WHERE THE JOBS ARE: CAN AMERICAN MANUFACTURING THRIVE AGAIN?

HEARING

BEFORE THE

SUBCOMMITTEE ON COMMERCE, MANUFACTURING, AND TRADE

OF THE

COMMITTEE ON ENERGY AND COMMERCE

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C O N T E N T S

[1] Internet addresses and links to the reports are available on page 90.

WHERE THE JOBS ARE: CAN AMERICAN MANUFACTURING THRIVE AGAIN?

THURSDAY, APRIL 19, 2012

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COMMERCE, MANUFACTURING, AND TRADE,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 11:06 a.m., in room 2123 of the Rayburn House Office Building, Hon. Mary Bono Mack (chairman of the subcommittee) presiding.

Members present: Representatives Bono Mack, Blackburn, Stearns, Harper, Lance, Cassidy, Guthrie, McKinley, Pompeo, Kinzinger, Upton (ex officio), Butterfield, Dingell, Rush, and Sarbanes.

Staff present: Paige Anderson, Commerce, Manufacturing, and Trade Coordinator; Charlotte Baker, Press Secretary; Michael Beckerman, Deputy Staff Director; Kirby Howard, Legislative Clerk; Brian McCullough, Senior Professional Staff Member, Commerce, Manufacturing, and Trade; Gib Mullan, Chief Counsel, Commerce, Manufacturing, and Trade; Shannon Weinberg, Counsel, Commerce, Manufacturing, and Trade; Tom Wilbur, Staff Assistant; Michelle Ash, Democratic Chief Counsel; Felipe Mendoza, Democratic Senior Counsel; and Will Wallace, Democratic Policy Analyst.

Mrs. BONO MACK. Please now come to order. Good morning.

When it comes to the future of manufacturing in the United States, let us be a Nation where help-wanted signs hang on factory gates over closed-for-business signs. Today, our subcommittee will tackle a critically important subject, can American manufacturing thrive again? The future of our economy could well be at stake. And the Chair now recognizes herself for an opening statement.

OPENING STATEMENT OF HON. MARY BONO MACK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Throughout our Nation's long history, a growing and robust manufacturing sector has helped to make America great. It has been a driving force in our economy since the Industrial Revolution as generations of hard-working Americans, armed with machines, tools, and a determined work ethic, cranked out everything from airplanes to toasters.

But as our Nation has moved from the Atomic Age to the Space Age to the Information Age, manufacturing has not kept up, losing

nearly six million American jobs since the beginning of the 21st century. Aging, rusting, and abandoned factories litter the U.S. landscape.

Today, we stand at an important crossroads. One direction—lined by job-killing regulatory hurdles, a punitive tax code, and indecisive political leadership—will lead ultimately to a further erosion of our manufacturing base and lost prosperity for future generations of Americans.

The other direction—where smart policies and smart minds eventually intersect—could lead, instead, to a resurgence in U.S. manufacturing, putting millions of Americans back to work again and breathing new life into the beleaguered middle class.

Secretary Bryson, as chairman of this subcommittee, I look forward to working closely with you on this very important issue. Let us make "Made in America" matter again. Let us throw the "start switch" right now. And let us get the widgets moving. Clearly, we don't have any time to waste.

Statistics show the manufacturing sector was the hardest hit in terms of job losses during the Great Recession. While manufacturing accounts for just a 10th of our Nation's jobs, manufacturing suffered a third of our Nation's job losses.

What is more, in 2009—for the first time ever—the number of unemployed Americans actually exceeded the numbers of Americans employed in the manufacturing sector, a fact that remains true today, despite a slight uptick in recent hiring. So what happened? The U.S. was the undisputed leader in manufacturing for decades with the world's largest manufacturing economy producing nearly a quarter of all globally manufactured products. But that leadership is now in serious jeopardy, so it is vitally important to consider what is at stake for our Nation.

According to a report by the National Association of Manufacturers, American manufacturing supports nearly one in six U.S. jobs, which pay on average over $75,000 with benefits. Additionally, manufacturing jobs have the highest multiplier in the U.S. economy—every dollar in direct spending produces $1.35 in additional indirect output. Conversely, every manufacturing job eliminated in America results in the loss of two other jobs elsewhere in the economy.

So as policymakers, we are facing several critically important questions. First, what is the true state of the manufacturing sector today? Second, what factors are impeding a comeback? And finally, and most importantly, what policies could aid the manufacturing sector's recovery?

Here is the good news. Historically, manufacturing is the hardest hit during a recession, but the quickest to recover due to pent-up demand for goods. Recent numbers from the Bureau of Labor Statistics provide a glimmer of hope that the U.S. manufacturing sector may indeed be rebounding. Last year, for the second consecutive year, American manufacturers actually added jobs. Prior to that, the manufacturing sector had suffered job losses every year since 1997.

What is more, according to a recent report by the Boston Consulting Group, rising wages in China, the rising cost of energy and real estate in China, and the rising cost of transporting goods back

to America for consumption are beginning to make the United States a much more attractive option once again for many manufacturers.

But still other observers see a real cause for concern buried within the recovery numbers. Overall, the U.S. lost 5.7 million manufacturing jobs since 2000, a rate of decline that exceeded even the Great Depression, according to a study by the Information Technology and Innovation Foundation.

Compounding this problem is a very sobering fact: the U.S. lost a staggering 66,000 manufacturing firms—an average of 17 per day—over this same period. At the current rate of recovery, ITIF estimates the manufacturing sector would not return to 2007 job levels until at least 2020.

There are other factors contributing to this slow rate of recovery as well. In its 2009 report, "Facts About Modern Manufacturing," the National Association of Manufacturers identifies external policy-related costs such as a persistently high corporate tax rate, the high cost of healthcare, the rising cost of energy, regulatory costs, and tort costs as serious barriers to manufacturing. Simply put, there is a prevailing sense among many people that the U.S. is falling even further behind in fostering an environment conducive to job creation.

So when it comes to U.S. manufacturing, is the glass half full, half empty, or will it remain shattered on the kitchen floor for millions of out-of-work Americans?

Mr. Secretary, let us work together to sweep up the glass and then set the table for a manufacturing comeback. I continue to believe in the greatness of America, and "Made in America" should continue to be a shared pride for all of us.

And with that, I now recognize the ranking member of our subcommittee and want to in advance wish him a happy 65th birthday, which we will be celebrating next week. So Mr. Butterfield, you are recognized for 5 minutes for an opening statement.

[The prepared statement of Mrs. Bono Mack follows:]

Statement of the Honorable Mary Bono Mack
Chairman, Committee on Energy and Commerce
Hearing before the Subcommittee on Commerce, Manufacturing and Trade
"Where the Jobs Are: Can American Manufacturing Thrive Again?"
April 19, 2012

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But as our nation has moved from the Atomic Age to the Space Age to the Information Age, manufacturing has not kept up, losing nearly 6 million American jobs since the beginning of the 21st century. Aging, rusting and abandoned factories litter the U.S. landscape.

Today, we stand at an important crossroads. One direction – lined by job-killing regulatory hurdles, a punitive tax code and indecisive political leadership – will lead ultimately to a further erosion of our manufacturing base and lost prosperity for future generations of Americans.

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Simply put, there is a prevailing sense among many people that the United States is falling even further behind in fostering an environment conducive to job creation.

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OPENING STATEMENT OF HON. G.K. BUTTERFIELD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH CAROLINA

Mr. BUTTERFIELD. Let me thank you, Chairman Bono Mack. And I especially thank you for those kind words in wishing me a good birthday next week. I have been looking forward to it for a long time, and it has finally come.

But let me also thank the witnesses for their anticipated testimonies today. We know the schedule is kind of disjointed this morning, but thank you so much for your patience.

Madam Chairman, there is no more important issue to working Americans than the ability to get and keep a job, provide for their families and ensure that when their children grow up, they, too, can succeed. The causes of the most recent recession are many. They are indeed complex. While the solutions can also be complex, one thing is certain: the creation of jobs benefits the entire economy, and in recent monthly employment reports, we have begun to see the fruits of that labor.

Over the past 2 years, the manufacturing sector has added more than 450,000 jobs. Not since the Clinton administration has this sector seen such fast growth. And in a 1-year period from January of 2010 to January of 2011, immediately after the worst of the recession, the manufacturing sector added 47,000 machinery manufacturing jobs, 74,000 jobs in fabricated metal manufacturing, and 24,000 in computer and electronic manufacturing jobs.

My State of North Carolina is the fifth-largest manufacturing State in the country and the largest in the Southeast. The manufacturing sector provides about $80 billion to our GDP, or roughly 19.5 percent of the total. The nearly 11,000 manufacturing companies in North Carolina employ almost 15 percent of the total workforce, equating to well over 500,000 jobs that pay $65,000 annually on average. Many of these jobs are in advanced manufacturing and produce high-tech goods used in the defense industry.

For example, Telephonics is a defense and Homeland Security contractor located in Elizabeth City. Telephonics designs and manufactures sensors and communications equipment and tests and integrates these systems into U.S. military and Department of Homeland Security aircraft. DSM, also located in my congressional district in Greenville, North Carolina, produces all of the revolutionary Dyneema, fiber that is the key component in the new enhanced combat helmet, which will better protect our service members in the Marine Corps and Army without increasing the weight of their helmets. AAR, another corporation located in Goldsboro, North Carolina, designs and manufactures a wide range of machines and composite structures for aerospace and defense applications.

There is also the North Carolina Biotechnology Center. This center was created out of necessity as traditional industries like textile and furniture manufacturing began to disappear. The Center is the most experienced organization of its kind in the world and works to promote the cultivation and development of biotechnology applications throughout North Carolina, whether they are taking place for medical, agriculture, or energy purposes. And they join us today and I am excited to hear from them. I hope I can be here when

we have the testimony of the witness. I am going to have to leave shortly but hopefully I can be around for his testimony.

It is clear that American manufacturing is prime for a renaissance, and House Democrats are making an America agenda that provides even greater opportunities for success through key policy initiatives. Several "Make it in America" initiatives have already become law, including bills that cut taxes and created loans for small businesses, sped up the patent process, lowered cost of raw materials, and helped to end tax loopholes so that companies are discouraged from shipping jobs overseas.

In the 111th Congress, the House also passed "Make it in America" legislation to support American clean energy firms, invest in job training partnerships, and hold China accountable for the unfair currency manipulation that cost American jobs. When more products are made in America, more families, too, can make it in America.

And so I look forward to the testimony today and thank each of the witnesses for being here and being so gracious with your time. I will submit my entire written statement for the record.

Thank you. I yield back.

Mrs. BONO MACK. Thank you, Mr. Butterfield.

And now we have several Members on our side who wish to make an opening statement in a total of 5 minutes, so I urge them to keep their remarks as brief as possible. And I will yield the 5 minutes to Mr. Stearns, who will then yield accordingly.

OPENING STATEMENT OF HON. CLIFF STEARNS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. STEARNS. Thank you, Madam Chair.

This is the third hearing we have had on this subcommittee on jobs and it is, of course, a concern for all of us. And what we are also concerned about is the high tax rate in America. I think just simply lowering the corporate tax code and prioritizing the need for a skilled workforce would help. Other factors like the high cost of healthcare costs are going to impact this country and rising energy prices, so we need to have a full energy program.

And furthermore, we know that legitimate U.S. companies are losing jobs as they are forced to compete with offshore companies that steal American technologies. Having the FTC, the Federal Trade Commission, use its narrow Section 5 authority to bring targeted cases against these offshore companies will simply demonstrate that access to U.S. markets will not be permitted to companies whose business model is based on theft. These are things we can all work together on to strengthen our economy and I look forward to our hearing.

With that, I recognize Dr. Cassidy.

OPENING STATEMENT OF HON. BILL CASSIDY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF LOUISIANA

Mr. CASSIDY. Thank you.

Clearly our problem in our economy right now is unemployment, and we know that that unemployment is disproportionately focused upon blue collar workers. Those workers have traditionally been employed in mining, manufacturing, and construction. Now, I think

we are all encouraged that the renaissance in mining in North American energy assets—fossil fuel in particular—have led to a renaissance in manufacturing, as recently discussed in the New York Times, CNN, Money, and elsewhere.

Now, this is fantastic and if we take it as a moral imperative to increase blue collar prosperity, then I almost see it as a primary variable we should take it as the moral imperative to develop our domestic energy resources. My concern is that much of what has happened has happened despite Federal efforts, which have been actively inhibitory of bringing those domestically or those North American resources to the benefit of our blue collar workers.

So, Mr. Secretary, I thank you for being here. I look forward to the discussion and ask you specifically to address really what appears to be a hostility towards fossil fuels, which inevitably raise input cost, which will inevitably put a damper on this renaissance in blue collar employment in manufacturing.

I now yield to Mr. Kinzinger.

OPENING STATEMENT OF HON. ADAM KINZINGER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. KINZINGER. Well, thank you. And thank you for coming in and joining us. I want to thank the administration for the enactment of the Colombia Free Trade Agreement, which I think was very important.

I am concerned, Mr. Secretary, with the state of our economy and the state of U.S. manufacturing as well. The March Manufacturing Output Index slipped to .2 percent from .8 percent, which is a dangerous sign in my mind that our economy is slowing due to high cost of transportation.

It is clear when I am home in Illinois that what manufacturers are asking of the Federal Government—they want a fair and competitive tax code, they want less intrusion from Federal agencies, and they want a sound supply of affordable energy. They simply want a level playing field to be able to compete with other countries overseas. I hope that you will be able to discuss some of the work you are doing to make America competitive again.

And with that, I guess I will yield back.

Mrs. BONO MACK. I thank the gentleman and now we will turn our attention to the panels. We have two panels of witnesses joining us today. Each of our witnesses has prepared an opening statement that will be placed into the record. Each of you will have 5 minutes to summarize that statement in your remarks.

On our first panel we have the Honorable John Bryson, Secretary for the United States Department of Commerce. Good morning, Secretary Bryson. It has always been a pleasure to work with you. As a fellow Californian, we have had a long history together. I welcome you to our subcommittee and I am very thankful that you are here. We look forward to working with you closely on this and many other important issues. You will be recognized, as I said, for 5 minutes. To help you keep track of time, the timer is right in front of you. When it turns yellow, you will have 1 minute to try to sum up if you could. Please remember to turn the microphone on and bring it close to your mouth so the audience at home

can hear your remarks. And with us again, welcome, Mr. Secretary. You are recognized for 5 minutes.

STATEMENT OF JOHN E. BRYSON, SECRETARY, DEPARTMENT OF COMMERCE

Mr. BRYSON. Thank you, Chairwoman Bono Mack. We have worked together for many, many years. I appreciate working with you here on this.

Mrs. BONO MACK. Especially if you are complimenting the chairman, it is a good thing to have the microphone very close to your mouth.

Mr. BRYSON. How is that?

Mrs. BONO MACK. Much better. Thank you.

Mr. BRYSON. All right. So I said thank you to the chairwoman and now to the Ranking Member Butterfield and to all of you, the members of this subcommittee. We thank you for your support for the incredibly diverse array of manufacturers in your districts and throughout the United States. Today, I am pleased to provide an overview of the administration's efforts to support manufacturing.

After a decade in which we lost six million manufacturing jobs, as you know and some of you touched on this, we are now seeing positive momentum in U.S. manufacturing. Over the past 25 months, our manufacturers have created nearly half a million jobs. So that is the best streak in the United States since 1995. And 120,000 of those came just in the last 3 months.

I travel widely visiting manufacturers. Last week, I saw this firsthand in Tennessee. For example, I saw there a new, just-constructed one million square foot Whirlpool facility. It is now the largest cooking product facility of its kind in the world, extraordinary. And these examples are important because manufacturing jobs tend to be high-paying jobs with good benefits for middle-class working families.

And manufacturing is truly key to America innovation and competitiveness. Manufacturing accounts for 70 percent of our private sector R&D, 90 percent of our patents, and 60 percent of our total exports, including a record 1.3 trillion in goods exported last year. So today, I think we all agree need to build on this moment. And I heard it in your comments. After all, if we lose the ability to turn American ideas into American products, if we lose that, our innovation chains would break and we would lose our long-term capacity to compete and create jobs.

As you have seen in my written testimony, we are focused on four key areas at the Commerce Department. I will touch on these quickly. First, promoting innovation and protecting intellectual property; second, establishing regional manufacturing partnerships; third, promoting investment and trade; and fourth, providing information and analysis on the manufacturing sector.

On a broader scale, the President has laid out a number of proposals to support U.S. manufacturing. For example, he has proposed that we reform our corporate tax code for the first time since the 1980s. This would lower the effective rate for U.S. manufacturers to 25 percent. Also, through the Commerce Department at NIST, the National Institute of Standards and Technology, the new budget, the 2013 budget requests $1 billion for a national network

of manufacturing innovation. And this would help maximize the industry strengths in each of our U.S. regions. I will comment on that later if you would like to go into that.

Overall, our focus at the Commerce Department is powerful and sharp. The way we express it is build it here and sell it everywhere. Manufacturing—build it here, sell it everywhere.

I want to close by thanking you for continuing to support a vibrant and dynamic manufacturing base. Thank you for passing H.R. 4105, the bipartisan GPX legislation. This allows our manufacturers to challenge and seek relief from unfairly subsidized products entering our market. Efforts such as these will help strengthen our recovery, create more jobs, and ensure that American manufacturing continues to lead in the 21st Century.

I am pleased now to take your questions.

[The prepared statement of Mr. Bryson follows:]

Testimony of Commerce Secretary John E. Bryson
Before the House Energy and Commerce Committee
Subcommittee on Commerce, Manufacturing, and Trade
Where the Jobs Are: Can American Manufacturing Thrive Again?
April 19, 2012

Introduction

Thank you Chairwoman Bono Mack, Ranking Member Butterfield, and members of the Committee for inviting me here today to talk about the Department of Commerce's lead role in advancing President Obama's manufacturing agenda.

A robust manufacturing sector is vital to the U.S. economy. It currently provides 12 million American jobs, accounts for the bulk of U.S. exports, drives technological innovation, and strengthens national security.

Manufacturing plays a unique role in supporting working families and the middle class. In general, manufacturing jobs are more likely to be full-time, provide good benefits, and pay significantly more than other jobs. The Bureau of Labor Statistics reports that total hourly compensation in the manufacturing sector is, on average, 20 percent higher than that in the service-providing sector. Even after controlling for education and skill level, manufacturing wages are still 8.5 percent higher than other sectors of the economy, according to a recent Brookings study.

The manufacturing sector is also a key component to our economic and national security. Manufacturing is the largest contributor to U.S. exports. In 2011, the United States exported nearly $1.27 trillion of manufactured goods, which accounted for 86 percent of the value of all U.S. goods exports and 60 percent of U.S. total exports.[1] However, even with a trade surplus in the services sector, we need a faster growing manufacturing sector to begin to reduce our trade deficit.

Further, we must maintain the ability to domestically produce the advanced defense systems needed by the modern military as well as ensure that we have sufficient capabilities to domestically source critical infrastructure components, from communications equipment to power generation, to protect ourselves against potentially catastrophic supply chain disruptions. In a networked world, secure supply chains are increasingly essential.

Manufacturing also plays in an outsized role in driving innovation. Manufacturing companies in the United States account for 70 percent of private sector research and

[1] The value of total exported manufactured goods includes $174 billion of "reexports," defined as imported merchandise that, at the time of exportation, is in substantially the same condition as when imported. "Reexports" are also included in the total exports (the denominator).

development (R&D) and employ the majority of domestic scientists and engineers. Manufacturing R&D is also the dominant source of innovative new technologies that are adopted into the service sector.

For all these reasons, the President has made American leadership in manufacturing a top priority of the Administration. When I set out my priorities as Secretary, I was determined to harness the great potential of the Commerce Department to be even more effective in driving advanced manufacturing, exports and business investment. My goal as Secretary of Commerce is simple—to help American businesses build it here and sell it everywhere.

American Manufacturing Is Coming Back

Manufacturing has historically been a backbone of the American economy, but the sector has experienced significant challenges over time, but particularly over the last decade. Despite continued output growth, manufacturing as a share of U.S. GDP, manufacturing has declined from 27 percent in 1957 to just over 11 percent by 2008. While manufacturing employment has faced a similar decline on a relative basis, the actual number of Americans employed in manufacturing was the same in the 1965 as it was in 1999. But over the last decade, in a real break from the past, the manufacturing sector lost about a third of its total workforce and the impact of this absolute decline in manufacturing employment has been acutely felt in many communities across the country. Significantly, this decline has not just been in low-wage jobs. As the President's Council of Advisors on Science and Technology (PCAST) notes, the United States has also lost sophisticated engineering and advanced manufacturing jobs.

But the declines over the last decade in U.S. manufacturing are showing signs of reversing. Over the past 24 months, the manufacturing sector added 458,000 jobs. Manufacturing as a percentage of GDP rose between 2009 and 2010, reversing a five-year decline. More companies, U.S. and foreign, are expanding their U.S. production. And more U.S. companies are making the decision to bring manufacturing jobs back to the United States. Why? Companies are realizing that the United States remains the best place in the world to invest and manufacture. Costs of production, energy and transportation in the U.S. are very competitive. We have a strong and stable workforce, a reliable legal system, and very strong IP protection.

Importantly, President Obama has taken bold steps to accelerate this resurgence.

In the year before the President took office, the American auto industry lost 400,000 jobs. Chrysler and GM were facing liquidation. Independent forecasts projected that if these companies failed, more than one million jobs could have been lost.

The President made the difficult decision to offer financial support when there were no willing private sector investors and in return required hard sacrifices by all stakeholders as part of a corporate restructuring. Today, the auto industry is coming back. Since

Chrysler and GM emerged from bankruptcy in June 2009, the American auto industry has added more than 200,000 new jobs. GM is again the number one automaker in the world in terms of sales, Chrysler is the fastest growing major car company in the U.S., and Ford has committed to $16 billion in new investment and 12,000 jobs over the next several years.

Since coming into office, the President has signed into law many tax cuts that support American manufacturing. For example, the President signed into law a provision for 100 percent depreciation last year – allowing businesses, both large and small, to immediately write off 100 percent of the costs of new investments in plants and equipment in the United States. .

The President has also laid out a proposal to reform our corporate tax code for the first time in decades – lowering the effective rate for U.S. manufacturers to 25 percent while closing many loopholes. The proposal also includes expanding, simplifying and making permanent the research and experimentation tax credit which is so critical to our manufacturers. This package also includes rewarding businesses that keep jobs in the United States while ending tax incentives for corporations that move jobs abroad.

