrates the importance and benefits of a manufacturing career.

2. The Departments of Labor and Education revise the required metrics for government to determine the efficacy of programs funded by federal dollars. Institute industry/employer-driven metrics, such as the number of days key positions are unfilled, number of qualified applicants and costs associated with employee turnover, which are the true measure of effective workforce development programs. The Manufacturing Council requests continued funding for workforce-focused programs and that Workforce Investment Board activities be based on industry-driven metrics that determine whether or not a capable and sufficient workforce is being achieved. Job placement statistics need to reflect whether or not employment and job creation directly relate to the specific jobs that the programs are intended to fill. Our request judge the efficacy of programs using industry-developed metrics which will provide a guide to determine which programs should receive funding.
3. Educators bring STEM disciplines back into the K-12 school curriculum, including applied learning methods from non-traditional models, to get younger students excited about careers in STEM fields earlier. Volumes of published statistics report that children's interests are shaped young in life, and we need to generate awareness about high-tech careers in manufacturing during early-teen and pre-teen years. Having more manufacturing/STEM programs at the K-12 level is required to increase the number of students who become interested in manufacturing-based careers.
4. More coordinated interaction between state and federal government agencies with regard to how grant and program dollars are dispersed; only those programs delivering results should continue to be funded. Today, the federal government allocates money at the state level and loses control of how the money is spent. The Council requests a common set of metrics around program efficacy (creation of qualified manufacturing employees) be placed and reviewed on each program/grant that is awarded.
5. Tax incentives and grants to support training for new and existing employees be available for businesses of all sizes. The Manufacturing Council requests that specific programs be tailored to businesses of all sizes, with representatives from all-sized companies giving feedback to the government agency that owns these programs.
6. Federal and state funding available to technical colleges and post-secondary institutions that offer nationally endorsed manufacturing credentialing programs. Additionally, the Council requests that funding be made available for companies that send their employees through a nationally recognized credentialing program such as the Manufacturing Institute's Skills Certification System, recently endorsed President Obama.

With support from the Administration, the Manufacturing Council members will commit to several important factors in return. First, we will actively promote and support high schools and technical colleges that offer next generation manufacturing programs. Industry will partner closely with educational institutions which are forward thinking, responsive to the evolving needs of the manufacturing industry, and provide continuous learning opportunities for employees. Many companies are already very active in these partnerships.

Second, industry is committed to working with the Departments of Labor, Education and Commerce on marketing efforts intended to change the perception of manufacturing and technical jobs. This is already happening through collaborative programs like the National Association of Manufacturers' Dream It/Do It campaign. An increased marketing program targeting youth, educators, guidance counselors and parents is required to build excitement among our youth about manufacturing career opportunities and accelerate the participation in the current programs.

Third, industry will actively participate in curriculum development for STEM education to students of all ages, particularly at the primary and post-secondary levels. Representatives from industry must become more actively engaged with educated students of all ages. We need more individuals currently working in manufacturing to teach courses at accredited institutions across the country; to assist academia in designing courses and curricula that are integral to producing well-rounded, technically and socially capable employees; and to invite students and educators into their manufacturing facilities to show students the exciting career opportunities that await them. Appendix A highlights examples from companies in the Manufacturing Council that are actively engaged in partnerships or programs to advance/promote the development of a future manufacturing workforce.

Fourth, the members of the Manufacturing Council suggest sponsoring a workgroup which would involve industry and private sector stakeholders, government advisory councils, and federal government interagency representation. The goal of this work group would be to identify best practices, illustrate private/public partnerships that are working, define industry metrics to measure return on investment and consistently validate the success of programs and act as a guide for future efforts that can be implemented on both national and regional levels.

Lastly, the Manufacturing Council understands that the issues affecting the current manufacturing workforce crisis and the solutions required to correct this problem are complex and multifaceted. Many of these issues have been well document by previous Manufacturing Councils and administrations and need to be addressed. This letter highlights our analysis of the primary drivers leading to the current state of our manufacturing workforce, as well as our recommendations to the Department of Commerce. We anticipate further work by this subcommittee as our recommendations are shaped by your input. We are willing and eager to assist in the development of industry-driven metrics to measure program efficacy, rationalization of programs supported by federal funding across multiple agencies, and other specific actions that will achieve the globally competitive manufacturing workforce this country needs to remain a manufacturing world leader.

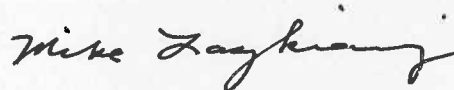
We appreciate the opportunity to share our concerns and ideas and welcome a meeting to further discuss these in person.

Thank you for your time and consideration.