The Administration has also focused on opening markets to exports of American-made products and services. After making improvements to pending trade agreements with Korea, Colombia, and Panama – to ensure that American workers were getting a fair deal – the Administration worked with Congress to secure support for their passage. The U.S.-Korea Trade Agreement is already in effect. The President announced on Sunday (April 15) that the agreement with Colombia will go into effect on May 15, and we are now working closely with Panama to ensure the requirements laid out in the agreements are met and implemented as quickly as possible.

The Administration is also increasing investment in foundational public goods critical to manufacturing competitiveness, such as education and workforce training, infrastructure and basic research which I will not detail here. A recent report from the Commerce Department, *The Competitiveness and Innovative Capacity of the United States*, provides analysis of these issues.

One of the President's recent actions in support of his manufacturing agenda was to name me co-chair of the White House Office of Manufacturing Policy (OMP) along with Gene Sperling, Director of the National Economic Council. The purpose of the Office is to ensure effective coordination of manufacturing policy implementation and to serve as a resource for all federal agencies to coordinate manufacturing activities. This "Manufacturing Cabinet" held its first meeting on January 20, and we are now more focused and driven than ever before. Agencies have stepped up their efforts to collaborate on efforts focused on advanced manufacturing and support for small and medium manufacturers.

The Commerce Department is helping to lead the Administration's manufacturing agenda. We have grouped our programs and initiatives around four strategic objectives.

They are:

- Promoting innovation and protecting intellectual property;
- Establishing regional manufacturing partnerships;
- Promoting investment and trade; and
- Providing information and analysis on the manufacturing sector.

Promoting innovation and protecting intellectual property

Manufacturing is Key to an Innovation Economy

I am pleased that the national discussion surrounding manufacturing has highlighted the need for a coherent innovation policy that will ensure the United States remains a technological leader. A critical component of an innovation policy is the link between new ideas and the manufacture of new products with new processes. Through thoughtful analysis by groups such as PCAST and the National Science and Technology Council, this Administration has shown that we cannot focus only on the invention and innovation of new products and leave the actual production to other countries. In many industries and technologies, production and innovation are inextricably linked.

Our innovative capacity as a nation hinges on our capacity to manufacture.

Advanced Manufacturing

Advanced manufacturing – the set of manufactured goods that rely on rapid innovation and use of the newest technologies – are critical to American competitiveness. The Commerce Department has a long history of working with these manufacturers directly. We play an important role in funding research and development and our labs have a history of generating key fundamental measures and standards that have enabled the development of new generations of products and services such as GPS technology. We also support advanced manufacturing by protecting intellectual property so that individuals and businesses can invest in their new ideas with confidence. However, in order to better serve this crucial manufacturing sector in the 21st century, we are stepping up our game.

The Advanced Manufacturing Partnership

In June 2011, the President announced the formation of the Advanced Manufacturing Partnership (AMP), a national effort bringing together industry, universities, and the Federal Government to invest in the emerging technologies that will create high quality manufacturing jobs and enhance our global competitiveness. The President established the AMP Steering Committee, comprised of leading experts from industry and academia, to provide guidance to the Administration. This Steering Committee will soon present its recommendations to the President through the PCAST.

To implement the AMP Steering Committee recommendations and facilitate ongoing collaboration and information sharing across federal agencies, Commerce is hosting a new Advanced Manufacturing National Program Office (AMNPO) at the National Institute of Standards and Technology (NIST). This inter-agency effort will initially

operate with participation from the Departments of Commerce, Defense, and Energy and the National Science Foundation and coordinate closely with the White House Office of Science and Technology Policy through the National Science and Technology Council.

The AMNPO will also plan for the implementation of the new National Network for Manufacturing Innovation. In FY 2013, the Administration proposes to make a one-time $1 billion mandatory spending investment to catalyze the creation of a network of up to 15 institutes to foster innovation and accelerate technological advancements in manufacturing. These institutes will bring together researchers, companies, and entrepreneurs to solve problems in pre-commercial advanced manufacturing technologies that will support investment and U.S. leadership in advanced manufacturing. These institutes will also serve as a place where smaller manufacturers can scale up production processes by accessing state-of-the-art equipment and where workers and students can receive training and education in the latest manufacturing technologies. Like many of our manufacturing initiatives, this new program would be a collaborative effort across four federal agencies, Commerce with the Department of Defense, the Department of Energy, and the National Science Foundation (NSF).

I look forward to working with you on legislation that can support the National Network for Manufacturing Innovation. This new proposal fills an important gap in our innovation system, leverages our unique strengths as a nation, and can help us compete for the advanced manufacturing investment that will make us successful in the decades to come.

The President announced on March 9, 2012, that the Administration will launch a Pilot Institute for Manufacturing Innovation. This Pilot Institute will serve as proof-of-concept for the National Network for Manufacturing Innovation. It will draw on existing resources and authorities of the same agency participants--Departments of Commerce, Defense, and Energy, and the NSF. A consultative process leading to a solicitation and an award for the Pilot Institute will occur over the next few months. Additive manufacturing has been identified as the technology focus.

R&D and Measurement

In FY13, NIST is funding $135 million in its programs to directly address R&D and measurement challenges in the area of advanced manufacturing. These programs target nanomanufacturing (including flexible electronics), biomanufacturing, smart manufacturing (including robotics), and next-generation materials measurements, modeling, and simulation. Through these efforts, NIST is providing the R&D and measurement infrastructure necessary to support manufacturing in a number of areas, including the automotive industry, computers and advanced electronics, machine tools, chemicals, and biopharmaceuticals. The outputs of NIST's investment include new performance metrics, measurement and testing methods, predictive tools, protocols, technical data, reference materials, calibration services, and inter-comparison studies. Industry and academia utilize the outputs in product development and further research. NIST's investments are part of our government-wide effort to increase investments in advanced manufacturing R&D, and enhance coordination and collaboration across

agencies.

Implementing 21st Century Intellectual Property (IP) Protection
Advanced manufacturing is largely driven by innovation in IP-intensive industries, and these industries require access to well-defined IP rights (IPR) and effective enforcement in order to fuel economic growth and create jobs. In fact, a report recently released by the Department of Commerce shows that most IP-intensive industries are adding jobs at a much faster rate than the rest of the economy.

The bipartisan America Invents Act (AIA) signed into law last year is already strengthening the U.S. IP system by making it easier for enterprises of all sizes to fund, develop and protect their innovations and bring them to market sooner. The new system is also more flexible. For example, individuals and businesses can pay a little more and opt-into a "Track 1 program" that enables a patent to be examined within 12 months. This faster processing is particularly critical for advanced manufacturing technologies. Over the past three years, leadership at the United States Patent and Trademark Office (USPTO) has overseen a reduction in the backlog of unexamined patent applications by more than 100,000, allowing all users of the patent system to move ideas to market more quickly.

The Act also enhanced the current "Prior User Rights" defense to infringement actions, to allow manufacturers who adopt technology *first* to continue making products that predate a patent application filed *later* by another party. Moreover, since the prior user rights defense is available in many foreign jurisdictions, the AIA helps level the playing field for U.S. industries against foreign competition. Prior to enactment of AIA, competitors abroad could undermine American companies who invested in a technology, while being protected from similar practices by prior user rights in their home country. Enactment of this historic patent reform law removes that imbalance.

The USPTO is also working to increase outreach to individuals and companies. In collaboration with NIST, they have developed a new IP Awareness Assessment tool that educates inventors and small businesses on the different IP protection strategies at their disposal in order to help them develop their IP portfolios. This incentivizes the creation of new product lines *here* in the United States—which subsequently spurs follow-on manufacturing and jobs.

Establishing regional manufacturing partnerships

Working Directly with Manufacturing Firms
NIST's Hollings Manufacturing Extension Partnership (MEP) program has a tremendous track record of success and an enviable return on investment. MEP client surveys indicate that for every one dollar of federal investment in MEP, American manufacturers generate approximately $30 in new sales growth; translating into $3.6 billion in new sales annually. In FY2010, the program resulted in over 19,000 new jobs created, and over 40,000 jobs retained, according to the clients themselves. MEP's winning formula of being knowledgeable on the ground, and partnering with those in the know, results in

added sales, stronger companies, and more competitive small and medium-sized manufacturing businesses.

NIST/MEP works with small and mid-sized U.S. manufacturers to help them create and retain jobs, increase profits, and become more efficient, and therefore, more competitive. The nationwide network provides a variety of services, from innovation strategies to process improvements to green manufacturing. MEP also works with partners at the state and federal levels on programs that put manufacturers in touch with the resources that can help them develop new customers, expand into new markets, and create new products.

MEP's field staff of over 1,300 technical experts – located in every state – serve as trusted business advisors, focus on solving manufacturers' challenges, and identify opportunities for growth. MEP offers its clients a wealth of unique and effective resources centered on five critical areas: technology acceleration, supplier development, sustainability, workforce and continuous improvement. By placing innovations—both product and process—directly in the hands of U.S. manufacturers, MEP serves an essential role in sustaining and growing America's manufacturing base.

The MEP program also houses the National Innovation Marketplace (NIM), which connects manufacturers to technology and business opportunities resulting in new markets and new products. For example, MEP will be using the NIM in its partnership with the U.S. Department of Transportation Federal Railroad Administration to connect domestic suppliers with rail equipment manufacturers in order to maximize domestic content in the rail sector. MEP's field staff, working with their state and local partners and with original equipment manufacturers (OEMs), can help identify potential domestic suppliers for rail equipment components, which is a critical step in reestablishing a domestic manufacturing base and creating American jobs to support the rejuvenation of rail transportation in the U.S.

The Advanced Manufacturing Jobs and Innovation Accelerator Challenge, which will soon be issued, will provide coordinated, complementary investments from the Department of Commerce's Economic Development Administration (EDA) and NIST, the Departments of Energy and Labor, the Small Business Administration, and the National Science Foundation, to assist the development and implementation of regionally-driven economic development strategies that will support advanced manufacturing activities and cluster development. Academic studies have highlighted the important economic benefits of clusters, particularly in manufacturing industries. The challenge will provide catalytic funding for competitive, high-potential regional partnerships that accelerate innovation and strengthen capacity in advanced manufacturing. The investments will also assist entrepreneurial development in disadvantaged communities. This challenge will support the objectives of the President's Advanced Manufacturing Partnership and National Strategic Plan for Advanced Manufacturing and build on earlier Administration efforts to provide a coordinated approach to support regional economic strategies.

EDA's Matchmaking Tool

To support today's advanced manufacturers we need the physical capacity to establish businesses quickly and build things competitively. Currently hundreds of millions of square feet of commercial, industrial and manufacturing space sits idle due to plant closures. EDA's mission is to help turn those empty sites into thriving, productive facilities of advanced manufacturing. EDA seeks to design a system to match companies in need of production facilities and related support services with the vacant space that best corresponds with their needs. This new tool will be a valuable resource for domestic companies looking to expand as well as foreign companies exploring the North American market.

Supporting Minority-Owned Manufacturers

Our Minority Business Development Agency (MBDA) has a longstanding history of working with minority-owned firms in the manufacturing arena through its network of MBDA Business Centers around the country, particularly in heavy manufacturing regions such as the Great Lakes region and the Southeast. MBDA Business Centers provide technical assistance to minority business owners consistent with their growth strategies to secure contracts and capital along with market penetration and expansion through exports. Over fiscal years 2009 and 2010, MBDA was able to assist minority-owned manufacturing firms in successfully securing nearly $200 million in public and private sector contracts.

Expanding Outreach to New Communities

In the spirit of working as "One Commerce," we are asking our bureaus to think creatively about how they engage their constituencies. For example, the National Oceanic and Atmospheric Administration (NOAA) works closely with industries such as renewable energy, marine transportation and boating, science observation and instrumentation, and fishing equipment. NOAA is now working to build relationships between those key industry groups and other Commerce bureaus, as well as other Federal Agencies. To illustrate: In 2012, NOAA will coordinate a White House conference focused on manufacturing of recreational fishing boats and equipment. The conference will be planned for the fall in partnership with the National Marine Manufacturers Association.

Developing Digital Infrastructure That Empowers Communities

The National Telecommunications and Information Administration's (NTIA) $4 billion Broadband Technology Opportunity Program (BTOP) is a substantial effort the Department has underway to expand our nation's high-speed digital infrastructure to communities nationwide. The awards include major investments in broadband infrastructure to provide connectivity that will give manufacturing-based businesses, both large and small, better access to national and international markets, skilled employees, and a broader array of vendors, suppliers and customers.

For instance, MCNC, a nonprofit broadband provider that has operated the North Carolina Research and Education Network (NCREN) for more than 25 years, is using BTOP funds to deploy or upgrade 2,600 miles of fiber in rural areas across the state. MCNC's project is already creating construction jobs and jobs for local manufacturers

and vendors such as CommScope in Hickory, N.C., which is supplying fiber and other materials. It is also laying the groundwork for economic revitalization in places such as Kannapolis, N.C., a former textile mill town that is reinventing itself as a biotechnology and life sciences hub.

In a very real sense, the Department's focus on maximizing spectrum for wireless innovation and services and expanding broadband infrastructure nationwide are essential investments to enable America's manufacturers to compete and grow their businesses both at home and worldwide.

Promoting investment and trade

NEI and trade enforcement

In the 21st century, a competitive manufacturing sector operates on a global scale. This means that U.S. producers must be able to put together the right combination of skilled workers, technologically advanced capital, logistical and information technology systems, and superior quality processes in order to make a product at a price that appeals to customers at a given location. The more locations where they can meet the price/quality bar, the wider their customer base will be. The efforts described above detailing Commerce support of advanced manufacturing help companies achieve their price/quality goals. However, additional Commerce services are helping companies as they search for buyers in other countries.

U.S. businesses are not exporting nearly as much as they could. Currently, only about one percent of U.S. businesses export, and most only to one country. Many American companies would like to export, but are unsure how to start. Small businesses in particular often face big challenges when it comes to getting export financing, building relationships with foreign suppliers, and dealing with unfamiliar foreign rules and regulations. President Obama's National Export Initiative (NEI) is an Administration-wide commitment designed to help businesses overcome these hurdles, and the Commerce Department has played a central role in these efforts. In fact, U.S. companies increased their exports to record levels in 2011, totaling over $2.1 trillion, nearly 34% above the level of exports in 2009, putting us on track to meet the challenging goal to double American exports by the end of 2014.

Our International Trade Administration (ITA) is focused on helping American companies sell their products and services to the 95 percent of the world's consumers who live beyond our borders. We are engaging foreign governments to eliminate foreign trade and regulatory barriers to our exports, advocating to foreign governments the purchase of U.S. products in public tenders, and vigorously enforcing our trade rules. ITA helps level the playing field for U.S. manufacturers of all sizes to grow their export markets. Additional help is offered to small or medium exporters looking to expand into additional export markets.

Our manufacturers also look to the Administration to go to bat for them when our foreign

trade partners do not play by international rules. That is why, in his State of the Union Address, the President called for increased efforts to investigate unfair trading practices in countries around the world, including China. In February, the President carried through on that commitment through the establishment of the Interagency Trade Enforcement Center (ITEC), which will level the playing field for U.S. manufacturers by bringing a more aggressive "whole-of-government" approach to trade enforcement. The ITEC will devote more personnel and resources to facilitating our engagement through the World Trade Organization, and better utilizing our domestic trade enforcement authorities.

I want to take this opportunity to thank you and your colleagues in Congress for your efforts in maintaining the strength of our trade laws. Congress' passage of GPX legislation has ensured that U.S. manufacturers can challenge and seek relief against unfairly subsidized or dumped products entering the U.S. market. Failure to pass this legislation would have put at risk tens of thousands of U.S. workers in manufacturing companies across the United States.

Equally important for our exporting manufacturers, however, is Export-Import Bank's reauthorization and Jackson-Vanik's revocation as it applies to Russia. Without Congressional action on both, our exporting manufacturers will be at a competitive disadvantage.

Select USA and business investment
Commerce's efforts to support advanced manufacturing and aid exporters help attract and retain business investment. The Commerce Department and the Administration are focused on doing even more in this area by expanding a new initiative, SelectUSA, and being strategic with our economic development dollars administered by the Economic Development Administration (EDA).

SelectUSA was established by Executive Order on June 15, 2011. It is the first Federal effort designed with executive authority to support foreign and domestic business investment in the United States. It showcases the United States as the world's premier business location, complementing the activities of states and regions—the primary drivers of economic development—to spur economic growth and job creation. SelectUSA coordinates existing resources and functions across all Federal agencies that have operations relevant to business investment decisions. As a central point of contact within the U.S. government, SelectUSA serves as an advocate and ombudsman for the investor community.

Providing information and analysis on the manufacturing sector

Census Bureau
Finally, I would be remiss if I didn't mention that the Department of Commerce houses two of the premier Federal statistical agencies that provide critical business data, the Census Bureau and the Bureau of Economic Analysis. The Census Bureau collects and

reports on key measures that are used in business decision-making every day. These include estimates of exports, imports, population trends, retail sales, and industry output. The Census Bureau is currently conducting its every-five-years Economic Census, which surveys all American businesses and provides the best available information on business size and sales by industry and by product.

Bureau of Economic Analysis
The Bureau of Economic Analysis aggregates data from both private and public sources to produce the national income accounts, which allow us to track economic growth in the aggregate and by industry sector. These data are invaluable in understanding how American manufacturing is changing and in guiding business investment decisions.

Conclusion
Build it here. Sell it everywhere. This is how the United States became the world's greatest economic power in the 20th century. An innovative, vibrant, and dynamic manufacturing sector is needed for America to remain a great economic power in the 21st century.

With the actions I have outlined today and the President's proposals for expanded work in this area, I know we will be able to look back 10 years from now and view this period as the beginning of a true renaissance in U.S. manufacturing.

Thank you for giving me the opportunity to testify today. I look forward to working with you and the Members of this committee to develop policies to continue to strengthen our manufacturing sector.

Mrs. BONO MACK. Thank you, Mr. Secretary. I will recognize myself for the first set of questions.

And my question to you begins with the Manufacturing Council was intended to be a strong voice advising the government of the private sector's views on issues that affect manufacturing, yet that voice is not always heard by the regulatory agencies, most notably the EPA. What can you do to make sure that other Federal agencies pay attention to the needs of American manufacturers?

Mr. BRYSON. Let me address the Manufacturing Council; then I will touch on the EPA point if I could.

Mrs. BONO MACK. Sure.

Mr. BRYSON. So the U.S. Manufacturing Policy Council, which I chair across the entire Federal Government, is a big step to bring all the departments together so that we operate exactly with the same perspective, the same voice. We reduce redundancy, we work across Federal departments—the Department of Defense, Department of Energy, and so on. So I think that is a way to reduce the bureaucracy, to be more productive, to be more efficient.

With regard to the point about EPA and regulation, I can't address specifically the EPA issues, but if I could, I will just touch generally on regulation. I regret I just, you know, don't know the specifics of the EPA regulation very well, but what the President has done and what I strongly believe in—and I hear it all the time and I work with manufacturers a lot—is we have to reduce regulation to the maximum extent we possibly can. And what the President has repeatedly said is we will allow regulation only to the extent it is essential to our economy, the growth in the economy, the national security, and to education. So those are the criteria, and as a consequence, for example, I think it is pretty widely known that the level of regulation and new regulation is less than the first 3 years of this administration than the comparable 3 years in the prior administration. We have to keep working very hard on that.

Mrs. BONO MACK. Thank you, Mr. Secretary. In the sake of time because I know we have a time crunch, I am going to cut my questioning short recognizing that you and I spent a fair amount of time together yesterday and you answered a whole host of my questions. So at this point I am going to yield back my time and recognize Mr. Butterfield for 5 minutes.

Mr. BUTTERFIELD. Thank you.

Mr. Secretary, the steel industry is a major employer in my district employing hundreds of hardworking men and women with solid jobs that they can support their families with. The industry is still recovering from the Great Recession and increased imports of low-priced imports have hampered that recovery.

Specifically, imports of hot rolled steel from Russia have surged into the U.S. market increasing by more than 50 percent between 2010 and 2011. There is a trade agreement covering these imports, and in fact, the Commerce Department and the U.S. International Trade Commission ruled last year that this remedy should stay in place to prevent injury to the industry. However, the remedy is no longer effective in preventing dumping. The pricing mechanism in the agreement is so outdated it literally gives Russian producers a license to dump their steel in the U.S. My constituents brought this to the attention of the Commerce Department and I understand

that you may be currently negotiating with the Russian Government to update the agreement so that it reflects current conditions and is effective in preventing dumping.

Can you give me and my colleagues an update on those efforts? Can you assure me that you will hang tough and make sure the agreement is revised in a way that prevents further injury to the industry and workers? I appreciate you giving this matter the urgency that it deserves.

Mr. BRYSON. We have the responsibility in the Commerce Department to see to it the trade laws are respected, honored and we prosecute many, many cases in which it appears there has been anti-dumping countervailing duties that we needed to impose because subsidies and other means of undermining U.S. manufacturing were being hurt. I don't know the Russia case. I will have to get back on that to you later.

Mr. BUTTERFIELD. Thank you. Please do that. That is a big deal——

Mr. BRYSON. Yes.

Mr. BUTTERFIELD [continuing]. To the steel industry.

Mr. BRYSON. I understand.

Mr. BUTTERFIELD. Mr. Secretary, we have heard all sorts of reasons for why there has been a long-term decline in manufacturing. We have heard it is because of labor costs, we have heard it is because of currency manipulation, we have heard it is because other countries invest substantially more in that sector. The list goes on and on but after reading the New York Times article, "How the U.S. Lost Out on iPhone work," I am not sure these reasons accurately depict the role of overseas workers in the shift away from U.S. manufacturing.

According to the article, one reason manufacturing plants locate in China is the ability to scale up and down so easily. In China, a manufacturer was able to hire 3,000 people overnight and of course it could fire them all 3 weeks later if necessary. It hired 8,700 industrial engineers in 15 days, which could take about 9 months in the U.S. Also, it was given access to a warehouse filled with glass samples free of charge and the engineers were made available at no cost and were staying at onsite dorms to be available 24 hours a day.

Mr. Secretary, we know that we can compete on scale and ideas. Americans are hard workers. When we hear this talk about speed and flexibility, are we really talking about an overseas workforce conditioned to work 12- to 16-hour shifts and live in dorms next to the plant? Is that really what we have in mind?

Mr. BRYSON. Mr. Congressman, I think you raise an extremely important point. We have the responsibility at the Commerce Department to see to it that trade laws are honored. And we take many, many cases and many cases relative to China in which we go forth with that. So to give you a little background on what we do—and let me start with a special thanks to this Congress—GPX, that was an action that you took at the request of the President and we were deeply involved as the Commerce Department to see to it that the tens of thousands of American jobs in the 38 States that were being attacked by, we believe, unfairly subsidized imports in non-market economy countries—China would be one of

those—and you passed the legislation out at our request and it puts us in this position. Several things we have done plus now the protection of those steps, we have, as of February 2012, 283 anti-dumping countervailing CVD orders in place, which puts tariffs on 120 products. So there is a lot more to do.

For example, in March the administration recently filed a case in China's exports on rare earth. It is a violation we believe of the World Trade Organization rules. It is a policy designed by China to force manufacturing to relocate to China and to limit foreign competition. So we have to keep doing that. We do it with a very capable and large team of people and these things are done under U.S. law and U.S. requirements.

Mr. BUTTERFIELD. Thank you.

Mrs. BONO MACK. Thank you, Mr. Butterfield.

And the Chair now recognizes Mr. Stearns for 5 minutes.

Mr. STEARNS. Thank you, Madam Chairwoman.

Mr. Secretary, I come from this a little perhaps differently than you. You talked in your opening statement about an energy plan. The energy plan that I think you and the administration supports is based upon using solar panels, wind panels, solar thermal devices and things like that. so it seems to me if we are talking about where are the jobs, if we use our natural resources in this country—fracking of gas, oil and shale, burning clean coal, offshore drilling, ANWR, the Keystone pipe—all those things would create a plethora of new jobs. And towards that end, I think that is where we come from a different perspective here.

I read in a quote in the L.A. Times recently that you support the reauthorization of the Export-Import Bank. Is that true? And I think that is in your statement here that you are asking for Congress to continue to reauthorize it. That is true?

Mr. BRYSON. Yes, it is.

Mr. STEARNS. Yes. Now, one of the things I have with that is that when I look at their annual report, they gave $10 million loan guarantees to Solyndra, and I chair the Oversight and Investigation Committee on Solyndra and I found, you know, that the due diligence of the Export-Import Bank was negligible, and of course, the Department of Energy did not do their due diligence and they went bankrupt. And I guess the question is is there any guarantee that the American people would have that the Export-Import Bank when they go to companies like Solyndra and others that are involved with this idea of wind panels and solar panels and things like that, what confidence do we have that the Export-Import Bank will do their due diligence again?

Mr. BRYSON. So let me start within the Solyndra question you are raising——

Mr. STEARNS. No, it is not so much Solyndra. It is just that you are recommending the Export-Import Bank provide more money and lots of it is going to these companies like Solyndra so I think you should be aware that before you ask us to do this, there should be due diligence and caution the Export-Import Bank to be careful about giving out money without being sure that it is kind of worthwhile. Does that make sense?

Mr. BRYSON. The Export-Import Bank plays a very big role in exports.

Mr. STEARNS. No, I understand that. But the point is they gave Solyndra $10 million without due diligence. I just want make sure it doesn't happen—let me go on. Let me ask you another question.

You have been chairman of the board of BrightSource Energy, is that correct?

Mr. BRYSON. I was for a time, yes——

Mr. STEARNS. Yes.

Mr. BRYSON [continuing]. For about 9 months.

Mr. STEARNS. Now, that is another company that, you know, this goes into my idea of developing jobs in this country could be done through our natural resources and not, you know, feathering up a lot of these solar panels and solar thermal and wind turbines. For example, when you were the CEO of that, didn't that get $1.6 million from the Department of Energy?

Mr. BRYSON. I am sorry. When I was the CEO—I didn't get the last part of your question. I was the CEO——

Mr. STEARNS. I was told that the loan guarantee to the company that you were CEO was $1.6 million—billion rather, but I don't think you got all that. Do you remember how much of that that you got?

Mr. BRYSON. I am afraid I don't.

Mr. STEARNS. OK. I understand. I understand. Do you remember anything about the loan guarantee that the Department of Energy gave the company that you were CEO, BrightSource? Do you remember that at all?

Mr. BRYSON. I——

Mr. STEARNS. Just yes or no.

Mr. BRYSON. I will check, but I——

Mr. STEARNS. OK.

Mr. BRYSON. I don't believe my company had—you are talking about when I was the CEO of——

Mr. STEARNS. BrightSource. It says the Department of——

Mr. BRYSON. Oh, BrightSource. So that——

Mr. STEARNS. Yes, when you were CEO——

Mr. BRYSON. That was not the company that I was——

Mr. STEARNS [continuing]. Of BrightSource.

Mr. BRYSON [continuing]. Ever the CEO. That was after I had stepped down for Southern California Edison, the major electric utility in Southern California and the parent company of which I——

Mr. STEARNS. No, but at the time of your nomination to the Secretary of Commerce on May 31, 2011, you were chairman of the board of BrightSource Energy——

Mr. BRYSON. Yes.

Mr. STEARNS [continuing]. Isn't that correct?

Mr. BRYSON. That was that 9-month period, yes.

Mr. STEARNS. OK. So my question is——

Mr. BRYSON. Chairman, not the CEO——

Mr. STEARNS [continuing]. Do you remember getting——

Mr. BRYSON [continuing]. I was on the board, yes.

Mr. STEARNS [continuing]. $1.6 billion from the Department of Energy when you were CEO. Do you remember that? Yes or no. If you don't, that—I mean I guess the real larger question is this idea of——

Mr. BRYSON. The answer is no, I don't.

Mr. STEARNS. You don't remember?

Mr. BRYSON. I don't.

Mr. STEARNS. So the real question is we are giving money to a lot of companies that are being provided loan guarantees, they are going bankrupt—Abound, Beacon. I mean the list goes on. And yet we are talking about jobs. If we gave jobs to the natural people where the resources are, we would have unemployment down where it is in South Dakota, North Dakota, Montana would be down to almost zero. And I guess when you are talking about Department of Energy getting $1.6 billion, that is a lot of money. And I am sure you are aware in announcing this, when I look at these companies, the jobs they create are negligible. And I guess the question would be when you as a CEO of BrightSource Energy got all this money, how many jobs did you create?

Mr. BRYSON. I was never the CEO of BrightSource. I was never, ever, ever——

Mr. STEARNS. You were chairman of the board, excuse me. You were the chairman of the board. Yes.

Mr. BRYSON. I was chairman of the board, yes.

Mr. STEARNS. And chairman of the board, the question is how many jobs were created by this $1.6 billion loan guarantee? And that is sort of what all of us are concerned about because we are spending all these taxpayers' money, and they are either going bankrupt, holding on just by a thread, and yet we are not creating any jobs.

So thank you, Madam Chair.

Mrs. BONO MACK. I thank the gentleman. Time has expired.

The chair now recognizes Mr. Sarbanes for 5 minutes.

Mr. SARBANES. Thank you, Madam Chair.

Thank you for being here, Mr. Secretary, obviously a very important issue for us. And I want to commend the administration and you and other Cabinet-level officials for the commitment and I think much more coordinated commitment to reviving American manufacturing.

I am very focused on some of the special initiatives that have been undertaken at NIST. You referenced NIST in your comments. In particular there is the Manufacturing Extension Partnership, which I know you are familiar with. Within that in the last couple of years there has been a special outreach effort called the Supplier Scouting Initiative. And I don't know if you are familiar with that or not, but basically, the idea there is to work harder to find a match between these contracting opportunities with the Federal Government and domestic manufacturers and suppliers and vendors so that we don't have as many instances where somebody is applying or asserting that a waiver should be granted from, say, a Buy American provision—excuse me—because in fact if you look a little harder and you get the word out and you are more affirmed in the outreach, you can in fact find American manufacturers and suppliers, you can do the job so you don't have to deploy these waivers and so forth. And obviously, it is better in terms of creating jobs.

I wondered if you could speak to the potential of that kind of outreach. I mean it goes to the question of, you know, doing better

with creating clearinghouses of information that can connect these opportunities in the Federal Government with the suppliers that are out there. And you can speak to the Supplier Scouting Initiative if you have some knowledge of it or you could speak more generally to these efforts that we need to make to connect the dots for people and also if you have a sense of which agencies among the Federal agencies are doing the best job. I have been impressed with the Department of Transportation's efforts, and Secretary LaHood has within sort of discretionary authority to be more affirmative. He has really stepped up and done that and maybe you have some impressions as well of that agency's work and some of the others across the Federal platform that are trying to really reach out and bring in those American manufacturers.

Mr. BRYSON. I can give you an initial response. I am only slightly informed about the Supplier Scouting portion of this. That is new. It is done across several departments as you are suggesting. Let me start with the Manufacturing Extension Partnership Centers. They are in all 50 States. I think what you are affirming is they have made an enormous difference in the development particularly of small- and medium-sized manufacturing businesses because they work with those businesses and they work, for example, in training programs that are in support of those businesses. And we increasingly strengthen our manufacturing base through this Manufacturing Extension Partnership.

Once again, manufacturing, we have this goal. Make it here, sell it everywhere, and the Scouting Initiative, as I understand it, it is one that has worked as you are suggesting—and I don't know the Department of Transportation case—but has been valuable in working over other Federal agencies and has potential value that we would like to move forward, but I will get back to you on—we have not done this yet to my knowledge, so I believe what is going on at NIST right now is further work on taking that kind of an initiative.

Mr. SARBANES. Well, I am very supportive of it and we want to avoid looking back from the future and having vendors and subcontractors and other American manufacturers out there when they are told that an agency said, well, we couldn't find anyone who could fill this niche or do this job and then you have a whole bunch of folks who would raise their hands and say, well, we were there; we could have done it.

Mr. BRYSON. Yes.

Mr. SARBANES. But we didn't know, the effort wasn't made, and so I think there are things underway that will bridge that gap. The Scouting Initiative is certainly one of them. There are others and I commend the agencies that are moving forward with it.

And I yield back. Thank you, Madam.

Mrs. BONO MACK. I thank the gentleman.

Mr. BRYSON. I am 100 percent firm we want it done here in the U.S. We want it done at all levels right here in the U.S. I agree. Excuse me.

Mrs. BONO MACK. I thank you.

And I am going to recognize Mr. Harper for 5 minutes, but before you start, I just want to remind Members that the Secretary has to be out of the door by 12:15 to catch a plane and I know we are

all sympathetic to that. So if you could be judicious with your time in hopes that we can give every Member an opportunity to ask their questions.

Mr. Harper, you are recognized for 5 minutes.

Mr. HARPER. Thank you, Madam Chair.

Thank you, Mr. Secretary, for being here. Now that I have 3 minutes it appears instead of 5 I will try to move through this as quickly as I can, but thank you for your attendance today and appreciate your time here.

And, you know, I am very fortunate in my district to have a very aggressive economic development university in my district in Mississippi State University. They realized a long time ago that a major land grant institution, you know, can serve as a strong catalyst for a lot of economic development from generating spinoff advanced manufacturing companies from research but also assisting in attracting major industry into the State by providing that cutting-edge research that is available. And it benefits not only the university and the State but private industry as well.

And you mentioned the Advanced Manufacturing Partnership, or AMP. Will universities like Mississippi State be able to play a role in that partnership and will AMP expand on what Mississippi State and other universities are already doing?

Mr. BRYSON. Yes. The idea of this what is called NNMI, this initiative which is in our budget this year one time out of NIST, and the idea of this is to really work hard on the advanced manufacturing of the future, of this year, next year, years beyond this because we are the leader in the world in manufacturing. We are the leader in manufacturing, but advanced manufacturing is where this sector, as you know from Mississippi State, is going.

Mr. HARPER. Yes.

Mr. BRYSON. And so what we have to be very smart about is the very best advanced technologies for application in manufacturing. And the reality is technology is going to be a big part of this, and we have to work with these outstanding universities. So this NNMI initiative is to bring together just what you are describing, the outstanding universities working in this area, the outstanding private sector leaders that are working in this area, working in the labs with NIST, the National Institute of Standards and Technology. And the plan is to build as many as 15 of these around the United States regionally. In other words, the greater Mississippi areas, the teams that you might work with there would absolutely be a place where there would be special strength that you would bring and there are other places around the country. So the idea is to do this and we want to move as fast as we can on this.

Mr. HARPER. Right. Mr. Secretary, we also are very proud to have in my district in Flowood, Mississippi, a Nucor steel plant. And they have, you know, gone through a lot of difficult times, you know, when the demand for steel fell below 50 percent, they still didn't lay off a single worker. It is a great story there. While the market has gotten better—and you touched on this with Mr. Butterfield—and, you know, a surge of imports of rebar from other countries are kind of stopping this recovery in its tracks. And so, you know, my understanding is there are certain countries, as we sort of touched, on that do not have maybe a natural economic ad-

vantage to produce steel and some even import steel scrap from the United States in order to produce their steel products. It does seem that some of these governments in these countries may be subsidizing their steel industry. You said I believe that it is imperative the Department of Commerce look into that and we certainly encourage you to do so.

With that, I will yield back the balance of my time.

Mr. BRYSON. Thank you. Yes.

Mrs. BONO MACK. I thank the gentleman.

The Chair recognizes Mr. Dingell for 5 minutes.

Mr. DINGELL. Madam Chairman, thank you and I commend you for the hearing.

I want to welcome my old friend, Secretary Bryson, here. Mr. Secretary, welcome. He has a distinguished record as a public servant and also as a very successful businessman who was interested in his community and produced great things. Welcome and we are delighted you are with us.

Mr. BRYSON. Thank you.

Mr. DINGELL. It is clear to me that manufacturing and innovation are connected and in order to equip future workers with technical skills, it is now more important that we work hard on this than ever. I had some questions I think would be useful in us understanding what the administration is doing. This will require a yes or no.

Mr. Secretary, is it correct that for every $1 of Federal investment in MEP, American manufacturers generate approximately $30 in new sales growth and that that growth is shown to result in close to $4 billion in new sales annually?

Mr. BRYSON. Yes.

Mr. DINGELL. Thank you, Mr. Secretary. Now, is it true that MEP helped——

Mr. BRYSON. You have worked in this for a long time and I respect it enormously, yes.

Mr. DINGELL. Well, I don't mean to hurry you in your response——

Mr. BRYSON. No, I don't feel hurried at all.

Mr. DINGELL. These questions are given with respect but we have very little time, as you can observe.

Mr. Secretary, is it true that MEP helped create 19,000 jobs and retain over 40,000 jobs in fiscal year 2010?

Mr. BRYSON. Yes.

Mr. DINGELL. And that was a year of depression, was it not, or recession?

Mr. BRYSON. Yes.

Mr. DINGELL. The administration has requested level funding for MEP in fiscal year 2013, about 128 million, is that correct?

Mr. BRYSON. Yes.

Mr. DINGELL. So you are telling me that the 128 million investment in this will yield close to 4 billion in new sales, is that correct?

Mr. BRYSON. That is exactly right.

Mr. DINGELL. It seems like a good investment to me.

Now, Mr. Secretary, I would simply observe that we ought to be quarrelling up here whether we are going to put that much money

in or whether we are going to put more because it seems to be an investment that pays off and that a sensible businessman would like it very well. Do you agree with that statement?

Mr. BRYSON. I do agree.

Mr. DINGELL. Mr. Secretary, a lot of companies depend on very expensive software for advanced manufacturing such as Ford, Chrysler, and GM in my district. The software is more often than not developed by American firms. American manufacturers purchase software legally but I am sure many companies overseas pay nothing for pirated software and use it without a license. That puts our people at a tremendous disadvantage. What can the administration do to level the playing field for honest manufacturers that lawfully purchase software and other information technology that they use? I think, Mr. Secretary, given our time problem, you should give me a brief answer and then I should request that you submit further comments for purposes of the record. Thank you. Go ahead, Mr. Secretary. Give me a response. We have a minute, 59 seconds.

Mr. BRYSON. It is absolutely unfair that our intellectual property be taken from us without compensation and be used elsewhere as if it was not originated here. So we need to stand strong against that and I won't go further but I can commit something. I would like to tell you about the instances in which the Commerce Department in various ways has addressed that issue. I won't take that time right now.

Mr. DINGELL. Now, Mr. Secretary, we lose twice at this. Once our software people lose and very significant and then our manufacturers pay higher prices than do the people that use or buy or acquire in other ways knockoff software. Is that right?

Mr. BRYSON. That is entirely right.

Mr. DINGELL. And that hurts us twice?

Mr. BRYSON. It does.

Mr. DINGELL. Mr. Secretary, it is a pleasure to see you here. Thank you.

Mr. BRYSON. Thank you.

Mr. DINGELL. Mr. Secretary, with your help, I yield back 58 seconds.

Mrs. BONO MACK. Thank you, Mr. Dingell.

The Chair recognizes Mr. Lance for 5 minutes.

Mr. LANCE. Thank you very much, Madam Chair.

And good morning to you, Mr. Secretary. It is my honor to meet you here today, sir.

The innovative U.S. biopharmaceuticals sector generates high-quality jobs and enormous economic output and exports for the economy of this country. As I understand it, nationwide, the total economic output from the biopharmaceutical sector in direct, indirect, and induced impacts was almost a trillion dollars and the sector supported a total of four million jobs in 2009, including 700,000 direct jobs. The district I serve in New Jersey is arguably the medicine chest of the United States. What is the administration doing, Mr. Secretary, to retain this country's global leadership position in biopharmaceutical R&D and manufacturing?

Mr. BRYSON. I know generally your district and we are seeking to advance U.S. pharmaceuticals through the International Trade

Administration in many, many ways and perhaps you are aware of that——

Mr. LANCE. I am, sir.

Mr. BRYSON [continuing]. Work. We stand strong country after country after country with respect to those pharmaceuticals, and that may be the most important respect in which we work on these things. And, you know, I am just going to take it as a very large number of countries around the world in which our commercial foreign services officers are working on this virtually daily. I, for example, have just come back from India. I had a trade mission taking U.S. businesses to India. About 2 weeks ago, there for a week. Pharmaceuticals came up again and again and we strongly support.

Mr. LANCE. I thank you. I look forward to working you and the Department in this area.

Related to my last question, there is a trade agreement, the Trans-Pacific Partnership, which the United States is currently negotiating with eight countries in the Asia Pacific region. Ensuring strong IP protections abroad for all U.S. industries will be critical to our economy and to American jobs. I strongly urge that the administration secure strong pharmaceutical IP provisions in the Trans-Pacific Partnership, including 12 years of data protection for biologics so that all American manufacturers can benefit from these agreements and I would invite you to comment on that, sir.

Mr. BRYSON. Yes, and I would like to comment on that. Trans-Pacific Partnership is a high-grade form of free trade——

Mr. LANCE. Yes.

Mr. BRYSON [continuing]. Arrangement, so we have these agreements now. And what we need to do is bring them to greater specificity and expand them more broadly across the Pacific Rim, Southeast Asia, those countries. And this is the President's stance for this—and I enormously stand for it—because what we have to have in these agreements is not the kind of agreements that have so many holes in them that, for example, are incredibly able. The pharmaceutical industry may be left out to some degree. We can't afford that. This is what we need to do with the talent we have in this country, so absolutely, I am supportive of that.

Mr. LANCE. Thank you very much. I look forward to working with you on this and other issues.

And Madam Chair, I yield back 1 minute, 13 seconds.

Mrs. BONO MACK. Thank you, Mr. Lance.

Mr. Rush, you are recognized for 5 minutes.

Mr. RUSH. Thank you, Madam Chair.

Mr. Secretary, I commend you for your leadership and for the vision that you are bringing to the agency.

You have the difficult task of advancing the President's manufacturing agenda at a time when U.S. corporations are facing global competition, at a time when American corporations are losing market share to growing export countries like China, Southeast Asia, and India. The policies you are currently implementing aim at ensuring the U.S. access to global markets and to enable manufacturers to reach 95 percent of consumers who live outside of our borders.

I would add that our industries not only have to be competitive but they also need to be one of the fastest in terms of the market share gain before we would be able to reduce the incurring trade deficit. Obviously, we have to be innovative, proactive, and not overlook any market. And in light of this, I am curious to know which particular markets are you targeting in your investment strategy? In other words, which markets do you think are right to receive American products?

And I have another question, and I will ask these questions. Nowhere in your statement—and I might be wrong—have I seen reference to the African market, which according to many reports is the fastest-growing region in the global economy. You are aware, I am sure, of the Economist article that states that over the past 10 years, "no fewer than six of the world's 10 fastest-growing economies were in sub-Saharan Africa." And the only BRIC country to make the list of the top 10 is China, which comes after Angola. And predictions are that Nigeria, Ethiopia, Chad, Mozambique, Tanzania, the Congo, Ghana, and Rwanda are projecting to increase and take the lead and that Africa's economy will go at an average annual rate of 7 percent over the next 20 years, slightly faster than China's.

And also according to The Economist and other reputable sources, the last Secretary of Commerce who visited Africa was Secretary Evans, who visited in 2012. So—and also I want to just add that if we double our exports to Africa, we can create up to 315,000 jobs domestically. So the question is, What regions are you targeting for the export of the U.S. that your department is targeting and how do you feel about the market in Africa? And are you planning on visiting Africa in the near future, to take a delegation to Africa?

Mr. BRYSON. Thank you very much, Congressman.

The question of targeting exports, we target all over the world, all over the world. So, for example, I am just back, as I indicated, from India, took 16 U.S. outstanding businesses. I think things will follow very positively. We already have some arrangements.

With regard to sub-Saharan Africa, though, I have personally been there. In this new role, I have not been there yet. I would like to talk with you a little further about the opportunities you see there. I have been meeting with senior-most leaders from sub-Saharan Africa to a degree. For example, I met with the—is it Prime Minister or President of Ghana when he was here. I have met senior officials from Nigeria when they were here. In my own business I did quite a lot in South Africa. That was in my energy business. But I think you are right that that deserves priority and focus and I would like to go further with it and I would like to talk to you about any ideas you have about how we might take that further.

Mr. RUSH. Madam Chair, I yield back 5 seconds.

Mrs. BONO MACK. Thank you for your generosity.

The Chair recognizes Dr. Cassidy for 5 minutes.

Mr. CASSIDY. Thank you, Mr. Secretary. Mr. Secretary, I have a PricewaterhouseCoopers article which speaks about how the availability of shale gas has just been tremendous in terms of jumpstarting manufacturing. For example, lower feed stock and energy costs could help U.S. manufacturers reduce natural gas ex-

pense by almost $12 billion annually through 2025 and that because of this there may be one million more workers added by 2025 in manufacturing, really tremendous. Now, my concern is if we take the old John Marshall maxim, the power to tax is the power to destroy, the President's insistence upon denying energy companies the same manufacturing tax incentives as other manufacturing companies, does that denial of a Section 199 for an energy company imperil or at least potentially harm the manufacturing renaissance we are enjoying because of the work these energy companies are doing?

Mr. BRYSON. Let me address the energy and then I will do what I can on the tax—I am not an expert. Tax is really one out of the U.S. Treasury, not the U.S. Commerce.