Respectfully Submitted,



Joe Anderson
Council Chairman



Mike Laszkiewicz
Workforce Development Subcommittee Chair

Appendix A – Manufacturing Council Workforce Development Activities

ACE Clearwater Enterprises

- ACE Clearwater has hosted educational summits at our facility with our Governor, Legislators, educators and thought leaders.
- ACE Clearwater hosts elementary, middle and high school teachers to discuss the skills needed for us to compete and the types of jobs that exist in modern manufacturing.
- ACE Clearwater annually supports three robotics teams (\$5,000.00 per team) and donates our facilities and engineering and manufacturing expertise to help them.
- ACE Clearwater sponsors two University senior engineering projects per year to give the students real world experience.
- ACE Clearwater donated a \$100,000.00 machining center to a local community college and continues to donate old but useable equipment to our local technical trade school.

Cascade Engineering

- The Cascade Engineer Re-Entry Program - Cascade Engineering supports job placement and career movement of ex-offenders and works to ensure that more employers are aware of and support EEO policy concerning ex-offenders. Based on the Welfare to Career support and retention model, Cascade Engineering often uses community organizations like local temp agencies, Pathways to Prosperity, Hope Network, and others to identify potential candidates to be placed at CE with external support.
- The Cascade Engineer Welfare to Career - This program, now over 12 years into its evolution, is designed to assist individuals who are unemployed or underemployed as they move from dependence to economic self-sufficiency. A key component of the program includes a confidential pre-assessment, administered by an on-site Department of Human Services retention specialist that identifies the specific needs of the candidate. The Welfare to Career program is designed to discover potential barriers to successful employment such as transportation, daycare or housing issues. Once assigned, the specialist continues to actively support the new employee throughout their tenure. Other key components include frequent attendance and performance communication between the supervisor and the retention specialist, coaching and mentoring including Work Ramping Orientation, internal and external education, resource guidance, supporting policies, and program monitoring through monthly and quarterly metrics both at Cascade Engineering and DHS.

DYMAX Corporation

Dymax supports education, training, engagement in our community and strengthening the US workforce by:

- Actively supporting the University of Connecticut MEM (Management & Engineering for Manufacturing) program. The MEM program develops professionals with a solid foundation in engineering and business skills, a total enterprise vision, and intimate knowledge of production in the manufacturing and service industry.
- Supporting the Susan B. Anthony House (a local home for battered women and their children) as well as local food banks through donations and volunteering.
- Providing all frontline supervisors training through State of CT grant in addition to the tuition reimbursement program/continuing education we offer our employees.

GenMet Corporation

- GenMet's ownership is active in the regional community. They are directors on industry advisory boards for 3 local Technical Colleges and 1 local Engineering University (MSOE).

- GenMet employees mentor students at local inner-city high schools.
- GenMet provide tours of their facility to 500+ high school and middle school students per year.
- GenMet employs at least one high school student per year from state approved apprentice programs.
- GenMet sponsors (financial support) and provides jobs for high school students from Second Chance Partners program.
- GenMet is active in curriculum development and teaches 2+ Junior Achievement classes per year at middle school and high school levels.
- GenMet is active with the M7's regional workforce development subcommittee. GenMet also has representation on the Regional Workforce Alliance.
- GenMet Summer Works program – employs engineering students during the summer in both production and engineering related positions.
- GenMet sponsors (financial support) Project Lead the Way in area high schools and sit on advisory board for PLTW.

Freescale Semiconductor, Inc.

- Freescale is focused on education of our youth with STEM programs from kindergarten through grade 12.

Illinois Tool Works Inc.

- New Strategies for women's advancement, initiatives such as: existing partnership with The Society of Women Engineers (SWE), formed new Women in Technology (WIT) group, and joined Catalyst, Inc., a non-profit, research-based organization comprised of members from businesses, associations and schools and dedicated to creating workplaces that enable women to succeed.
- Support for Hispanic and African-American Engineers, with 2010 being the first year to participate in the UNCF Corporate Scholars programs and continued support for The Society of Hispanic Professional Engineers and the National Society of Black Engineers.
- The ITW Foundation: In 2010, the ITW Foundation contributed \$17.7 million to various human service, educational, youth, and environmental organizations in the U.S. and Canada.
- The ITW Foundation awards scholarships to the children of ITW employees. There are two scholarships one of which is administered through Scholarship America and the other is National Merit. Our scholarships are awarded for four years and go up to \$3,500. For this year we processed 349 applicants for Scholarship America and a total of 74 were awarded, this is in addition to the 165 renewals. On the National Merit Scholarship we processed 161 applicants and a total of 30 were awarded, this is in addition to 91 renewals.
- The ITW Foundation offers a three to one matching gift program to all regular full time employees and to all eligible retirees. Education is a key component of that in the general academic accredited space. Given the economic challenges and the significant state funding cut backs in education, in 2010 the Foundation Board approved the expansion of this program to include public school funding. So, today we will fund a U.S. Accredited education organization such as public and private elementary and high schools, as well as, public and private colleges and universities.