Mr. CASSIDY. But it is so interrelated to the ability of a manufacturing company to do so; that is why I raise the point now.

Mr. BRYSON. And I have indicated what the President has set out for manufacturing companies, but let me also say to you I absolutely agree that your point about the incredible value to the United States now of this natural gas find so that we become more dependent on U.S. sources of all forms of energy, which is just the position we most want to be in. So it enhances our national security and reduces the risk——

Mr. CASSIDY. I totally accept that——

Mr. BRYSON. Yes.

Mr. CASSIDY [continuing]. So with your business background, if you raise the cost of the company to produce that energy, which in turn increases the input cost for the manufacturing companies which depend upon that energy, won't you decrease the competitiveness if you will of our manufacturers vis-a-vis those in other countries? Our input costs are raised because of tax policy, whatever, imperiling our ability to compete. Doesn't that just make sense?

Mr. BRYSON. Yes, getting taxes right in our country for business is very important. I can't give you a response on the specifics. I just don't know in the case you are describing.

Mr. CASSIDY. Now, next question—thank you. You said earlier build it here and sell it everywhere. Would you accept that this should also apply to the export of natural gas-based products?

Mr. BRYSON. What I am trying to puzzle through in my mind as you are asking this is with regard to manufacturing in every respect I am in favor of build it here and sell it everywhere. If you take me deeper into the manufacturing component of what you are addressing, I will say if it is manufacturing, that is what I am supporting and we are working hard in every way. And I think you would find, for example—well, I have been very supportive, for example, with the U.S. oil companies in supporting their overseas positions. I am very strongly supportive of that.

Mr. CASSIDY. So some would argue that we should not explore natural gas or natural gas refined products.

Mr. BRYSON. Yes, I——

Mr. CASSIDY. You would accept if we have an abundance of natural gas, you would accept that that or its refined products could be exported?

Mr. BRYSON. I would, yes.

Mr. CASSIDY. OK. That is fine. I have plenty more questions but I yield back for my colleagues.

Mrs. BONO MACK. I thank the gentleman and now recognize Mr. McKinley for 5 minutes.

Mr. MCKINLEY. Thank you, Madam Chairwoman.

Mr. Secretary, I have got a question. Back in Pittsburgh in 2008 then-candidate Obama was very aggressive in contending that China was manipulating its currency. Is China still manipulating its currency? Remember, he said they were. Are they still?

Mr. BRYSON. I believe that China is still manipulating its currency. I believe that currency still is lower than the market price.

Mr. MCKINLEY. What he went on to say in his remarks, Mr. Secretary, he said if they are, then we are going to start shutting off access to our markets. What market have we shut off?

Mr. BRYSON. Say it to me again.

Mr. MCKINLEY. He said if they are going to continue manipulating their currency, we are going to start shutting off access to our markets. I am curious which markets now 3 years into his administration has he shut off?

Mr. BRYSON. Let me address what is within my area of responsibility. The Department of Treasury deals with the tax issues, deals with the currency issues, but what we are responsible for at the Department of Commerce is seeing to it that there is no violation of trade laws. And it is important, in direct response to your question, that anything that is done, for example, out of China or any other——

Mr. MCKINLEY. OK. You are saying it is not in your department, then?

Mr. BRYSON. What I am saying is that the reason that we have right now the very, very large number of orders that make it such that we impose heavy tariffs on goods that come from these countries is an offset to the fact that they are subsidizing unfairly under those laws——

Mr. MCKINLEY. OK.

Mr. BRYSON [continuing]. So that is——

Mr. MCKINLEY. Maybe if you could get back to us with a little bit more in writing, I would appreciate that. If you could maybe explain it because we are short time on this and I would like to understand—you have acknowledged that they are manipulating their currency.

The second is you made an interesting remark that I appreciated——

Mr. BRYSON. Let me just say if I could we can refer that to the U.S. Department of Treasury. I would be happy to refer it to them. That is where the judgment is reached about Treasury.

Mr. MCKINLEY. The second issue that you made an interesting remark earlier about how they were reining in some of the regulatory effects and you said as long as it doesn't have an impact on manufacturing and jobs, but yet we are already seeing that using the Clean Air Act, the EPA has now caused up to approaching 40 gigawatts of power. Coal fire generating plants have now indicated they are going to shut down. So would you not suggest that that probably is going to increase the cost of electricity to some manu-

facturers when you have over 10 percent of our electric generating plants closing? Isn't that likely to increase the cost of utilities?

Mr. BRYSON. You will have to give me a little more on the case in point, but let me say in general what the President has stood for very strongly is limiting, reducing——

Mr. MCKINLEY. I hear what he stands for, but it is what he is doing, he is allowing to happen. Does the Commerce recognize that decreasing electric generating facilities is likely to increase the cost of electricity? Yes or no?

Mr. BRYSON. Let me address regulation and then I will address utilities briefly if I could. The regulation is the only thing that is allowed in this administration with regard to regulation is things that bear strictly on health, safety, and security. That is it. That is all. So what, as perhaps you have seen in some EPA cases, for example, the President has not allowed those to go forward.

With regard to happens to utility power costs, new forms of generation are less expensive than old forms of generation in many cases.

Mr. MCKINLEY. If they are subsidized I suppose I would go along——

Mr. BRYSON. No, no, no——

Mr. MCKINLEY. The last comment that the Congressman from New Jersey mentioned about the letter about Russia. This is a letter sent to you in February, February 17, so for your staff to be able to find that there was a letter directed to your attention on February 17 asking—so perhaps they need to communicate that to you.

Mr. BRYSON. All right.

Mr. MCKINLEY. Thank you very much.

Mr. BRYSON. Thank you.

Mrs. BONO MACK. All right. The Chair recognizes Mr. Pompeo for 5 minutes.

Mr. POMPEO. Great. Thank you, Madam Chairman.

Good morning, Mr. Secretary.

Mr. BRYSON. Good morning.

Mr. POMPEO. Thank you for joining us. I appreciate your enthusiasm for the growth of American manufacturing. I represent south central Kansas. It is the air capital of the world. The President has more times than we have minutes remaining in our day talked about corporate fat cat jet owners. We have one of the last great manufacturing jewels left in America that has not asked for a dime, doesn't want a grant, doesn't want a loan, doesn't want to be bothered, would just like to have your supervisor, President of the United States, stop talking down this incredibly important industry. Can you walk me through how he thinks the customers for these union workers, these engineers that live in the heartland of America who are building these airplanes, how talking down that industry has anything to do with job creation in America?

Mr. BRYSON. So I am sorry, just take me a little further. What industry——

Mr. POMPEO. The general aviation industry. We have Cessna and Beechcraft and Learjet and Boeing and hundreds of suppliers that live in south central Kansas and make their livings building these very airplanes that are sold to the folks that the President refers

to as corporate fat cat jet owners. And it hurts the industry when he makes it politically incorrect to fly around in a business tool. And so I am asking you what the job creation rationale for talking down the aviation industry could possibly be?

Mr. BRYSON. My experience—and I know this directly—I was for 18–1/2 years a member of the Boeing Board of Directors. The President has been very, very supportive of U.S. aviation. And when I do the tours that I do around the world I am again and again and again espousing U.S. aviation, component parts——

Mr. POMPEO. Well, I appreciate that.

Mr. BRYSON [continuing]. That is what I do.

Mr. POMPEO. I appreciate that. It is an incredibly important industry. It is one of our largest export industries in America. It is incredibly important. He may be supportive of it but the things he says when he speaks and his notion that we should increase user fees and that he wants to increase taxes on generation aviation users are inconsistent with your statement that he is supportive of that. So anything you can do to help make sure that folks want to use these as business tools, they are very efficient. They are a great product and we make them here in the United States of America.

I want to turn to a second topic. You said you go out to a lot of manufacturers. I actually was a manufacturer for a few years before I came here. When you ask them the things that restrict their ability to create and grow jobs and they list the top three or four, do any of them talk about receiving Federal grants as important as their desire to continue to grow jobs? Do they say, Mr. Secretary, the most important thing you could do for me would be to provide a Federal grant to my business?

Mr. BRYSON. In the advanced manufacturing area, principally, possibly exclusively the advanced manufacturing area, yes, because the focus there is, in a globally competitive world, to retain the smarts, the very best technologies, the most outstanding means of retaining and enhancing our competitive position. In technology in the form of advanced manufacturing will be a significant part of that. And the role that the Federal Government plays by way of a stimulus by the way the kind of work that is done at NIST, so right here in this area——

Mr. POMPEO. Um-hum.

Mr. BRYSON [continuing]. The D.C. area, where we are doing, for example, this work on nanotechnology right now, and that has opened in every case invited the only such thing, at least in the United States, the only thing I know—let us just say in the United States——

Mr. POMPEO. Um-hum.

Mr. BRYSON [continuing]. Where you, as a manufacturer, folks down in advanced manufacturing can go and use the lab and bring in your best people, the universities that you work with, best people, and so on.

Mr. POMPEO. I appreciate that. But most of the grant programs—the Economic Development administration as a good example—aren't providing for advanced manufacturing technology. These are grant programs that are going to old line industries. Do those folks talk about grants? What I hear from them is I hear about get the

government out of my way, get regulation out of my way, and allow me to go grow my job and help me with trade so I can have access to markets. I mean even the President said when he was campaigning he said we need to cut back waste at agencies like the Economic Development Administration, his words, September of 2008. I haven't seen that. I have seen continued efforts of this Commerce Department to try and pick winners and losers in the manufacturing space.

Mr. BRYSON. The Federal Government is involved in manufacturing in multiple ways, the Commerce Department is involved in multiple ways. The Manufacturing Extension Partnership works with so many of these small and medium-sized manufacturers and in the communities and in the community colleges and so on that work with them. So, yes, there is Federal Government that there are dollars associated with that. What we try to do is use those dollars really, really well.

Mr. POMPEO. Well, I——

Mr. BRYSON. In regards to the Economic Development——

Mr. POMPEO. I am sorry, my time is—go ahead.

Mr. BRYSON. The Economic Development Administration likewise small agency, modest budget, very, very tight control over cost, and what it does, it is the only Economic Development Administration across the entire Federal Government and it does things and we could provide you——

Mr. POMPEO. Well, I would welcome that. I appreciate it. Thank you.

Mr. BRYSON. Yes.

Mr. POMPEO. The Commerce Department has the opportunity to do so many good things. I just wish you would spend less time trying to redistribute wealth and more time creating opportunities for everyone. So I thank you very much——

Mr. BRYSON. Thank you.

Mr. POMPEO [continuing]. For your time.

Mr. BRYSON. Thank you.

Mrs. BONO MACK. Mr. Secretary, do you have time for one more question from the last Member? If it is a rather brief question, the last Member has a quick question for you.

Mr. BRYSON. OK, yes, we can do one more.

Mrs. BONO MACK. Your staff is indicating they will drive quicker to the airport. So the Chair recognizes Ms. Blackburn for her question.

Mrs. BLACKBURN. Thank you, Madam Chairman.

And, Mr. Secretary, you have been patient with us today and we are appreciative of that. And I know that Congressman Dingell asked you a little bit about information technology. In my district in Tennessee we have got a lot of performers, as well as having a lot of small business manufacturers who purchase information technology in order to try to get a competitive edge. And then it turns around that they are competing with companies in China or Russia or somewhere that have stolen that information technology. And what I want to know from you is what can you do and can the Federal Government do anything about the competitive harms that are caused by the theft of that information technology that drives the efficiencies and also about other U.S. intellectual prop-

erty that is stolen? And specifically, are you going to put any strong IP protections in trade agreements like the Trans-Pacific Partnership?

Mr. BRYSON. So the short answer is intellectual property that we do not get compensated for that is taken in other countries and there is no compensation and no recognition of where that initially came from is flat out a loss to the people in our country who deserve the right to be compensated for what they provide, and with that, those people would only make better products rather than not getting the compensation they should have. So that is our responsibility at the Commerce Department to see to it that those obligations are honored, and then when it is not done, that we file these mini-proceedings against them that I have described earlier to see to it that it is done. And that is a nonstop job at the Commerce Department.

Mrs. BLACKBURN. OK. And then, are you going to insert stronger IP protections with trade agreements like the Trans-Pacific?

Mr. BRYSON. Yes.

Mrs. BLACKBURN. Thank you. Yield back.

Mrs. BONO MACK. I thank the gentlelady.

And Mr. Secretary, you have been very gracious with your time. We appreciate you being with us today. We all look forward to working with you in the future on these issues that we all care about so deeply. And together let us just make printing help wanted signs a booming business in America. Again, thank you for your time. We wish you safe travels.

Mr. BRYSON. Could I put one thing on the record that I have just been asked to be sure that I——

Mrs. BONO MACK. Sure.

Mr. BRYSON [continuing]. Have left some confusion possibly with regard to this question that I had about the manipulation of currency in China and what I repeatedly answered is that is the U.S. Treasury's role. But what I don't want to let not stand is that we believe that China absolutely must allow its currency to appreciate. That is critical. And thank you very much. I apologize for putting this last word in.

Mrs. BONO MACK. That is OK. I appreciate your clarification there. And again, safe travels to and from California and thank you for your time. And at this time, we are going to take a very brief recess as we seat the second panel.

Mr. BRYSON. Thank you.

[Recess.]

Mrs. BONO MACK. —to begin with our second panel. Joining us today are Dr. Robert Atkinson, President of Information Technology and Innovation Foundation; Alfonso Lubrano, President of Materion Technical Materials, Inc., and Vice Chairman of National Association of Manufacturers Small and Medium Manufacturers; Craig Giffi, Vice Chairman and U.S. Leader, Consumer and Industrial Products at Deloitte; and Dr. Kenneth Tindall, Senior Vice President, Science and Business Development from North Carolina Biotechnology Center.

Good afternoon. Thank you all for being with us here today in front of our subcommittee. You will each be recognized for 5 minutes. To keep track of time, please watch the timers in front of you.

When it turns yellow, you have a minute to wrap up. And if you can, please make sure to turn your microphone on and bring it close to your mouth. The audience at home needs to hear you and only they can if you are speaking clearly into the microphones.

Dr. Atkinson, you are recognized for 5 minutes.

STATEMENTS OF ROBERT D. ATKINSON, PRESIDENT, INFORMATION TECHNOLOGY AND INNOVATION FOUNDATION; AL LUBRANO, PRESIDENT, MATERION TECHNICAL MATERIALS, ON BEHALF OF THE NATIONAL ASSOCIATION OF MANUFACTURERS; CRAIG A. GIFFI, VICE CHAIRMAN AND U.S. CONSUMER AND INDUSTRIAL PRODUCTS PRACTICE LEADER, DELOITTE LLP; AND KEN TINDALL, VICE PRESIDENT OF SCIENCE AND BUSINESS DEVELOPMENT, NORTH CAROLINA BIOTECHNOLOGY CENTER

STATEMENT OF ROBERT D. ATKINSON

Mr. ATKINSON. Thank you, Madam Chairman and members of the committee. It is a pleasure to be here.

ITIF has been doing a fair amount of research on what has actually happened to the U.S. manufacturing economy and we will be releasing a report shortly on what do we need to do to fix it. As we have shown in our work, we lost a larger share of our manufacturing jobs in the last decade than we did in the Great Depression. The consensus among most economists is that this is a reflection of superior performance, that all of these jobs were lost due to high productivity, and our analysis suggests that is only partially true. Some of those jobs were due to high productivity. As companies get more efficient, they don't have to hire as many workers, which is good for the economy. But we argue that at least 2/3 of those jobs were lost due to the fact that U.S. companies were not able to be competitive in global marketplaces. And my testimony goes into more detail on that.

But just one I think important point there, 13 of 19 manufacturing sectors actually are producing less today than they were in 2000 in real, inflation-adjusted terms. This is unprecedented in American history. That has never happened before. Every decade before this, we have had expansion of manufacturing. We argue that when measured properly, U.S. manufacturing output declined 11 percent in the last decade in inflation-adjusted terms. And one indicator of that is when you look at the amount of capital investment that manufacturers make. The Bureau of Economic Analysis measures this. They measure what is called capital stock, which is the amount of machines, the amount of computers, everything that manufactures have. And in most decades since 1940 to the present, capital stock is growing about 30 percent a decade, sometimes 50 percent a decade. In this last decade, it grew 1.2 percent.

So we think there is a big challenge. We think that we have to respond to that challenge. And so what should Congress do? I think there are a number of areas that are important. Actually, let me just mention I don't want to sound overly pessimistic. I think we have big challenges but there are certainly some trends in the right direction. We heard earlier in the hearing about natural gas and the reduction of input costs to certain industries like chemicals.

That is an important new benefit that the U.S. economy didn't have 5 to 10 years ago. Certainly, some costs are going up in countries like China. Many companies now are taking a new look at offshore and using full cost calculus. So there are some good things happening, but I still think we can't just rely on that. We have got to get new policy changes.

What are some of those? Let me just say three major ones. One is on the tax side. We have the dubious honor now as of April 1 to have the highest corporate tax rate in the world and that is also close to on the effective rate. So we have a high statutory rate but a knot of studies have shown we have a high effective rate as well. So we have got to something on the corporate tax side that doesn't just re-jigger the deductions and the incentives and leaves the effective rate the same. We have got to focus on reducing the effective rate I would argue.

But as I have argued before, we also should do that in a way that keeps key incentives that are critical to manufacturers. One of those is MACRS or Modified Accelerated Cost Recovery System, which is essentially being able to write off equipment sooner than you would otherwise. That is a critical incentive. The R&D tax credit and Section 199, Domestic Production Deduction, those are all very critical tax incentives that help U.S. manufacturers become more competitive.

I think one other area we need to focus on is I would argue we should be focusing on a new kind of regulatory review so that major regulations have to go through essentially a competitiveness screen. There are certainly needed regulations, but when you are focusing on impacts of sectors that are globally traded, we need to look at that more carefully because those could have much bigger impacts than say on sectors that don't face global competition.

Having said that, though, I think it is not enough just to focus on cost reduction. Cost reduction is important, but the Germans, their wages are 45 percent higher than ours, so we also have to get better, not just cheaper. One key area is trade. A number of people have talked about that. Our view is that there is rampant what we would call innovation mercantilism going on in countries like China, Brazil, India, Russia, and we simply have to get a lot tougher. And that is not about being protectionist. That is about defending globalized trade. It is about defending the free trade system, which they are systemically violating. And I give the administration credit there, but I do think we need to do a lot more.

Last point is technology. I don't think we can win this without doing all three things. We have to have the tax system, the trade system, but I do argue we have to have a technology system. And I give the administration credit and others here who have supported things like the MEP program and this new national institute, NNMI, National Network of Manufacturing Institutes. Many of our major competitors have these kinds of industry-university cooperative partnerships that help develop advanced technology and get it out to companies. I think we could do a better job there as well.

Thank you very much.

[The prepared statement of Mr. Atkinson follows:]

Robert D. Atkinson
President and Founder
Information Technology and Innovation Foundation (ITIF)

Hearing on

"Where the Jobs Are: Can American Manufacturing Thrive Again?"

Before the House Energy and Commerce Committee

Subcommittee on Commerce, Manufacturing, and Trade

U.S. House of Representatives

April 19, 2012

Chairman Bono, Mr. Butterfield and members of the Committee, I appreciate the opportunity to appear before you to discuss the past trends and current condition of U.S. manufacturing and the kinds of federal policies needed to restore U.S. manufacturing growth.

I am the president and founder of the Information Technology and Innovation Foundation (ITIF). ITIF is a non-partisan research and educational institute whose mission is to formulate and promote public policies to advance technological innovation, productivity and competitiveness.

This is a timely and important hearing, for American manufacturing competitiveness has declined significantly in the last decade in particular, costing jobs and impeding economic growth. Understanding the causes of this decline is critical if we are to make the kinds of policy changes needed to restore U.S. global leadership.

Summary

Much of the debate around U.S. manufacturing is problematic because the core data on manufacturing output and productivity are flawed. The reality is:

- A large share of manufacturing jobs was lost in the last decade because the United States lost its competitive edge for manufacturing.
- The loss was unprecedented, and it continues to severely impact the overall U.S. economy.
- Regaining U.S. manufacturing competitiveness to the point where America runs a trade surplus in manufacturing products is critical to restoring U.S. economic vibrancy.
- Regaining manufacturing competitiveness will create millions of higher-than-average-wage manufacturing jobs and an even greater number of jobs from the multiplier effect in other sectors of the economy.
- The United States can restore manufacturing competitiveness and balance manufacturing goods trade within less than a decade if it adopts the right set of policies in what can be termed the "four T's" (tax, trade, talent, and technology).

Why Manufacturing Matters to America

Should policy makers place more emphasis on manufacturing than other industries? For the neoclassical economists who largely preside over economic discourse in Washington, the answer is "manufacturing jobs matter no more than jobs in any other industry." Michael Boskin, former economic advisor for President George W. Bush, reportedly stated: "computer chips, potato chips, what's the difference?"[1] More recently, Christina Romer, former head of the Council of Economic Advisors in the Obama administration, wrote in *The New York Times* that manufacturing doesn't matter.[2]

For these economists, the decline in manufacturing jobs implies a transition from employment in one type of industry to another. In an efficient global marketplace, a competitive economy will shed jobs in one industry if the relative value of labor is higher in other industries. If in 1980 the U.S. economy had more manufacturing workers than retail workers, but in 2011 it had more retail workers than manufacturers, the market must then

prefer retailing to manufacturing, and thus the employment shift is the optimal outcome. Any attempt to favor a particular sector, such as manufacturing or other traded sectors like software, can only retard this growth-enhancing reallocation of resources.

There are a number of critical flaws in this logic. One is that it was not the market that led to U.S. losses; it was other nations' competitiveness policies focused on manufacturing, many of them mercantilist and protectionist in nature. Neoclassical economists may not like these policies, but their liking them or not is irrelevant to their existence and effect.

More importantly, the central thesis of the argument is flawed because manufacturing jobs are not the same as all other jobs in the economy. Supporters of manufacturing offer many valid arguments for why manufacturing jobs are more critical than jobs in most other sectors. These include: manufacturing jobs pay more; manufacturing is a source of good jobs for non-college-educated workers; and manufacturing is the key driver of innovation—without manufacturing, non-manufacturing innovation jobs (for example, research and design) will not thrive.[3]

But the central reason why manufacturing matters is that it is a key enabler of traded sector strength. And, in a global economy, it is impossible to have a vibrant national economy without a globally competitive traded sector.[4] Manufacturing is still the largest traded sector of the United States economy, and it will be for some time. While some argue that the United States can close its trade deficit by boosting exports of services or non-manufactured goods (principally agricultural products or energy exports such as natural gas), the facts suggest otherwise.[5]

Traded sector jobs are important, in part, because they have high employment multipliers. This is the primary reason why all 50 states – regardless of whether they are "red" or "blue" states – focus their economic development efforts on traded industries like manufacturing and software, and not on non-traded industries like retail trade and personal services like hair salons. If a hair salon closes, another will take its place to serve local demand. But if a manufacturer closes, another may take its place, but not necessarily in the same state. This is true at the national level. Lost manufacturing jobs may not be replaced, at least in the short run, and this loss leads through the multiplier effect of the loss of around 2.3 other jobs in the overall U.S. economy.[6] As such, the anemic overall job performance in the last decade was directly related to the 32 percent loss of manufacturing jobs. The erosion of the manufacturing base turned the U.S. economy into a leaky boat with worn sails. For most of the 2000s, manufacturing's decline bestowed slow economic growth. Late in the decade, it helped turn a recession into "The Great Recession."