Nucor Corporation

- Nucor sponsors national collegiate competitions like the "Steel Bridge" competition and are annually handing out over \$4,500,000 in scholarships to high school graduates who go on to further their education at Vo-Tech schools; Community Colleges; and 4 year colleges and universities. Nucor will have a national college intern program with over 200 interns annually from the engineering and technical disciplines working in our plants.

- Nucor is partnering with By Kids For Kids, a National presence that provides expertise and leadership in educating America's youth about the power of innovation and manufacturing. Together, Nucor and BKFK are embarking on a strategy which includes the following:
 1. A National Program that targets secondary schools and encourages students to participate in *innovation* and *engineering* contests that brings awareness to the value of *manufacturing jobs*.
 2. Partnerships with Universities and Community Colleges that help the faculties and administrators educate America's Youth about the career potential available in the United States Manufacturing Base
 3. Partnerships with National Societies, Regional Organizations (for and non-profit), High Schools and Middle Schools in branding *Manufacturing Jobs* as a means to contribute to a "Nation that Makes and Builds Things".

The Nucor/BKFK Partnership brings together two organizations that thrive on innovation. We will seek to create and develop communication channels capable of providing a message that builds America's future STEM talent base.

- **Building a STEM Talent Base at U.S. Universities**

This initiative will serve Nucor and other U.S. Manufacturers in building a stronger base of STEM talent available to universities, reversing the trend previously illustrated. Nucor is currently engaged in partnerships with over 30 universities across North America. Many of these universities, and others, are competing within a shrinking pie of STEM talent. Greater availability of talent at the universities will allow for a greater return on investment in our college recruiting activities, which include:

- Support for Summer Math and Science Bridge Programs
- Scholarships for current and incoming college students
- Support for MITE – Minority Introduction to Technology and Engineering
- Support High and Middle Schools for Field Trips to Engineering Colleges
- Provide Speakers for Middle School, High School, and College Engineering Classes
- Support Materials Camp in Colleges
- Participate in Corporate Development Councils at Colleges and Universities
- Sponsorships for student and faculty development at professional conferences (NSBE, SHPE, SWE, IEEE, ASCE, AIST, WEPAN, NAMEPA, and HACE)
- Participate on Engineering Advisory Boards
- Support Adjunct professorships at Colleges
- Support Capstone (Senior Design) Projects at Colleges
- Develop Materials Engineering and Leadership Labs at Colleges
- Participate in University Engineering Consortiums (Summer)
- Support MEPO – Multicultural Engineering Programs (Summer)
- Create Endowed Chairs who serve as Corporate Ambassadors for STEM
- Endow Engineering Programs

McGregor Metalworking Companies

- McGregor Metalworking companies works with Springfield High School STEM Academy to develop an intern program on an annual basis to develop a pipeline for tomorrow's manufacturing workforce.
- McGregor Metalworking Companies training program received re-accreditation by the National Institute for Metalworking Skills (NIMS). Located in Fairfax, VA, NIMS is the nation's only ANSI

accredited developer of precision manufacturing skill standards and competency assessments. This program gives McGregor and its workforce a competitive advantage in the workforce.

Myron Zucker Inc.

- Myron Zucker, Inc. is part of the Sterling Heights SmartZone Collaborative, which brings together business leaders within the local manufacturing sector aimed at determining best practice and promoting ways for manufacturing to succeed.
- Myron Zucker works with Macomb and Oakland Community Colleges to hire summer interns. The internship programs are intended for manufacturing jobs, especially lean manufacturing leaders.
- Myron Zucker is active in STEM educational exhibits within the local high schools.
- Myron Zucker devotes resources annual to Tools for Tomorrow, which is a scholarship program focused on increasing interest and awareness in manufacturing jobs. .

Quality Float Works, Inc.

- Quality Float Works has partnered with local high schools in our area, focusing on at risk communities, to work with vocational teachers to do work study programs. Quality Float Works has helped over 15 young men and women in last 5 years and currently employ 3 of these people. Quality Float Works also actively works with school districts for tours of our company and guidance counselors to educate youth on the value and importance of a career in manufacturing.

Oregon Iron Works, Inc.

- Multiple Engineering Cooperative Program and Civil Engineering Cooperative Program (MECOP and CECOP). Unique among cooperative programs, the Multiple Engineering Cooperative Program and the Civil Engineering Cooperative Program (MECOP and CECOP) at Oregon State University, Portland State University and Oregon Institute of Technology demonstrates the power of an effective business/education partnership. The source of strength for these programs is the imaginative ideas they are founded upon: support by a voluntary annual assessment on member companies; insisting upon a high order of industry interaction with the university and its students; and continual improvement as the University adjusts its curriculum on recommendations made by the industry partners.

Website <http://mecop.ous.edu/>

- Clackamas Academy of Industrial Sciences (CAIS). A Public Charter School Partnership between the Oregon City School District, Private Industry and Clackamas Community College. The idea for the Clackamas Academy of Industrial Sciences arose from the Oregon City School District's 2006 Future Focus meeting. Since that time the Oregon City School District was awarded a Charter School Planning Grant to develop the community partnerships and design the school's academic foundation. The community partners, represented in the current board of directors, are members of a variety of local companies and organizations that are committed to strengthening the connection between school, work, and community.

Website: <http://www.orecity.k12.or.us/schools/cais>

Rockwell Automation

Rockwell Automation supports *Engineering Our Future™* programs addressing the need for strong preparation in STEM (Science, Technology, Engineering and Math) education. Rockwell Automation pillar programs include, Project Lead the Way (PLTW) and *FIRST®* (For Inspiration and Recognition of Science and Technology) were selected to help build a global pipeline of students, create jobs and educate tomorrow's workforce.

***FIRST®*:**

- Strategic partner with *FIRST®*

- \$1.5 million cash and in-kind product donation in 2010
- FRC Regional sponsor: Wisconsin, Ohio, Canada and Michigan
- FLL State Tournament sponsor in Wisconsin and Ohio
- Global FLL sponsor
- Rockwell Automation Innovation and Control Award
- Employee volunteers as Mentors, Judges and Referees

Project Lead the Way (PLTW):

- Milwaukee and Cleveland Public Partner Schools
- \$500,000 investment in labs
- Classroom tours of our facilities
- Milwaukee Public Schools STEM Partner

Other STEM Support:

- \$25,000-Engineering is Elementary in 2010
- \$25,000-National Science Olympiad Sponsorship in 2011
- Scholarships at MSOE, UW-Madison, Georgia Tech and SWE
- Paid Internships
- Engineering Summer Program at UW-Madison
- STEM Forward: SySTEM Now Conference, Future City and Rube Goldberg
- SWE Corporate Member
- NSBE and SHPE Supporters
- Catalyst Corporate Member
- Discovery World-Rockwell Automation Dream Machine exhibit
- Museum of Science and Industry-Toy Maker 3000 exhibit

Together with our employees we support partnerships at every stage of the educational pipeline to inspire and engage students in STEM. Developing innovative thinkers and problem solvers is critical to our ability to retain and create jobs and is central to developing tomorrow's leaders and position our students for success in a highly-competitive, global workforce.

The Dow Chemical Company

• **Employee Development**

- Delta College Fast Start Programs – Leveraged the needs of the company with the capability of our local community college
- Delta College Process Chemical Operator Associate Degree Program
- Executive MBA Program – Northwood University
- Operational Excellence Program (OEM) – (a 2 Year degree equivalent internal retraining program for existing employees)
- MyLearning@Dow – A customized/individualized training curriculum by employee. Systems has over 10,000 In-service training courses and programs in multiple languages
- Dow's manufacturing and engineering talent development programs – Continuing personnel development from 2 Months thru 20 Years service with the company.

• **Regional Engagement - Great Lakes Bay Region of Michigan**

- Safe Routes to School
- Junior Achievement
- MATHCOUNTS Competition
- You Be the Chemist Program
- Imagination Library
- Summer Math Enrichment Program – Delta College
- MLK Scholarship Program (GLBR Foundations/Chambers)
- National Science Resource Center
- MITECH

- Buena Vista FIRST Robotics Team
- Saginaw County Science and Engineering Fair
- All Around the Neighborhood Urban Gardens – City of Saginaw
- READ Program - Saginaw
- After School Program
 - Civitan
 - Salvation Army
 - Boys and Girls Club
- Freeland Scholars Program
- Freeland Bio-diesel Program
- String Instrument Music Program
- Boys and Girls Club
- Urban Youth Tennis Foundation
- Business and Education Partnership
- **Regional Engagement - Bay County**
 - Regional Outdoor Reading
 - College Access Center (pending)
 - Safe Routes to School
 - Boys and Girls Club
 - Business and Education Partnership
- **Regional Engagement - Midland County**
 - Midland International Baccalaureate (IB) program –
 - Midland FIRST Robotics Team
 - Literacy Council of Midland
 - Legacy Center for Student Success
 - Pre-school Family Mentor Project – West Midland Family Center
 - Midland Public Schools - Youth in Government
 - Business and Education Partnership

The Timken Company

- The Timken Company Charitable Trust: Each year, the Trust awards grants to non-profit agencies in the United States that are helping to strengthen our communities.
- Timken Scholarship Program: The Timken Company Scholarship Program is part of the company's commitment to recognize achievement inside and outside the classroom and start the sons and daughters of its associates on their way to a successful career. The Timken Company Educational Fund has invested more than \$16 million in scholarships in the 50 years that the program has been offered.