There is another, more subtle, but ultimately more significant impact of the decline of manufacturing on the U.S. economy: it erodes the confidence of businesses, workers and consumers. Ultimately, a strong and sustained recovery will depend on the faith that America will once again lead in the global economy. If that faith is absent or, worse, if there is a sense of economic foreboding and decline, then the United States will lack the rational exuberance needed to power investment and spending, and the recovery will continue to drag.

As Keynes noted, "Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as the

result of animal spirits—a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities."[7] Had manufacturing expanded in the last decade instead of contracting, not only would America's economy be much healthier, but so too would be its "animal spirits."

U.S. Manufacturing Competitiveness Has Declined

America is facing a competiveness crisis. We see this most evidently in the unprecedented rate of manufacturing job loss over the last decade. U.S. non-farm employment expanded by 19 percent in the 1980s and 20 percent in 1990s. During the same periods, manufacturing employment fell only slightly, by seven percent and one percent respectively. But from 2000 to 2011, total employment was unchanged while manufacturing jobs fell by one-third (a loss of 5.4 million manufacturing jobs).[8] (see figures 1 and 2) This was worst performance in American history in terms of manufacturing job loss, exceeding the rate of loss in the Great Depression.[9] Only two states—Alaska and North Dakota—saw less than double-digit declines in manufacturing employment, and in neither state is manufacturing a substantial part of the economy.

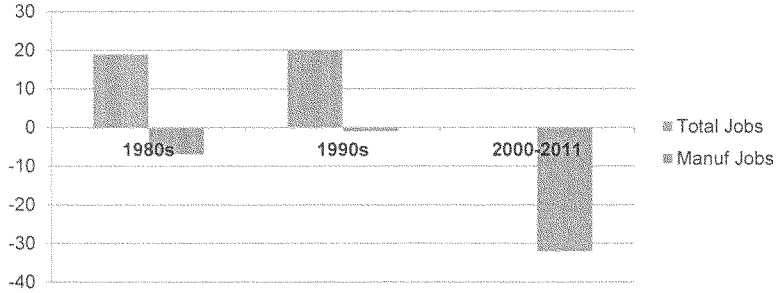

Figure 1: Total and Manufacturing Employment Change in the last Three Decades (Source: U.S. Bureau of Labor Statistics)

Figure 2: Decline in U.S. Manufacturing Employment (millions), 1990-2010[10]

And according to the OECD, from 1997 to 2010 the United States had the second largest share of manufacturing job loss (controlling for adult population growth) of ten nations examined. (see Figure 3)[11]

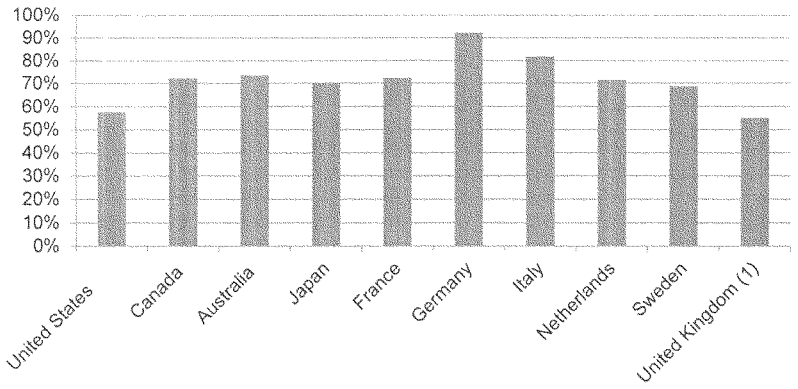

Figure 3: Manufacturing Job Change as a Share of Adult Population Growth, 1997 to 2010 (Source: OECD)

Yet remarkably almost no one has made the connection between the anemic overall job performance in the last decade and the largest drop in manufacturing employment in American history. The common assumption is that the United States is still a manufacturing powerhouse but we need fewer workers to produce the same output. Manufacturing, many economists and pundits argue, has simply become incredibly productive. While tough on workers who are laid off, outsized job losses actually indicate superior performance.

But that is not the complete story. In fact, it is also a story of output decline. In 2010, 13 of the 19 U.S. manufacturing sectors (employing 55 percent of manufacturing workers) were producing less than in 2000 in terms of change in real value-added output.[12] In other words, while the U.S. economy grew 17 percent, these industries actually shrank. The only reason reported overall manufacturing output as a share of GDP increased was because of the massive output growth of NAICS 334, the computers and electronics industry, whose growth ITIF argues is significantly overstated by the U.S. Bureau of Economic Analysis.[13] In addition, BEA overestimates output growth because the offshoring of global supply chains can lead to the appearance of productivity growth, even though a domestic manufacturer's productivity may not have improved. This phenomenon is known as "import substitution bias".

ITIF estimates that if the official government output measures had been measured correctly, the United States would have experienced an absolute decline in manufacturing output over the past decade of approximately 11 percent instead of the recorded 16 percent increase, something that has not happened before, at least since WWII.[14] Moreover, ITIF estimates that manufacturing productivity grew by just 32 percent, not the reported healthy number of 72 percent indicated by Bureau of Economic Analysis data.[15]

If manufacturing productivity growth was actually 72 percent in the 2000s, one would expect that U.S. manufacturers would have added plenty of machines and factories over the last decade to be more productive, as they have done every decade since WWII. In fact, total U.S. manufacturing capital stock increased just 2 percent, compared to historic rates of growth of between 20 and 50 percent per decade.

Thus, while superior productivity increases played some role in the collapse of U.S. manufacturing employment in the last decade, the overriding factor was output decline, highlighted by a striking result: if from 2000 to 2010 manufacturing output had grown at the same rate as that of the rest of the business sector, the United States would have 3.8 million more manufacturing jobs today and at least another four to six million jobs from the multiplier effect.

As such, the conventional wisdom that U.S. manufacturing job loss is simply a result of productivity-driven restructuring (akin to how U.S. agriculture lost jobs but is still healthy) is fundamentally flawed. U.S. manufacturing lost jobs because manufacturing lost output, and it lost output because its ability to compete in global markets – some manipulated by egregious foreign mercantilist policies, others supported by better national competiveness policies, including much lower corporate tax rates and stronger investment tax incentives – declined significantly.

Even if experts acknowledge that manufacturing's share of output has declined, many comfort themselves with a narrative that such decline is inevitable. "Manufacturing is in decline everywhere, even in China," they argue. In fact, while manufacturing has declined as a share of GDP in some nations (notably Canada, Italy, Spain, the United Kingdom, and the United States), it is stable or growing in many others (including Austria, China, Finland, Japan, Korea, and Sweden). Nor is the loss of U.S. manufacturing is not due to some inexorable shift to a post-industrial economy: the consumption of manufacturing goods comprises about the same share of the U.S. economy as it did a generation ago. What's different is that manufacturing *production* does not, because the goods trade deficit has skyrocketed.

Others will point out that, when measured in U.S. dollars, U.S. manufacturing output is still the highest in the world, 46 percent higher than that of China, the country in second place.[16] But of course U.S. manufacturing output is higher than any other nation, including China, because U.S. GDP is higher than any other nation. Any comparison must be adjusted to account for the size of the economy. The United States is performing poorly relative to its competitors in the growth in manufacturing output relative to the growth in GDP. The United States ranks 16th of 19 countries in the change of the ratio of manufacturing real value added to real GDP when the U.S. numbers are adjusted for statistical bias. (See Figure 4)

Notwithstanding these trends, some have attempted to make the case that manufacturing is in the midst of a rebound and that all will be well shortly. But the current rebound looks as good as it does only because the prior loss was so steep. The United States lost two million manufacturing jobs during the Great Recession, and since then a little over 166,000, or 8.2 percent, have returned. At the rate of growth in manufacturing jobs in 2011, it would take until 2020 to return to where the economy was in terms of manufacturing jobs at the end of 2007. This performance is also much weaker than most post-war recoveries. Manufacturing jobs were up just 0.7 percent in the 30 months since the end of the recession, and only 1.4 percent by February 2012. By contrast, manufacturing added between 6.8 and 9.0 percent in the 30 months succeeding the recessions in 1969, 1974, and the early 1980s. For every 12 manufacturing jobs lost during the Great Recession, only one had returned by February of 2012.[17] Moreover, annual new orders for manufacturers are down 11 percent from 2007 to

2010 in constant dollars, while durable goods orders are down even more, 21 percent.[18] Moreover, the trade deficit in non-petroleum products in 2011 at an annualized basis is $440 billion, 11 percent higher than in 2010 and 40 percent higher than in 2009.[19]

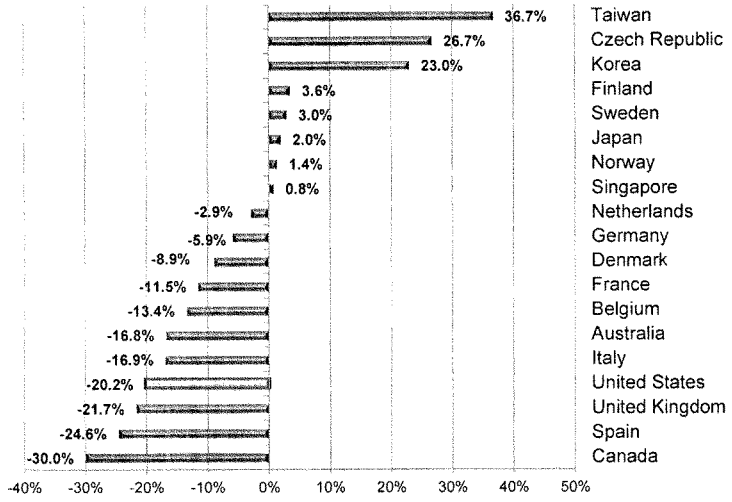

Figure 4: Percent Change in Ratio of Manufacturing Real Value Added to Real GDP (U.S. manufacturing output and GDP adjusted), 2000-2010[20]

What Should Congress Do?

The prospects for U.S. manufacturing is certainly not all bleak. Some trends are moving in the right direction. The U.S. dollar continues to get weaker, as it should. America's new discoveries and drilling of natural gas is resulting in a much lower cost feed stock for industries dependent on natural gas. And some companies are reconsidering initial decisions to offshore work to lower wage nations, engaging in what is called more accurate full-cost accounting.

But notwithstanding these trends, it would be extremely risky to assume that government can sit back and not do anything and expect a manufacturing recovery to naturally emerge. Effective public policies that support and underpin the U.S. manufacturing economy are required if the United States is to experience sustained recovery and revitalization of manufacturing. We need a comprehensive national traded sector, manufacturing-focused strategy that addresses the "4 Ts" of technology, talent, tax, and trade. An ITIF report in May of this year will lay out a detailed strategy with specific policy recommendations for Congress and the Administration. For now, I'd like to focus on the three most important areas where Congress can act to restore U.S. manufacturing competitiveness. First, America needs a more competitive corporate tax code and one focused on spurring investment in the United States. Second, the federal government needs to take much more aggressive and determined action to combat and roll back what ITIF terms "innovation mercantilism" practiced by many U.S. competitors, particularly China, but increasingly nations like Brazil

and India. And third, the federal government needs to invest in a national manufacturing technology system.

Make the U.S. Tax Code More Internationally Competitive, Especially for Traded Sectors Like Manufacturing: As you consider corporate tax reform I would encourage you to keep two key things in mind. First, unless corporate tax reform is *not* revenue neutral it will not effectively address America's competitiveness challenge. As of April 1st the United States attained the dubious distinction of having the highest statutory corporate tax rate, after Japan lowered their rate. Some will say that while the U.S. statutory rate may be the highest, our effective rate is much more competitive. But a recent National Bureau of Economic Research working paper examining cross-country comparisons of corporate income tax rates found that of 20 nations and regions, the United States had the second highest effective corporate tax rate (with Japan the highest).[21] Moreover, of ten nations with data going back to 1989, only the United States saw an *increase* in effective corporate tax rate. The other nine, including nations like Canada, France, Switzerland, and the United Kingdom, and, all saw reductions in their effective corporate rates. Unless America lowers its statutory and effective corporate tax rates, the U.S. tax code will continue to act as a deterrent to U.S. competitiveness.

The second is to distinguish between tax incentives that are pro-growth and those that are not. Not all tax "distortions" are harmful to growth. In fact, some are solidly pro-growth and if efforts to reform the corporate tax code eliminate these incentives in the effort to get rate reduction, overall U.S. economic growth and competitiveness will likely suffer. Thus effective corporate tax reform means retaining and even expanding pro-growth incentives. As such, I urge you to support and expand the three key existing production-oriented incentives: accelerated depreciation (expand it to become full first year expensing); the domestic production deduction (lower the rate as called for by the Administration), and expand the Alternative Simplified R&E tax credit from 14 percent to 20 percent.

More Effectively Combat Foreign Mercantilist Practices: Even if the United States had a much more competitive tax code, it would still not be enough to restore U.S. manufacturing competitiveness as long as other nations continue to engage in rampant mercantilist practices, such as intellectual property theft, forced technology transfer, standards manipulation, currency manipulation, market access restrictions, and having large parts of their economies dominated by favored state-owned enterprises. Some will argue that mercantilists only hurt themselves and that America can turn a blind eye to these practices. But if we really believe this why do we bother being in the WTO and supporting the global trading rules: because we are altruistic? Even if mercantilists hurt themselves, they also hurt American companies and the American economy. How do we expect U.S. firms to compete with China, for example, when they systemically steal and extort technology and intellectual property from them?

It is therefore time that the United States to take stronger action against these mercantilist policies and practices. The United States can and should take a number of specific steps unilaterally, but it should also encourage its like-minded trading partners to collectively take steps on a multilateral basis, including through the WTO.

There is more that the United States can do under existing authorities. But this will require making confronting foreign mercantilism the top goal of U.S. trade policy. Moreover, it will

require expanding the resources of the United States Trade Representative's Office and changing its strategic focus. Given the scope of the challenge of fighting global mercantilism, USTR is significantly underfunded. The United States invests just 0.007 percent as much on defending its economy globally as it does on defending our nation militarily.[22] Congress should create within USTR an ambassador-level U.S. trade enforcement chief and also fully fund the $26 million requested by the Obama Administration in the FY 2013 budget to create an Interagency Trade Enforcement Center.[23] Even in a time of fiscal austerity, a modest expansion of the USTR budget, particularly tied to increased enforcement, may well be the best money the federal government will spend. Congress should also increase funding for U.S. Customs to step up inspection for foreign counterfeit goods. The U.S. government needs to make it extremely costly for companies in foreign nations to ship counterfeit goods into the United States by seizing and destroying the lion's share of such products at our borders.

Establish a National Manufacturing Technology Initiative: For a variety of reasons, companies under-invest in key manufacturing technologies. This is especially the case in the United States where financial markets pressure U.S. companies to invest for short-term returns, which means they often skimp on longer-term technology investments. As the Business Roundtable reported, "The obsession with short-term results by investors, asset management firms, and corporate managers collectively leads to the unintended consequences of destroying long-term value, decreasing market efficiency, reducing investment returns, and impeding efforts to strengthen corporate governance."[24]

While the United States still does an adequate job of inventing technologies – although even there we are slipping – it does less well investing in the ability to manufacture those technologies in America.[25] Yet, U.S. competitive advantage will stem from producing more advanced and complex products in more efficient ways. Unfortunately the U.S. manufacturing economy is increasingly less high-tech than that of its competitors: whereas 42 percent of U.S. manufacturing occurred in medium-high tech or high-tech industries in 2009, 58 percent of German, 52 percent of Korean, and 48 percent of Japanese manufacturing occurred in such industries.[26] The federal government needs to play a key partnership role with industry in investing in early stage, pre-competitive manufacturing technologies.

As such Congress should fund a national initiative for advanced manufacturing technology consortia conducting applied R&D across several advanced technologies. Such an initiative might be called the Edison Engineering and Manufacturing Institutes (EEMI's). In part, these could be modeled after Germany's 57 Fraunhofer Institutes which perform applied research of direct utility to private and public enterprise.[27] The Fraunhofers bring together cutting-edge research in an industrially relevant way across a number of sectors and technology platforms (such as advanced machining, optics, photonics, nanotechnology, robotics, advanced materials and surfaces, wireless technologies, and many others) by providing a platform for joint pre-competitive research, bilateral applied research with individual firms, prototype manufacturing, and pre-production and cooperative technology transfer arrangements with companies.[28] Congress should authorize and appropriate the requisite funding to implement a national network of EEMI's.

Conclusion

U.S. manufacturing is at a critical inflection point. Continued absolute and relative decline could well produce within a decade a U.S. economy that looks more like Great Britain, with a hollowed out manufacturing sector and great difficulty being even marginally competitive in global markets without a significant decline in the value of the dollar. The solution to this challenge needs to go beyond partisan differences: we need a more competitive tax code and smarter regulations, but we also need increased public investment in manufacturing technology programs and programs to ensure a trained manufacturing workforce at all levels. Absent robust and sustained action by Washington, I fear that in a decade U.S. manufacturing will be have continued its decline, with the negative consequences for jobs, income and GDP growth.

Endnotes

1. Richard McCormack, "U.S. Military Fails to Learn an Ancient Military Lesson: No Industrial Economy Equals No Army," *Manufacturing and Technology News*, October 17, 2008, http://www.manufacturingnews.com/news/08/1017/commentary.html.
2. Christina Romer, "Do Manufacturers Need Special Treatment?" *New York Times*, February 4, 2012, http://www.nytimes.com/2012/02/05/business/do-manufacturers-need-special-treatment-economicview.html.
3. Gary Yakimov and Lindsey Woolsey, Innovation and Product Development in the 21st Century (Gaithersburg, MD: National Institute of Standards and Technology, February 2010), http://www.nist.gov/mep/upload/MEP_advisory_report_4_24l.pdf. U.S. manufacturing jobs, on average, pay 9 percent more in wages and benefits than jobs in the overall economy.; While manufacturing workers are becoming more educated and skilled, still 47 percent of U.S. manufacturing workers have not completed education beyond high school (with about 36 percent of the U.S. manufacturing workforce having high school but no college education and 11 percent not having completed high school).
4. Traded sector companies are domestic firms that derive a significant portion of their revenue from foreign sources.
5. And while the United States does run a trade surplus in services, that positive balance ($179 billion in 2011) was dwarfed by a negative balance in goods imports ($737 billion), for an aggregate U.S. trade deficit of $558 billion in 2011. Moreover, with U.S. exports of goods 157 percent greater than exports of services, one of the fastest ways to boost exports will be through expanding manufacturing. Helper, Krueger and Wial examined export growth rates for services, non-manufactured goods, and manufactured products (or combinations thereof) that would be required to balance the U.S. trade deficit over the next decade. He finds that to balance the trade deficit through increased services exports alone would require them to grow at an annual compound rate of 13.5 percent over the next decade, whereas their annual growth rate from 2000-2011 was 9 percent. To balance trade through increases in non-manufactured goods exports would require them to grow at a 23.7 percent rate over the next decade, whereas they grew at an 11.1 percent rate over the past decade. However, to balance trade by 2019 with only manufacturing exports, they would have to grow at a compound annual growth rate of 9.4 percent, compared to their growth rate of 6 percent over the prior decade. In other words, manufacturing has a "shorter road to hoe" in terms of the increase in exports required of it to balance the trade deficit. See Susan Helper, Timothy Krueger, and Howard Wial, *Why Does Manufacturing Matter? Which Manufacturing Matters?* (Washington, D.C.: Brookings Institution, 2012), http://www.brookings.edu/papers/2012/0222_manufacturing_helper_krueger_wial.aspx.
6. "Manufacturing Information," *Manufacturers Association of Central New York*, accessed February 22, 2012, http://macny.org/manufacturinginformation.aspx.
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Mrs. BONO MACK. Thank you, Mr. Atkinson.
Mr. Lubrano, you are recognized for 5 minutes.

STATEMENT OF AL LUBRANO

Mr. LUBRANO. Thank you very much, Chairman Mack, and thank you to the members of the subcommittee in allowing me this opportunity to testify on behalf of the National Association of Manufacturers.

I would like to start off by saying this is an extremely exciting time for our country and for manufacturing. I am president of Materion Technical Materials in Lincoln, Rhode Island. We are a subsidiary of Materion Corporation, which is headquartered in Mayfield Heights, Ohio. We have offices throughout North America, Europe, and Asia, and we serve customers in more than 50 countries.

Materion Technical Materials is the world's leading resource for engineered specialty strip products and offers a wide range of products and expertise in numerous markets, including automotive and consumer electronics. I have been leading the company since 1992. It is my privilege to serve on NAM's board of directors. As vice chair of the small to medium-sized business group, manufacturing group, and on the board in general, I also serve as chairman of the Rhode Island Manufacturers Association and on ITAC 11 here in Washington.

I would just like to make a quick statement about what creates jobs. And a critical component for sustained economic recovery is job growth. With 95 percent of the potential consumers out of the United States, manufacturers everywhere have to compete globally. The way jobs are created is we go out and we have to compete for that global business. If we are competitive, we book the business. If we book the business, we have to make things. If we make things, we hire people. Very simple. Manufacturers have been proud to be leading the Nation's economic recovery with increased productivity, renewed investment, employment, export, and innovation. As we have heard many times today, we are the top manufacturing economy in the world, accounting for 21 percent of global manufacturing.

Nonetheless, we remain extremely concerned about the challenges facing us in the United States. It is 20 percent more expensive to manufacture product here. If you look at that 20 percent and add China's currency manipulation, we come out of the box at a 60 percent—in some cases—disadvantage, not to mention the trade barriers they are putting up. As president of a small business, I deal directly with these costs on a daily basis. I have an email on my laptop about a new opportunity in China. Their trade barriers are quite likely going to prevent me from getting that opportunity. It is for a small company called Apple. That is two to five jobs right there I am not going to be able to get potentially. So the situation on a global basis and the uncertainty, really, really hurts our ability to create jobs.

We created roughly 150,000 jobs in manufacturing in the last 4 months. If you look at the multiplier, which has been estimated to be anywhere from two to four, you could be talking about 600,000 jobs. In order for us to continue to drive and create these jobs in

this country, we need Congress to help us get more competitive. It is all about global competition. There are four goals that NAM has put together for economic growth. I would defer you to read those goals. I am trying to move as quickly as I can to get through everything here. But the United States needs access to global markets to enable us to get and reach 95 percent of these consumers who live outside our borders. To do that, we need effective tax policy, energy policy. We need to stop these insane regulations.

And let me just make a quick point about the environment. I have children. I have grandchildren. I want them to breathe clean air. Overregulating is going to hurt the global environment. How is that going to happen? We are driving business out of this country into other countries that are not as careful with the environment as we are. So in theory, overregulation is going to backfire and hurt the global economy.

Lowering the tax rate is important. The Ex-Im Bank is another important parameter that we need. We need FTAs. I want to make a quick statement about FTAs. The FTAs we have in place actually have trade surpluses. As a matter of fact, over the past 4 years where we have FTAs in place we have a cumulative trade surplus of $120 billion. That equates directly to jobs. We need jobs for that sustained economy. I have talked about that early on.

Workforce development, I have three technology jobs I can't fill right now. If you multiply that by all other kinds of small companies, we could be talking 600,000 to a million and a half jobs unfilled because of workforce.

I know I am out of time. I just want to end with this is a time of great optimism for manufacturing in the United States. We ask for your help. Help us get more competitive. Please, I am begging you. We can do it. We can get those jobs back here. We can make this economy rock but we need your help. We can't do it without your help.

Thank you.

[The prepared statement of Mr. Lubrano follows:]

National Association of Manufacturers

Leading Innovation. Creating Connectivity. Powering Progress.

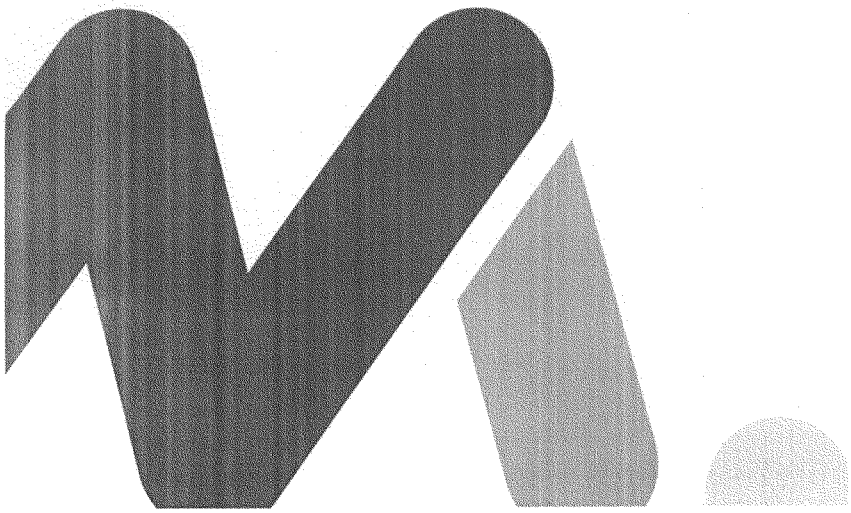
Testimony

of Al Lubrano
President
Materion Technical Materials (MTM)
Lincoln, Rhode Island
on behalf of the National Association of Manufacturers

before the House Energy and Commerce Committee's
Commerce, Manufacturing and Trade Subcommittee

on Where the Jobs Are: Can American Manufacturing Thrive Again?

April 19, 2012



COMMENTS OF THE NATIONAL ASSOCIATION OF MANUFACTURERS

BEFORE THE

HOUSE ENERGY AND COMMERCE COMMITTEE'S SUBCOMMITTEE ON COMMERCE, MANUFACTURING AND TRADE

APRIL 19, 2012

Chairman Bono Mack, Ranking Member Butterfield and members of the Subcommittee, thank you for the opportunity to testify on behalf of the National Association of Manufacturers (NAM) at the April 19, 2012, House Subcommittee on Commerce, Manufacturing and Trade hearing, "Where the Jobs Are: Can American Manufacturing Thrive Again?"

My name is Al Lubrano, and I am president of Materion Technical Materials (MTM) in Lincoln, Rhode Island. MTM is a subsidiary of Materion Corporation (formerly Brush Engineered Materials, Inc.), which is headquartered in Mayfield Heights, Ohio, with major offices throughout North America, Europe and Asia. Materion serves customers in more than 50 countries.

Founded in 1968 as Technical Materials, Inc., MTM is the world's leading resource for engineered, specialty strip metal solutions, offering a wide range of products, services and expertise in numerous markets, including automotive and consumer electronics, as well as defense, science, energy and medical technology. I have been leading Materion since 1995.

In addition to serving as chairman of the Rhode Island Manufacturers Association, I am a member of the Board of Directors of the NAM and serve as vice chair of the Board's Small and Medium Manufacturers Group. The NAM is the nation's largest industrial trade association, representing small, medium and large manufacturers in every industrial sector and in all 50 states. Manufacturers very much appreciate your interest in and support of the manufacturing economy.

Overview

Manufacturers are proud to be leading our nation's current economic recovery with increased productivity, renewed investment, employment, exporting and innovation. Even after the economic downturn, the United States remains the top manufacturing economy in the world, accounting for 21 percent of global manufacturing wealth.

The manufacturing sector employs nearly 12 million Americans earning 22 percent more in wages and benefits than the rest of the workforce. Since December 2009, manufacturers have been responsible for over 13 percent of the net growth in employment, even though manufacturers account for roughly 9 percent of the total nonfarm workforce. In the past four months alone, manufacturers have added nearly 150,000 net new employees and have been a bright spot for the macro-economy, with

most businesses cautiously optimistic about future production and employment in the months ahead.

U.S. manufacturers have the most productive workers in the world, far surpassing the worker productivity of any other major manufacturing economy, leading to higher wages and living standards. In addition, manufacturers perform two-thirds of all private sector R&D in the nation, driving innovation and helping U.S. companies become more competitive globally. Indeed, manufacturing in America is the engine that drives the U.S. economy by creating jobs, opportunity and prosperity.

Nonetheless, the NAM remains concerned about the significant challenges faced by manufacturers in the United States. Despite the critical role the industry plays in the economy, it is 20 percent more expensive to manufacture a product in the United States than it is for our largest trading partners,[1] and that excludes cost of labor. The primary drivers of this cost differential are policies in the areas of taxes, litigation, regulation and energy.

Layered on top of these higher costs is the broad uncertainty faced by American businesses, including "on-again, off-again" tax policy and an unpredictable regulatory environment. Like you, manufacturers also are concerned about the impact of the historically high levels of the federal deficit and the national debt on manufacturing and the overall U.S. economy.

The NAM very much appreciates the bicameral, bipartisan support for manufacturing in Congress, including this Subcommittee's focus on the state of U.S. manufacturing. The data I cited earlier demonstrate that manufacturing is "where the jobs are." For manufacturing to thrive again in this country, the current support for our industry needs to be translated into specific policy changes.

A Manufacturing Renaissance

To this end, the NAM last fall unveiled its new plan to grow the economy and create jobs. *A Manufacturing Renaissance: Four Goals for Economic Growth*[2] is a blueprint to increase investment in our economy, boost trade, strengthen the workforce and drive innovation.

When the Manufacturing Institute and Deloitte surveyed the public late last year about their views on manufacturing, 79 percent of Americans said a strong manufacturing base should be a national priority. Yet the public lacks confidence that policymakers are taking the right approach to improving our nation's competitiveness.

A Manufacturing Renaissance outlines policies and goals that our nation's leaders can rally around. It focuses on these four goals:

- The United States will be the best place in the world to manufacture and to attract foreign direct investment.

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[1] 2011 Structural Cost Study, The Manufacturing Institute and the Manufacturers Alliance for Productivity and Innovation (MAPI).

[2] Click here to access text of document.

- The United States will expand access to global markets to enable manufacturers to reach the 95 percent of consumers who live outside our borders.
- Manufacturers in the United States will have the workforce that the 21st-century economy requires.
- Manufacturers in the United States will be the world's leading innovators.

Achieving these goals requires bold action on the part of policymakers, and the NAM's plan outlines a number of policies that would help manufacturers compete.

Pro-Manufacturing Tax Reforms

The United States is no longer the dominant global player it was in the 1960s and 1970s. American manufacturers today operate in a fiercely competitive global marketplace. A pro-manufacturing tax system is critical to their ability to compete. Our nation's high tax rates, worldwide tax system and unpredictable and less competitive R&D incentives pose significant burdens on U.S. manufacturers.

The NAM's plan calls for a reduction in the corporate tax rate to 25 percent or lower. Today, the federal corporate tax rate in the United States is the highest among major economies. Other nations—including most recently Japan—have reduced their corporate tax rates to encourage the entry of new businesses and the growth of existing firms. Canada, for example, has enacted a series of rate cuts in recent years and is set to reduce its rate even further, to 15 percent at the beginning of next year.

Lowering the corporate tax rate is only part of the solution. More than two-thirds of manufacturers are organized as "S" corporations or other "flow-through" entities and pay income taxes at individual rates. Lower individual tax rates in effect through 2012 have played an important role in helping these companies survive challenging economic times and retain and create jobs. It is critical to smaller manufacturers that lower individual tax rates are extended and made permanent to create the certainty needed for long-term planning and to free up resources needed for capital investments and jobs.

Investment abroad by U.S. companies generates U.S. exports and supports jobs in the United States. Despite the benefits to the U.S. economy of having American companies expand beyond our shores, U.S. tax laws make it more difficult for U.S. worldwide companies to thrive and compete in the global marketplace. Most OECD countries impose little or no tax on the income their resident companies earn from active businesses in other countries. In contrast, the United States has a worldwide system that taxes income regardless of where it is earned.

As a result, U.S. multinationals generally have a higher tax burden than non-U.S. multinationals—a significant disadvantage when U.S. companies are competing against non-U.S. multinationals and local firms for business in a global marketplace. If U.S. companies cannot compete abroad, where 95 percent of the world's consumers are located, the U.S. economy will suffer from both the loss of foreign markets and domestic jobs that support foreign operations. In order to make U.S. worldwide companies more competitive, the NAM supports moving to a territorial tax system similar to systems in most industrial countries, structured to enhance U.S. competitiveness, not to raise additional revenue.

Innovation also is important to competitiveness, and the R&D credit—first enacted 30 years ago—is a proven incentive for spurring private sector investment in R&D and domestic, high wage, R&D jobs. Unfortunately, the credit, which is used by small and large companies, expired for the 15th time at the end of 2011 and has not been renewed. The uncertainty of an on-again, off-again credit influences companies' future R&D budgets, particularly when manufacturers are courted by other countries with more generous and permanent R&D tax incentives and lower corporate tax rates.

Given the critical role of the R&D credit in spurring innovation, one of the NAM's top tax priorities is a strengthened, permanent R&D tax credit to make the United States a more attractive place to perform research. The R&D credit also is a jobs credit: 70 percent of credit dollars are used for salaries of high-skilled R&D workers. A strengthened and permanent R&D tax credit will help drive innovation in this country.

A Progressive International Trade Policy

Even though the United States remains the world's largest manufacturer, producing one in every five dollars of all manufactured goods in the world, we are steadily losing ground in world markets. Manufacturers need a trade policy that will strengthen manufacturing in America, improve our competitiveness and stimulate job creation at home. These objectives can best be achieved by limiting costs and other impediments imposed on U.S. manufacturers, opening foreign markets to our products, leveling the playing field for American exporters in terms of exporter support, and supporting effective and enforceable compliance to transparent rules of fair competition.

More than one in every five manufacturing jobs currently is dependent on exports, and increasing exports is key to U.S. job creation. The domestic market is not growing rapidly enough to generate the rate of job growth we all want, and that faster job growth depends upon increased exports to the more rapidly-growing markets overseas, particularly in Latin America and Asia.

Ten years ago, the United States had more than a 13 percent share of world exports of manufactured goods. Last year, the U.S. share was only 9 percent. If our share of world exports of manufactured goods had stayed at the 2000 level, our exports of manufactured goods last year would have been $560 billion larger, and we would have eradicated our manufactured goods deficit.

The Administration's goal of doubling exports by the end of 2014 is a good starting place, and we need effective policies and programs to achieve that goal. The NAM laid out a detailed plan for how the goal could be accomplished in our "Blueprint for Doubling Exports",[3] which includes the major elements of a progressive trade policy for the United States.

The most important element of a progressive trade policy is a strategy that embraces market-opening bilateral and regional trade agreements. As our competitors race to negotiate barrier-reducing agreements for their companies, U.S. manufacturers are falling further and further behind in their ability to secure markets. Key to implementing that strategy is for Congress to provide the President with trade promotion authority

[3] http://www.nam.org/nei

(TPA). Our negotiating partners need the assurance that what is agreed to at the negotiating table will be what Congress is asked to approve.

Many policymakers oppose trade agreements in the mistaken belief that these agreements are the cause of U.S. manufacturing job losses. The opposite is true. Trade agreements have never been a major factor in our manufactured goods deficit, and over the past four years we have had a cumulative manufactured goods *trade surplus* of $120 billion with our trade agreement partners. During that same period, our manufactured goods trade deficit with countries without trade agreements with us cumulated to $1.8 trillion.

Congress took a critical first step last year in passing the trade agreements with Colombia, Korea and Panama. It is estimated that these agreements will generate $13 billion in new exports and support 100,000 jobs. But much more needs to be done. Of the 220 trade agreements in the world, the United States is a party to only 12. Those 12 agreements are with countries that account for only 12.5 percent of global GDP outside the United States. We currently lack trade agreements with countries accounting for 87.5 percent of global GDP outside the United States. We clearly need to pick up the pace.

We are very pleased that President Obama just announced the U.S.-Colombia trade agreement that was negotiated six years ago will go into effect May 15, raising the number of our agreements to 13. Colombia is the third-largest economy in South America, and its tariffs have raised the prices of U.S. exports there by 15 percent. Almost all of those duties will be eliminated on May 15, which is really good news for U.S. manufacturers.

But we need much more. We need to complete the Trans-Pacific Partnership, and set our sights on agreements with commercially significant markets such as Brazil, India, the European Union and others. The United States also needs to keep pressing for meaningful multilateral agreements in the World Trade Organization (WTO), but we must not let that delay us from obtaining the quicker and deeper liberalization that bilateral and regional agreements provide.

In order to increase U.S. exports, it also is imperative that we modernize our outmoded export control system, which severely hampers the export of products that should no longer be controlled and does not provide effective protection of our security. The Administration has been very supportive of our efforts, and we strongly urge Congress to act on the major changes needed. A study sponsored by the NAM concluded that we lose some $60 billion of exports annually because of the existing export control system.

We also need to provide U.S. exporters with the kind of support received by companies in other developed countries. The Department of Commerce's export assistance programs are underfunded and pale in comparison to assistance provided by other countries.

Currently we are at a crisis point with one of the most important export promotion programs the United States has—the Export-Import Bank (Ex-Im). Its authorization runs out at the end of this month, and it will hit its $100 billion lending ceiling before then—leaving America's exporters defenseless against the much larger official credit programs operated by our competitors. If the United States were to unilaterally disarm in this competitive world, our capital goods exporters and the 85 percent of the Bank's

customers that are small and medium-sized firms would immediately lose export customers and several hundred thousand manufacturing jobs would evaporate. Congress needs to extend the Bank and do so on an urgent basis.

The Ex-Im Bank is not a corporate welfare program and does not provide a subsidy. It earns money for the taxpayer while boosting exports and jobs. It is win-win, and it needs to be reauthorized immediately.

Additionally, non-tariff barriers need to be dealt with more effectively. Arbitrary standards, duplicative testing and certification rules, restrictions not based on risk or scientific evidence, and other barriers need to be addressed in our bilateral agreements and in a more forward-looking WTO. Strong intellectual property protection must also be part of our trade strategy. Innovation, product uniqueness, cutting-edge design and other products of U.S. innovation make us competitive, and this intellectual property must be protected. Better enforcement of existing agreements and stronger forms of cooperation to root out counterfeiters and intellectual property pirates are essential.

All nations need to be held accountable for their obligations under international trade rules, and the United States needs to take effective steps when needed against unfair trade practices under the dispute settlement procedures available to us. We need to ensure that we get what we bargained for in the WTO and in bilateral agreements, and we must also ensure that the effectiveness of our laws against unfair trade practices is not diminished.

The issues outlined above are key components of an effective trade strategy. We also encourage the committee to look carefully at the NAM's "Blueprint for Doubling Exports" for additional information.

A Comprehensive Energy Strategy

Affordable and reliable energy also is essential to manufacturers, the prosperity of American workers and our nation's overall economy. The manufacturing sector uses more than one-third of the energy consumed in the United States, and even more when product transportation is factored into the equation. Energy is indeed the lifeblood of manufacturing—manufacturers convert fuels to different forms of energy to manufacture all the products of daily life and the intermediates from which those products are made. However, a number of regulations including greenhouse gas (GHG) regulations, ozone air quality standards, Utility MACT, the Cross State Air Pollution Rule and the New Source Performance Standards for coal-fueled power plants will increase the cost of energy for manufacturing. This will decrease manufacturers' ability to retain jobs and to remain globally competitive.

A comprehensive energy strategy is essential to the long-term economic health of the United States, and we urge Congress to craft a concise, comprehensive and thoughtful plan that addresses the energy needs of this country for the next 30 to 40 years.

It is critical that any comprehensive plan expand access to our nation's domestic energy supply in order to meet current needs for affordable energy. Manufacturers support an energy strategy that embraces all forms of domestic energy production while expanding existing conservation and efficiency efforts. Manufacturers and consumers will continue to rely upon all sources of fuel and energy for decades to come.

Oil, natural gas and clean coal remain essential contributors to America's energy security. The U.S. nuclear energy industry is in the process of building four new power plants and is well-positioned to expand its critical role in providing safe, affordable and reliable power. Alternative fuels and renewable energy sources like wind energy and solar power will continue to play a significant role in our energy mix in the future. Therefore, more of our energy needs to come from domestic sources, and the NAM believes it would be unwise to exclude any form of energy from our energy strategy. In addition to domestic sources, we are fortunate to have access to Canadian oil that can provide us with a reliable and affordable supply of energy. However, if we don't build the Keystone XL pipeline, we will not be able to take advantage of this important source of energy.

One example of a domestic source of energy that needs to be continuously explored and developed is the oil and gas in the Outer Continental Shelf (OCS). We thank the Administration for its commitment to advancing the permitting process for offshore drilling. However, the permitting process is slow and at times confusing. Permits need to be issued for manufacturers to continue to return to the OCS and to begin to safely explore and drill again. Not only will this provide a reliable and affordable source of energy for manufacturing, it will also generate jobs and revenues. Another example of a domestic source of energy is shale gas and shale oil. Shale-based energy has the potential to change the energy landscape and provide us with greater energy independence. Much of the shale oil is on public lands, and it is important that the permitting process be efficient and streamlined. Shale gas is primarily found on private and state lands. The states do a great job of regulating these activities, and the federal government should not attempt to usurp the role of the states. These activities will provide a reliable supply of energy and will create millions of jobs.

National energy policies should also rely on the marketplace and its proven ability to meet the nation's energy needs. The NAM is opposed to the imposition of taxes levied on particular sectors of the economy. The ramifications of singling out energy or any other particular sector for tax increases would introduce a series of distortions in the economy.

Beyond these domestic sources of energy, manufacturers are doing their part in innovation and energy efficiency. There is no sector of the economy more supportive of energy efficiency than manufacturing. No segment of American society has as much to gain from efficiency and waste reduction measures as the manufacturing sector and the consumers they serve. In fact, over the past 30 years, the energy efficiency of U.S. industry has improved remarkably. Energy intensity, the amount of energy it takes to produce one dollar of goods, has been cut in half, from 9.13 thousand Btu in 1970 to 4.32 thousand in 2003. Roughly half of the reduction in energy intensity can be attributed to energy efficiency improvements—using less energy to do the same amount of work.

A Pro-Growth Regulatory Environment

It's also more expensive to manufacture in the United States because of complex, costly and burdensome regulations. The burden of regulation falls disproportionately on manufacturers, particularly on small manufacturers because compliance costs typically are not affected by economies of scale.

The NAM's strategy calls on Congress and the President to roll back regulations that impose unnecessary costs and undermine employer flexibility, like the onslaught of rules and orders from the National Labor Relations Board (NLRB). In recent months, the NLRB has undertaken an aggressive agenda including proposed rules that would change union election procedures and shorten the period between the time an employer learns a union is trying to organize and the election.

As part of their effort to rein in overregulation, policymakers should reform the design of our regulatory system to produce a more competitive economy. Several institutions in government already are dedicated to analyzing the impacts of regulation on the economy and the public; these institutions should be strengthened and given additional resources.

The Office of Information and Regulatory Affairs (OIRA) at the Office of Management and Budget (OMB) is the central clearinghouse for significant rulemaking by non-independent agencies. Despite its critical function, OIRA has shrunk as the rest of the federal government has grown in size and scope, with the number of employees at OIRA dropping from 90 to 50 and the federal government staff dedicated to writing, administering and enforcing regulations increasing from 146,000 to 242,000.

Within the Department of Commerce, the Office of Industry Analysis assesses the cost competitiveness of American industry and the impact of proposed regulations on economic growth and job creation. Unfortunately, there is an ongoing attempt to redirect the efforts of this office and undermine its ability to participate effectively in a competitiveness review of regulation at a time the role of this office should be strengthened.

The Small Business Administration's (SBA) Office of Advocacy helps federal agencies implement the Regulatory Flexibility Act (RFA) and its amendments. The RFA requires agencies to consider the needs of small businesses when drafting regulations. Currently, under the RFA, only a small number of regulations require this analysis because "indirect effects" cannot be considered and the small business panel process only applies to three agencies. In the past, this process has saved billions of dollars in reduced regulatory costs for small businesses. The House of Representatives passed H.R. 527, the Regulatory Flexibility Improvements Act, which would close loopholes agencies use to avoid provisions of the RFA that reduce the cost of regulations on small businesses. The NAM supported H.R 527 and believes it can be the basis for strong, bipartisan reforms of the system.

While Congress plays an important role in the regulatory process, it does not have specifically accountable staff designated to develop cost estimates of all proposed or final regulations. A congressional office for regulatory analysis under the Congressional Budget Office or some similar institution could result in a more thoughtful analysis of the regulatory authority granted by Congress, provide Congress with better tools to analyze agency regulations and allow Congress to engage in some more holistic reviews of overlapping and duplicative statutory mandates that have accumulated over the years.

In addition, Congress should confirm the President's authority over independent regulatory agencies. Consistency across the government in regulatory procedures and analysis would only improve certainty and transparency of the process. The President's Council on Jobs and Competitiveness recently echoed this recommendation and stated that improved analysis by independent regulatory agencies would result in improved regulations.

Manufacturers firmly believe that the President's effort to review old, outdated regulations should be made permanent. The best incentive for high-quality retrospective reviews of existing regulation is to automatically sunset those rules that are not affirmatively chosen to be continued. The federal government imposes on the public more than 9.9 billion hours of paperwork burden annually, and this burden continues to grow. Although a large number, this underestimates the total time spent on compliance. Despite some successful efforts to limit these burdens, they will never be substantially reduced without sunsetting the underlying regulatory requirements. Congress has considered sunsets and retrospective reviews in the past, and we support common-sense regulatory reform that forces agencies to modernize or eliminate outdated rules.

Another step in regulatory reform is to update the 65-year-old Administrative Procedure Act (APA). Specifically, the NAM recommends that Congress incorporate the principles and procedures of President Obama's Executive Order 13563 and President Clinton's Executive Order 12866 into the APA to create greater certainty and improve regulatory outcomes. Since the APA applies to all agencies, including independent regulatory agencies, this is another way to ensure more uniform accountability across the government. The House has passed H.R. 3010, the Regulatory Accountability Act of 2011. The bill is a bipartisan comprehensive regulatory reform that would improve federal policies by using sound regulatory principles, ensuring rules are supported by strong and credible evidence and inflicting the least burden possible while still achieving congressional intent. The NAM supports H.R. 3010 and its bipartisan Senate companion, S. 1606.

A 21st-Century Infrastructure

As the world's largest manufacturing economy, the United States also requires long-term investments in transportation and a comprehensive 21st-century infrastructure strategy to help ensure our future competitiveness in international markets. Competitors in Asia, Europe and South America continue to ramp up investments in all types of infrastructure while we struggle to maintain crumbling highways, obsolete bridges, aging public transit, overstressed water and wastewater systems and outdated air traffic control technology.

While our nation faces many fiscal challenges, making key investments in infrastructure should not be delayed. Manufacturers rely on a productive system of roads, rails, ports, inland waterways and airports for receiving raw materials and shipping finished products to customers throughout the United States and the world. The nation loses 4.8 billion hours of extra time a year due to traffic tie-ups, and traffic congestion costs Americans $115 billion a year in wasted time and fuel.

The needs of the system are enormous, and Congress must pass a fully funded, multi-year surface transportation authorization soon. The current authorization expired over two-and-a-half years ago, and short-term extensions do not pave the way for key reforms that will help prioritize funding, welcome private infrastructure investment,

streamline environmental permitting decisions and reduce redundant state and federal regulations that act as barriers to the development of our nation's infrastructure.

A Skilled Workforce

The NAM's strategy also highlights the shortage of skilled workers in this country. The plan calls for investment in science, technology, engineering and math (STEM) skills and education so that the workforce will have the skills that meet the needs of 21st-century manufacturing.

According to employers, one of the key issues for manufacturers is the need for a skilled workforce. A report issued last October by Deloitte identified 600,000 jobs that cannot be filled because there are not people with the skills to fill them. The Manufacturing Institute's Skills Certification System has identified the nationally-portable industry recognized certifications that meet these needs for manufacturing and is working with community colleges across the country to align their curriculum to those certifications, but more can be done.

We need to focus the existing federal workforce training system on the skills that have been identified by private-sector employers as in-demand. By prioritizing these resources, we are helping workers develop the skills they need to attain a job and employers hire people with the right skills.

We also need to look at existing federal workforce training opportunities that often do not address the skills that are in demand by employers. Programs such as the Workforce Investment Act need to be focused toward a goal of training workers to credentials that are in demand in the private sector. That is why the NAM supports HR 1325, the America Works Act, which would provide this prioritization.

Cybersecurity and Data Privacy

As an innovative industry, manufacturers are entrusted with vast amounts of data through their comprehensive and connected relationships with customers, vendors, suppliers and governments. They hold the responsibility for securing these data, the networks on which they run and the facilities and machinery they control at the highest priority level. NAM members fully recognize that the economic security of the United States is directly related to our cybersecurity.

Consequently, the NAM supports the government sharing timely and actionable threat and vulnerability information with the private sector. We also support the creation of a voluntary framework that allows companies to share information with the government and with each other without creating new liabilities.

NAM member companies also believe that allowing the private sector to continue developing appropriate general and industry-specific best practices in collaboration with the federal government is the best way to ensure innovation while addressing the evolving threats to our nation's security. In contrast, mandates on the use of specific technologies or standards and imposing a prescriptive regulatory framework would unduly inhibit innovation.

The NAM and all manufacturers remain intensely committed to working with Congress to secure our cyber infrastructure from harm. We look forward to working with you, Madam Chairwoman, on your SECURE IT Act, which addresses the concerns of manufacturers outlined above and to help ensure that any legislation that moves forward mitigates the cyber threat facing our nation.

Similarly, the NAM supports manufacturers' efforts to safeguard data that is entrusted to them. Manufacturers recognize that respecting privacy builds consumer confidence. The manufacturing industry's best practices in the proper handling of data are therefore constantly adapting and evolving to address new threats. Unfortunately, when the government mandates the use of specific tools or technologies, they can become quickly outdated, thereby stalling innovation.

The NAM works to ensure that the manufacturing industry's best practices and market-based solutions are used to protect data, the sensitivity of the information handled and the purposes for which it will be used to drive privacy and security policies, and government agencies and private organizations are held to the same standards as industry.

We thank you for your leadership on this issue Madam Chairwoman, specifically your efforts on the Secure and Fortify Electronic (SAFE) Data Act. We look forward to working with you on this issue when it is considered by the full Committee.

Conclusion

After the deepest recession in seven decades, America's economy is beginning to recover, striding the long way back toward expansion and employment. Manufacturers are proud to be leading the way. Indeed, now is American manufacturing's moment and we cannot take these recent improvements for granted. If we are to set a path for sustained economic growth, job creation and long-term competitiveness, policymakers must embrace a comprehensive strategy. As outlined above, more can and must be done to make the U.S. manufacturing sector more competitive, more productive and better able to create even more high-paying jobs.

The policy objectives in the NAM's *Manufacturing Renaissance*—pro-competitiveness tax rules, a 21st-century trade policy, a viable and globally competitive domestic energy industry, common-sense regulatory reform, critical infrastructure improvements and a skilled workforce that is able to understand new technologies and manufacturing processes—will go a long way to creating a climate that is more suited to the global competitiveness challenges that manufacturers face.

Thank you for the opportunity to share our views on the opportunities and challenges facing manufacturers in the United States. As the pre-eminent U.S. manufacturers' association and the nation's largest industrial trade association, representing small and large manufacturers in every industrial sector and in all 50 states, the NAM is committed to working with you to advance legislation that will allow manufacturers in the United States to create jobs and compete effectively in the global marketplace.

Supplemental Sheet

House Energy and Commerce Committee Subcommittee on Commerce, Manufacturing and Trade
hearing on "Where the Jobs Are: Can American Manufacturing Thrive Again?

April 19, 2012

Statement by:

Al Lubrano
President
Materion Technical Materials (MTM)

On Behalf of:

National Association of Manufacturers
1331 Pennsylvania Ave., NW
Suite 600 North
Washington, DC 20004-1790
Phone: (202) 637-3000

NAM contacts: Dorothy Coleman, (202) 637-3077, dcoleman@nam.org
Wes Irvin, (202) 637-3039, wirvin@nam.org

Mrs. BONO MACK. Thank you, Mr. Lubrano.
Mr. Giffi, you are recognized for 5 minutes.

STATEMENT OF CRAIG A. GIFFI

Mr. GIFFI. Good afternoon, Chairwoman Bono Mack and members of the subcommittee. Thank you for inviting me to testify this afternoon. The work of this committee and your leadership to help bolster U.S. manufacturing competitiveness is essential to this country and well appreciated.

For the past several years, Deloitte has had the privilege of working in collaboration with the World Economic Forum, the U.S. Council on Competitiveness, and the Manufacturing Institute to better understand the capabilities necessary to drive superior manufacturing competitiveness. Deloitte and the Manufacturing Institute have conducted a national survey of the American public annually for the past 3 years.

The results indicate that Americans remain steadfast in their commitment to creating a strong, healthy, globally competitive manufacturing sector in the United States. The most recent survey of Americans reveals that 85 percent believe that the manufacturing sector is very important to our standard of living. Asked how they would prefer to create 1,000 new jobs in their communities with any new business facility, Americans indicated that they wanted those jobs to be in the manufacturing sector more so than any other industry choice.

As part of our work with the World Economic Forum on their Future of Manufacturing Project, we uncovered compelling research from the Harvard Kennedy School and the MIT Media Lab, which indicates that the advancement of manufacturing capabilities is directly linked to a nation's economic prosperity, and importantly, to the prosperity of its middle class. This research also indicates that the capabilities of a nation's manufacturing sector is the best predictor of economic growth and prosperity for a nation over the long-term. It shows that the more advanced the products are that a nation can make and trade and the more advanced the manufacturing capabilities it possesses, the greater the prosperity.

Finally, the research suggests that a great competition is underway between most nations for the benefits that their citizens can derive from a vibrant manufacturing sector. And this competition is showing an increasing emphasis on advanced manufacturing capabilities and products.

In a parallel effort, in collaboration with the U.S. Council on Competitiveness, Deloitte conducts a survey of CEOs at manufacturing organizations around the world to gain their perspective on the drivers of competitiveness, as well as their view of the relative ranking of nations in terms of competitiveness.

In addition, we conducted a series of one-on-one interviews on behalf of the Council with CEOs, labor union leaders, university presidents, and the directors of some of America's national laboratories over the past 18 months. Many of the leaders participating in those interviews describe the critical relationship between manufacturing and innovation in an ecosystem that extends to include community colleges, universities, national laboratories, and the private and public sectors, and they refuted any notion that America

can maintain its competitive advantage in research and scientific discovery over the long run without also maintaining strong capabilities in manufacturing. They must go hand-in-hand.

Not surprisingly, all of these participants identified talent-driven innovation as the key driver of a country's competitiveness while also noting the growing skills gap in America as one of the most concerning challenges affecting the U.S. According to a recent survey of U.S. manufacturers conducted by Deloitte and the Manufacturing Institute, 67 percent of executives reported moderate to severe shortages of qualified workers for open positions translating into more than 600,000 available jobs that can't be filled today simply because employers can't find workers with the skills they need.

America's "secret sauce" for success must lie in a workforce where, at all levels, it is equipped with the science, technology, and math backgrounds necessary to compete with the very best and the creativity and leadership to be solution pacesetters for the world.

A common theme across all of this research, the Council's Ignite series of recommendations to policymakers from U.S. business leaders, university presidents, national laboratory leaders, and labor union leaders, the input from the American public in our Unwavering Commitment Report, or the perspectives on the future of manufacturing from our work with the World Economic Forum is that the U.S. needs a comprehensive competitiveness strategy for the 21st century. And we will need an effective public-private collaboration resulting in the United States being consistently recognized as the leader in workforce talent, in innovation, energy availability and cost, and in business climate. Actions that facilitate that collaboration across all the stakeholders will enable the U.S. to drive high-value job creation and economic prosperity for generations to come.

Thank you for this opportunity. I look forward to addressing your questions.

[The prepared statement of Mr. Giffi follows:]

Testimony before the House Committee on Energy and Commerce
Subcommittee on Commerce, Manufacturing, and Trade
on "U.S. Manufacturing Competitiveness"

Mr. Craig A. Giffi
Vice Chairman and U.S. Consumer & Industrial Products Practice Leader
Deloitte LLP
April 19, 2012

Good morning Chairwoman Bono Mack, Ranking Member Butterfield, and Members of the Subcommittee. Thank you for inviting me to testify this morning. My name is Craig Giffi. I am a vice chairman with Deloitte LLP and I lead the organization's Consumer & Industrial Products Industry practices in the United States.

For the last several years, Deloitte has had the privilege of working with a number of global and national organizations focused on studying the complex linkages between manufacturing and economic prosperity, as well as understanding what nations can do to reap the benefits from having globally competitive manufacturing capabilities. Working in collaboration with the World Economic Forum, the U.S. Council on Competitiveness, and the Manufacturing Institute, Deloitte has collected input directly from business leaders and policymakers here and around the world, and labor leaders, university presidents, and the directors of some of America's leading national laboratories, as well as average American citizens here at home. The objective of this research has been to gather input and perspectives from business executives, subject matter experts, and other

stakeholders on U.S. manufacturing competitiveness. The key messages from this research are the source for my comments this morning.

For the past three years in a row, Deloitte and the Manufacturing Institute have conducted a national survey of the American public. The results indicate that Americans remain steadfast in their commitment to creating a strong, healthy, globally competitive manufacturing sector in the United States. The results of the most recent survey of average citizens reveals that 85 percent of Americans agree that manufacturing is very important to our standard of living, and 77 percent believe it is very important for our national security.

Asked how they would prefer to create 1,000 new jobs in their communities with any new business facility, Americans responding to the survey indicated they wanted those jobs to be in the manufacturing sector – more so than any other industry.

As part of our work with the World Economic Forum on their Future of Manufacturing Project, which was unveiled in Davos in January 2012, we identified compelling research from the Harvard Kennedy School and the MIT Media Lab which illustrates the importance and impact manufacturing has on a nation. This research indicates that the advancement of manufacturing capabilities is directly linked to a nation's economic prosperity and, importantly, the prosperity of its middle class. This result also suggests

that the health and vitality of a nation's manufacturing sector is the best predictor of economic growth over the long term. The research also shows that the more advanced the goods are that a nation makes, and the more advanced the manufacturing processes it uses, the greater the prosperity.

A great competition is underway between most nations – both emerging and developed – for the benefits that their economies can derive from a vibrant manufacturing sector.

In an effort to better understand manufacturing capabilities in the United States and gain perspective on what challenges are impacting the United States' ability to compete in today's global marketplace, Deloitte, in collaboration with the U.S. Council on Competiveness, conducts a survey of the CEOs of manufacturing organizations around the world to gain their perspectives on the drivers of competitiveness, as well as their view of the relative ranking of nations in terms of manufacturing competitiveness. In addition, we conducted a series of one-on-one interviews on behalf of the Council with nearly 80 business leaders, labor leaders, university presidents, and directors of some of America's national laboratories.

The leaders participating in those interviews emphatically described the symbiotic relationship between manufacturing and innovation in an ecosystem that extends to include colleges, universities, national laboratories and the private and public sectors.

They also touched on the tremendous contribution and importance of the manufacturing sector to both the past and future economic success of the United States.

Interestingly, each interviewee independently refuted the idea that America can maintain its competitive advantage in research and scientific discovery without also maintaining its superiority in manufacturing. Many participants dedicated significant portions of time providing detailed explanations of how basic research and applied research is informed by and improved by a close connection to the actual process of making products and through scaling up new ideas and inventions.

Not surprisingly, interview participants and survey respondents identified talent-driven innovation as the key driver of a country's manufacturing competitiveness, while also noting the growing skills gap in America as one of the most concerning challenges affecting U.S. manufacturing competitiveness.

According to a recent survey of U.S. manufacturers conducted by Deloitte and the Manufacturing Institute, 67 percent of executives report moderate to severe shortages of available, qualified workers – translating into more than 600,000 available jobs that can't be filled today simply because employers cannot find workers with the skills they need.

In today's borderless economy, participants overwhelmingly agreed that the United States must be the global leader in attracting, developing and retaining top science and engineering talent to drive world class innovation and R&D, but it must also develop and retain the best and highest skilled manufacturing workforce. America's "secret sauce" for success lies in a workforce at all levels equipped with the science and math backgrounds necessary to compete with the best, and the creativity and leadership to be solution pace setters for the world.

In conclusion, *manufacturing matters* to our economy. Our long-term opportunities lie with advanced manufacturing and emerging technologies — and in America's ability to lead in the innovation and R&D and with a workforce talented enough to competitively produce these products. Taking full advantage of these opportunities will require creating and cultivating effective public-private collaboration resulting in the United States being consistently recognized as the leader in workforce talent and innovation. Actions that facilitate collaboration across all the stakeholders in this important value chain can help the U.S. drive high-value job creation and economic prosperity for generations to come.

Thank you for this opportunity.

I look forward to addressing your questions.

Mrs. BONO MACK. Thank you, Mr. Giffi.
And Mr. Tindall, 5 minutes is your time.

STATEMENT OF KEN TINDALL

Mr. TINDALL. Good afternoon, Madam Chairman, members of the committee. Thank you for the invitation to share my experience at your hearing today.

My answer to your question, "Can American Manufacturing Thrive Again?" is a strong yes. Let me explain. My organization, the North Carolina Biotechnology Center was mentioned in Congressman Butterfield's opening remarks. We are a state-funded nonprofit that works to create an environment conducive to innovation, company creation, recruitment, and growth resulting in biotech jobs.

Critical to the biotechnology industry is biomanufacturing. These factories make some of our most advanced therapies and the handling is specialized. Process technicians may have associate's or bachelor's degrees. Engineers develop new processes and maintain the plants in virtually all of these facilities, employ individuals with varying education levels from certificate to Ph.D. These are great jobs. Salaries begin around $30,000 for a high school graduate with some additional training and go on to top six figures. The average salary for all biotech jobs in North Carolina is more than $75,000, approximately twice that of our private sector.

So how did North Carolina create these jobs? As biotechnology was being developed some 40 years ago, North Carolina's economy revolved around tobacco, textiles, and furniture, industries in decline. In 1984, the North Carolina Biotechnology Center was created to support biotechnology research, business, and education across the State for long-term economic development.

North Carolina has taken a consistent and systematic approach to biotech job creation. We fund researchers to develop ideas with commercial application, we help spin ideas out of universities, and we work with partners, notably the North Carolina community college system, public and private universities, and industry. Today, some 58,000 people work at about 500 North Carolina biotech companies. Of these, 18 to 20,000 work in manufacturing. In addition, the State's biomanufacturing companies showed modest growth since 2002 and are projecting 6.2 percent annual growth between 2011 and 2014.

To meet the growing workforce demands, the State established a sector-specific training consortium in 2006. This partnership, called NCBioimpact combines the resources of North Carolina's university and community college systems with industry expertise to form a unique academic industry and government collaborative. The practical impact is that multiple companies have located their biomanufacturing facilities in the State, at least in part because of the comprehensive training capabilities of the NCBioimpact partnership. Across the board, site managers from companies like Novartis, Merck, Biogenetic, and others are able to fill almost every entry-level vacancy from within North Carolina.

Finally, how does North Carolina's challenge from the early 1980s reflect the challenge the United States faces today? First, we need a strong pipeline of products in order to increase manufac-

turing jobs. Second, training programs must produce workers who are job-ready day one. Third, we must recognize that other countries are beginning to affect our competitiveness in this sector.

Increasing manufacturing jobs requires a culture of innovation. Quite simply, more ideas in the pipeline provide more chances for a product to be developed to a point of manufacture. Certainly, this concept holds true for biotech products but also can be applied to many of the new knowledge-based industries that will require advanced manufacturing to develop and produce new products for their industries.

Second, these biomanufacturing jobs require a different skill set than the assembly line jobs created at the turn of the previous century. In North Carolina, our training programs work to complement one another and stay in sync with industry needs, but success in these jobs also requires strong STEM education as early as possible.

Third, the competition and pressures for this industry are global. In North Carolina, one biotech job yields 4.6 total jobs according to the Patel Institute. Everyone wants these high-impact jobs, and it is not just other U.S. States in competition for these jobs. Increasingly, all of our States are competing against a growing international contingent of biotechnology clusters.

In summary, Madam Chairman, I believe manufacturing can thrive and continue to create jobs in the U.S. The infrastructure that supports these high-tech manufacturing centers lies in our education system and our capacity to innovate and develop new products, not just biotech products but products from new and emerging high-tech industries as well. Strengthening math and science education, linking workforce training programs with industry, and consistently supporting innovation will continue to improve the environment necessary for the creation and manufacture of specialized biotechnology and other technology-based products here in the U.S.

Thank you, Madam Chairman and committee members, for the opportunity to speak with you today. I am happy to answer questions.

[The prepared statement of Mr. Tindall follows:]

North Carolina Biotechnology Center
15 T.W. Alexander Drive
Research Triangle Park, NC 27709 (919) 541-9366

Testimony of the North Carolina Biotechnology Center
Dr. Ken Tindall, Vice President of Science and Business Development
For the hearing "Where the Jobs are: Can American Manufacturing Thrive Again?"
Before the House Energy and Commerce Committee's
Subcommittee on Commerce, Manufacturing and Trade
April 19, 2012

One-page Summary

In response to the subcommittee's question "Can American Manufacturing Thrive Again?" my answer is a strong "yes." This testimony outlines North Carolina's success in creating biomanufacturing jobs following steep losses in traditional manufacturing.

Biomanufacturing jobs require a different skill set than the assembly line jobs created at the turn of the previous century. Biotech is a knowledge-based industry that creates a sophisticated product. Its workers must execute complex steps in a highly regulated environment.

In North Carolina, we combined the resources of North Carolina's university and community college systems with industry expertise to form a unique academic, industry and government partnership. It's called NCBioImpact, and this program is training hundreds of future workers, current employees and even FDA inspectors today.

The North Carolina Biotechnology Center worked to help create this partnership, and the right environment for biomanufacturing to thrive in North Carolina. We've worked since 1984 to support biotechnology research, business and education. We also foster innovation, technology commercialization and company creation through our universities. A robust manufacturing economy relies on new ideas that lead to new products to create an environment for company growth and new jobs.

In summation, competition for these jobs, like all manufacturing, is global. To support these high tech manufacturing centers, the U.S. needs a strong education infrastructure and the capability to innovate and develop new products. Strengthening math and science education, linking workforce training programs with industry, and supporting new ideas will continue to improve the environment necessary for the creation and manufacture of specialized biotechnology products here in the U.S.

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Dr. Ken Tindall, Senior Vice President for Science and Business Development
For the hearing "Where the Jobs are: Can American Manufacturing Thrive Again?"
Before the House Energy and Commerce Committee's
Subcommittee on Commerce, Manufacturing and Trade
April 19, 2012

Good morning, Madam Chairman, and Members of the Committee. I am Dr. Ken Tindall, Senior Vice President for Science and Business Development at the North Carolina Biotechnology Center. My organization is a state-funded non-profit that works to create an environment conducive to innovation, company creation, recruitment and growth resulting in biotech jobs.

Thank you for the invitation to share my experience at your hearing today on "Where the Jobs Are: Can American Manufacturing Thrive Again?" I absolutely believe the answer to that question is yes. In my testimony today, I will describe pharmaceutical and biomanufacturing jobs and how North Carolina became a hub for biomanufacturing. Finally, I will discuss the opportunity that we, the United States, have to replicate that success and create even more high tech manufacturing jobs.

Critical to the biotechnology industry is biomanufacturing, or using cells or their natural processes to produce products. Biomanufacturing jobs are specialized. Employees work in a clean environment, usually filled with stainless steel tanks from 20 to 40 feet tall. Hundreds of feet of piping run from the supply source to the tanks and from the tanks to more processing and packaging equipment. All of these operations take place in temperature-controlled environments.

These factories make insulin, vaccines and treatments for various diseases like breast cancer and multiple sclerosis. These are complex molecules that are produced in a highly controlled environment. And, the handling is specialized. The products, some of our most advanced therapies and vaccines, often require refrigeration for transport and storage.

Technicians who run the processes to create these medicines may have Associate's or Bachelor's degrees. Engineers create the factory specifications and develop new processes, and also maintain the plants once they are up and running. Entire departments are staffed by

varying education levels from certificate to Ph.D. and all employees are dedicated to quality assurance and quality control.

These are great jobs. Salaries begin around $30,000 to $40,000 for a high-school graduate with some training and a certificate and go on to top six figures. The average salary for all biotech jobs in North Carolina is more than $75,000, approximately twice that of our private sector.

These manufacturing jobs are a far cry from weaving cloth or assembling furniture. So how did North Carolina create these jobs?

Let me give you some background about North Carolina. When scientists 40 years ago developed techniques that later allowed us to manufacture human insulin – the first approved biotech product – North Carolina's economy revolved around tobacco, textiles and manufacturing.

Like other manufacturing locations in the U.S., technology replaced human labor. Unskilled jobs went overseas. From 1996 to 2006, North Carolina's employment dropped:

- 10 percent in furniture
- 23.5 percent in tobacco
- 51 percent in traditional textiles.[1]

In 1984, North Carolina created my organization, the North Carolina Biotechnology Center. NCBiotech was established to support biotechnology research, business and education across the state for long-term economic development.

We take a systematic approach to job creation. We fund researchers to identify and develop ideas with commercial application. We help spin the ideas out of universities and into companies, and then we fund critical points in their growth. And, we work with partners – notably the North Carolina Community Colleges System, public and private universities, and industry – to make sure those companies have workers with the right training.

Today, some 58,000 people work at about 500 North Carolina biotech companies. Of these, 18,000 to 20,000 work in pharmaceutical and biotech manufacturing. While other manufacturing sectors in North Carolina have experienced a significant decline, the state's pharmaceutical and biomanufacturing sector has shown modest growth since 2002. Much of

[1] Duke University Center on Globalization, Governance & Competitiveness, *North Carolina in the Global Economy*, http://www.soc.duke.edu/NC_GlobalEconomy/index.shtml, (Accessed April 17, 2012).

this growth can be attributed to the state's biomanufacturing companies which showed 3.5% annual growth since 2002 and are projecting 6.2% annual growth between 2011 and 2014. [2]

To meet the growing workforce demands of the bio- and pharmaceutical manufacturing industries, the state established a sector-specific training consortium. This partnership, called NCBioImpact, combines the resources of North Carolina's university and community college systems with industry expertise to form a unique academic, industry and government collaborative.

This collaboration has produced curricula among three training partners that directly support industry needs, including:

- BioNetwork, the North Carolina Community College System's statewide initiative with seven centers providing expertise and support to all 58 community colleges. BioNetwork trains at all levels of this industry, upgrading the skills of incumbent workers, from entry level to management.
- BTEC (Golden LEAF Biomanufacturing Training and Education Center) at North Carolina State University, an 82,500-square-foot facility featuring high-tech classrooms and laboratories with bench-scale and multi-scale bioprocessing equipment. Many laboratories simulate a production facility that must meet strict regulatory requirements, such as current Good Manufacturing Practice (cGMP) required by the United States Food and Drug Administration (FDA).
- BRITE (Biomanufacturing Research Institute and Technology Enterprise) at North Carolina Central University provides undergraduate and graduate training programs in the Pharmaceutical Sciences. BRITE has a strong research focus, particularly in the areas of drug discovery and manufacturing process technology.

The practical impact is that multiple companies have located their biomanufacturing facilities in the state, at least in part, because of the comprehensive training capabilities of the NCBioImpact partnership. For example, Canadian-based Medicago opened in 2011 and was able to fill nearly all of their initial 56 vacancies from within the state. Likewise, Novartis Vaccines began initial operations in 2010 with a large contingent of North Carolina-trained staff. Novartis, Merck, Grifols, Pfizer, Biogen Idec, Eisai and others have sustained and expanded operations in the state. Across the board, site managers are able to fill most entry-level vacancies from within North Carolina.

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[2] North Carolina Biotechnology Center, *Window on the Workplace 2012*, http://www.ncbiotech.org, (Forthcoming, June 2012.

Finally, how does North Carolina's challenge from the early 1980s reflect the challenge the United States faces today? What lessons have we learned?

First, we need a strong pipeline of products in order to increase manufacturing. Second, training programs must produce workers who are job-ready, day one. Third, we must recognize that other countries are beginning to affect our competitiveness in this sector.

Increasing manufacturing jobs requires that we create more products and then manufacture them here in the U.S. In North Carolina, we started by stimulating innovation in the universities, working to commercialize those research ideas and ultimately creating companies.

Quite simply, more ideas in the pipeline provide more chances for a product to be developed to a point of manufacture. Certainly, this concept holds for biotech products, but also can be applied to many of the new knowledge-based industries that will require advance manufacturing to develop and produce new products for their industries.

Second, these biomanufacturing jobs require a different skill set than the assembly line jobs created at the turn of the previous century. Biotech is a knowledge-based industry that creates a sophisticated product. Its workers must execute complex steps in a highly regulated environment. In North Carolina, our training programs work to complement each other and stay in sync with industry needs. But success in these jobs also requires STEM education – Science, Technology, Engineering and Math – as early as possible. To address some of these needs, NCBiotech grants help teachers to bring these biotechnology lessons into the classroom.

Third, the competition and pressures for this industry are global. In North Carolina, one biotech job yields 4.6 total jobs according to the Battelle Institute.[3] Everyone wants these high-impact jobs.

Because I've talked largely about North Carolina, one might think that it's other U.S. states in competition for these jobs. However, that's not how we at the North Carolina Biotechnology Center see the world. While some products, like vaccines, are best manufactured in the U.S. for reasons of safety and availability, increasingly all of our states are competing against growing international biotechnology clusters in Spain, Ireland, Singapore, Brazil, and more. Plus, other countries are devising creative ways to attract these jobs:

- Great Britain has created the patent box, which puts a reduced tax rate on profits generated from intellectual property developed in the UK.
- Singapore has invested billions in research and development infrastructure, and is now attracting more firms and biomanufacturing facilities.

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[3] Battelle Technology Partnership Practice, *Battelle/BIO State Bioscience Initiatives 2010*, http://www3.bio.org/local/battelle2010/Battelle_Report_2010.pdf, May 2010, (Accessed April 17, 2012).

- Brazil targeted alternative fuel from sugar cane with billions of dollars in government-sponsored research.

In summary, Madam Chairman, I believe biomanufacturing can continue to create jobs in the U.S. As mentioned previously, these factories are not the assembly lines of the previous century. The infrastructure that supports these high tech manufacturing centers lies in our education system and capability to innovate and develop new products. Strengthening math and science education, linking workforce training programs with industry, and supporting new ideas will continue to improve the environment necessary for the creation and manufacture of specialized biotechnology products here in the U.S.

Thank you, Madam Chairman and committee members, for the opportunity to speak with you today. I will answer any questions that you have.

Mrs. BONO MACK. Thank you, Mr. Tindall. I now recognize myself for 5 minutes of questions. And I would like to start with Mr. Giffi, but I am going to open this question up to anybody on the panel.

I believe that the people who are most hardest hit by the economic downturn right now are women in the workforce. There is no question that they are being hit the hardest. But I have also met a bunch of women who are now in manufacturing and they are very enthusiastic; they are optimistic. And I understand that you have done a study on women in manufacturing, Mr. Giffi, and I was wondering if you could share some of your information or your thoughts specifically about women in manufacturing.

Mr. GIFFI. Well, women in manufacturing represent an incredible talent source that, unfortunately, American manufacturers have inadequately tapped into thus far. American manufacturers are pursuing the best talent in the world and they are pressed to fill their job openings, they are pressed to fill their management ranks with outstanding talent.

Unfortunately, today's education system, counseling approaches often result in women not pursuing careers in both science, technology, math, engineering degrees that are necessary, technical degrees that are necessary and often opt out of a potential career in manufacturing much earlier in their life than would be necessary. This results in manufacturers unfortunately not getting access to that incredible talent and workforce.

And I think more can be done, more will be done to both encourage women in our primary and secondary schools and our universities to pursue the careers that can lead to a very productive career in manufacturing and contributions to this country. It would also help U.S. manufacturers solve one of their largest issues, which is getting enough talent into their organizations to drive their competitive capabilities.

Mrs. BONO MACK. Thank you.

Does anybody else care to comment specifically on women in manufacturing? Mr. Lubrano?

Mr. LUBRANO. Yes, I would agree with that. I think the problem is not that there aren't women in manufacturing, especially high-technology manufacturing. I think the problem is we can't find anybody with the backgrounds and technology expertise that we need. I think there would be absolutely no hesitation on hiring women if we could find qualified women to come into the company.

Mrs. BONO MACK. Thank you. It seems to me the manufacturers I have met, the women are entrepreneurial and they are recognizing their opportunities there and they are bringing their own great ideas into the sector. So if nobody else cares to comment on that, I will move to Dr. Atkinson.

You state that the country can restore its manufacturing competitiveness if we adopted the right set of policies in the tax, trade, talent, and technology arenas. Why do you believe the changes you suggest to these policies will restore our competitiveness? Have they been proven elsewhere?

Mr. ATKINSON. Well, I think they have. If you look at the change in real manufacturing output as a share of GDP, the worst four countries in the world are United States, Spain, Italy, and Great

Britain. Spain and Italy we all know about having real serious problems now and Great Britain has had I think very serious problems. There are lots of countries that are high-wage countries that have not lost manufacturing. Sweden, for example, Germany, a number of other countries have actually been able to perform quite well. And many of those countries have taken all four of those steps. The overall tax rate in the non-U.S. OECD now is 10 percentage points lower than the United States.

And these countries have put in place very high R&D tax credits. You look at a country like France, for example, where their research and development tax credit now is six times more generous than the U.S. credit. So they have put in place these kinds of incentives.

A program that we are big fans of—or country I should say is Germany. They have really been able to get high value added, high-tech manufacturing, compete against the Chinese and there are a number of different reasons. But two of them, they have a great apprenticeship program. They take workers and they train them in partnership with colleges, community colleges, institutes, and companies. And the second is they have a wonderful system of what are called Fraunhofer Institutes. These are 59 centers that are cofounded 2/3 by industry and 1/3 by the government located at or near universities that work with, particularly, middle-sized companies like the kind of company Mr. Lubrano is with. And those have had success as well. So I think when you look at all of those factors together, high-wage countries can be successful.

Mrs. BONO MACK. Thank you. Mr. Lubrano, you testify in support of trade agreements because we carried trade surpluses with the countries where we have trade agreements in place. Why do we have a trade surplus in manufactured goods with those countries?

Mr. LUBRANO. Why do we?

Mrs. BONO MACK. Yes.

Mr. LUBRANO. We would have those trade surpluses in areas where were primarily technology-driven. Basically, what has kept our company surviving and competitive in places is the intellectual property we have and the technology we have. We are doing things today with materials, for example, the hard drive industry that 2 or 3 years ago were considered impossible. We have gotten completely out of the box, broken the box, and are doing things with metals, plating technology, process technologies that 3 years ago people would say you can't do that, including a lot of products now for storage, lithium ion, hybrid batteries for automobiles, developed a new material system that is patented. So intellectual property, as you have heard before, is a huge driver that gets us to those surpluses.

Mrs. BONO MACK. Thank you. I agree with you on that point. And now my time is expired so I recognize Mr. Sarbanes for 5 minutes.

Mr. SARBANES. I thank you, Madam Chair.

I was looking at these reports. We got a bunch of these reports here on the U.S. Manufacturing Competitiveness Initiative. So there was one from CEOs, there was another one from labor, there was a third, and I was looking at some of the recommendations that were included. The one from the CEOs optimistically says that

they conveyed an opinion overall that U.S. had the resources, capabilities, and will to be the most competitive manufacturing nation in the world in the 21st century, given a new approach to setting public policy.

And then what I found interesting is the first recommendation here or the first principle from the CEOs was policymakers should strive considerably less to create a single, specific, concrete industrial policy for the future of U.S. manufacturing and instead seek to develop achievable goals, et cetera, et cetera. And then I was looking at the one from labor and their first recommendation on developing U.S. manufacturing strategy was to form a council on manufacturing policy to lead the development of a U.S. manufacturing strategy to construct a dialogue between management, labor, educators, and policymakers, and so forth.

So I wondered if anyone who wants to could just comment on whether there is tension there in terms of whether we should really set a focused strategy and policy on U.S. manufacturing and have real structure to that over time, or whether we should, as this other report said, strive considerably less to create a single, specific, concrete industrial policy for the future of U.S. manufacturing? We could go down the line if you want. Mr. Atkinson?

Mr. ATKINSON. I think it is very dangerous to have a policy here without a real coherent strategy. And the word industrial policy has largely been given a bad name. Whatever you want to call it, if we don't have a coherent strategy—and we can't just rely on sort of expecting companies to do the right thing just leaving them alone.

One important reason, by the way, there is a skill shortage right now that everybody talks about and companies complain about a skill shortage it is because companies themselves are investing half in training their workers than they did a decade ago, investing half. So when you are investing half in training your workers, you are going to end up with a skill shortage. So I think the real challenge here is we need to form real public-private partnerships and form a national industrial strategy. And that will clearly include things, if you will, from both sides of the aisle. It has to include regulatory issues, it has to include tax issues, but it has to include real strategy about technology areas that we think we could be successful in, about how we are going to reorganize our workforce system and other things like that.

Mr. LUBRANO. Yes, I don't think what you mentioned, any of those things are mutually exclusive. I think the game has changed and what is needed is a partnership if you will between government, labor, and manufacturing and the management of the manufacturing companies. 2009 was probably the toughest year of my career and I have been doing this for about 40 years now. You are supposed to say I don't look it, but in any case, the cooperation with our labor force, our ability to move people around, the understanding from all sides about how important it was that we get through this thing together and the government help.

I will give you an example. Rhode Island has a work share program, so we took all the resources we had and all the cooperation we could get, government, management, employees to get through that period. And we did. A lot of companies didn't. But I think that

is the kind of thing we are looking for going forward. So I don't see any of those things you mentioned in that report as mutually exclusive.

Mr. GIFFI. Congressman, I was actually fortunate enough to do all of those interviews and benefitted from being able to have those conversations with those CEOs, those labor leaders, university presidents, and lab leaders. I think they very much believe that the United States needs to come up with a comprehensive strategy. Collectively, I think they believe that industrial policy—because it has a fairly bad reputation and the notion of picking winners and losers on a regular basis through government policy actions—is not something that they believe makes sense. But creating a broad strategy that has tenets under it that allow American businesses to be most competitive on the global stage and creates a business climate that creates jobs, they were very much in agreement on.

Mr. SARBANES. Maybe we can come back on a second.

Mrs. BONO MACK. All right. The Chair now recognizes Ms. Blackburn for her questions.

Mrs. BLACKBURN. Thank you, Madam Chairman. And thank you to each of you. As you can hear the bells, we have got votes so we are going to do this quickly.

I am just going to give each of you a question that I would like to hear from you on. You can submit it in writing because I know Mr. Cassidy, we want to get his questions in before we leave.

But we have talked about competitiveness, we have talked about information technology, and Mr. Lubrano, you just touched on that a little bit also. And what I would like to know from each of you is, number one, when you look at that bottom line—and as you have said, you have had some tough years and we are learning to do things differently in our U.S. manufacturing base. When you look at your efficiencies, what percentage of your profit are you attributing to the use of new information technologies?

And then secondly, as we look at spectrum—and of course we are trying to get more spectrum auctioned so that you can use more of these technologies—how important is it to you to have more spectrum available for use of these new technologies in the marketplace?

And I will yield back my time so that Mr. Cassidy can answer and you all can respond to me in writing. But thank you again for your participation with us.

Mrs. BONO MACK. Thank you. To clarify, the gentlelady is only asking for responses in writing.

OK. So I will recognize Dr. Cassidy now for his 5 minutes and again recognize we are crunched for time.

Mr. CASSIDY. You all give me the hook when we got to get there, OK? I am used to women telling me what to do.

So to whoever feels most qualified, I am struck again as you heard in my previous questioning how natural gas and domestic oil and gas has, from everything I have read, contributed greatly to lowering input cost and otherwise improving the robustness of our manufacturing, if you will, directly contributing to tens of thousands of manufacturing jobs. Now, the President almost demagogues the issues—I hate to say that—because he continues to sug-

gest that we can replace that sort of energy with what he calls renewables and not have a downside.

Now, let me just give some statistics that we pulled up from the Energy Institute, that the Federal electric subsidies per unit of production in 2000 $10 per megawatt hour, for natural gas is 64 cents, for nuclear is $3.14, and for solar is $776 per megawatt hour. Now, this to me is laughable to think that if your input cost is based upon something which has to be subsidized at $776 per megawatt hour that you can have the same sort of robust expansion of manufacturing in energy-intensive enterprises that we are currently having now.

Gentlemen, would you all challenge that? Would you agree with that? What comments would you make?

Mr. LUBRANO. I would agree with you. Energy, as you know, manufacturers use about 1/3 of the energy produced in this country. In our manufacturing in particular we use natural gas and electricity to a very large extent because we have to process metal and then yield the metal and it is critical to our process. We need a comprehensive energy strategy which includes oil, gas, coal, and you can throw in some of the others, solar, wind power. But most of the——

Mr. CASSIDY. But unless that solar was subsidized, I presume you would not be able to afford to use it?

Mr. LUBRANO. We would not be able to afford it.

Mr. CASSIDY. So unless the taxpayer is willing to throw his or her money on the table, then frankly, the input cost would be way too high?

Mr. LUBRANO. The input cost would be way too high. If we had to pay that, we would be less competitive and there would be less jobs.

Mr. CASSIDY. So we are trying to pick ourselves up by the bootstraps if you will, taxing ourselves to subsidize it so that you can use it at an affordable cost?

Mr. LUBRANO. Well, I think that is a bad idea. I think what we need to do is develop what we have. I would like to see the XL pipeline. That is critical. I would like to see more development of natural gas through——

Mr. CASSIDY. Now, let me cut you off just because again I am about to get the hook. I heard an energy analyst tell me recently that the direct—in fact, maybe the Pricewaterhouse or another thing—that the low cost of natural gas may increase our GDP by 1.1 percent in 2013, which is really quite remarkable.

Mr. LUBRANO. That is an increase of GDP.

Mr. CASSIDY. Increase our GDP.

Mr. LUBRANO. Yes.

Mr. CASSIDY. Do you all agree with that?

Mr. LUBRANO. I would agree with that, absolutely.

Mr. CASSIDY. Well, I think we need to go. Thank you all very much. I have more to ask but we are obviously hurried. Thank you all.

Mr. LUBRANO. Thank you.

Mrs. BONO MACK. I thank the gentleman. I apologize that our time is so short today. I think we have squeezed a lot of terrific information in between the series of votes. And I would clearly like

to thank our distinguished panel. It has been a great discussion about the future of manufacturing in America.

Clearly, more and more companies are beginning to rethink their strategies and business plans for the coming years, and I sincerely hope that our subcommittee, working closely together, can give them a reason to make "Made in America" matter again.

I ask unanimous consent to include in the record of the hearing four reports published by Mr. Giffi's firm on various aspects of manufacturing to which he had referred in his testimony.

[The information is available at http://www.compete.org/images/uploads/File/PDF%20Files/Ignite__1-0__FINAL__02.14__.11__.pdf, http://www.compete.org/images/uploads/File/PDF%20Files/Ignite__2.0__.pdf, http://www.compete.org/images/uploads/File/PDF%20Files/Ignite__3.0__FINAL__.pdf, and http://www.themanufacturinginstitute.org//media/A07730B2A798437D98501E798C2E13AA.ashx]

Mrs. BONO MACK. I remind Members that they have 10 business days to submit questions for the record, and I ask the witnesses to please respond promptly to any questions they receive. And with that, the hearing is now adjourned.

Thank you, gentlemen.

[Whereupon, at 1:05 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

Statement of the Honorable Fred Upton
Chairman, Committee on Energy and Commerce
Hearing before the Subcommittee on Commerce, Manufacturing and Trade
"Where the Jobs Are: Can American Manufacturing Thrive Again?"
April 19, 2012

Thank you, Chairman Bono Mack, for calling this hearing. I am pleased we have Secretary Bryson with us today to discuss the Administration's efforts to improve the manufacturing climate in America. I am heartened by our collective recognition of the importance of manufacturing to our global competitiveness and the future of our economy. Our economy has changed over decades and our labor force is now predominately service-oriented. But the title of the hearing is a question of great importance: can manufacturing thrive once again in America?

While many of our manufacturers have suffered over the past 20 years, we are seeing some welcome signs of manufacturing growth in Michigan. Year-over-year manufacturing job growth exceeds five percent in recent months, and we have hope for further improvement. We now have over 520,000 Michiganders working directly in manufacturing according to the Bureau of Labor Statistics, representing almost 13% of our nonfarm payroll employment. And we have expectations of continued job growth in manufacturing for 2012.

But it is more than just the direct jobs manufacturing supports: manufacturing in Michigan – as in most states – supports many more related jobs, in the supply chain and in the service sector. I am proud to say Michigan ranks second – behind only California (the largest state in the union) – in research and development spending, led by the auto industry. It is in our national interest to continue to lead the world in innovation. But this is a more difficult task when manufacturing output and employment is declining.

Before we identify solutions, I think we first need to understand why manufacturing has declined in America. We compete in a global economy and we lost a lot of jobs to competition and in some cases offshoring. The question is, why is it more attractive to manufacture in another country? If our policies and regulations are so burdensome that they hinder U.S. competitiveness and drive companies to relocate their plants, it will be difficult to revitalize the manufacturing sector until we correct those policies. We are all well aware that we now have the highest corporate tax rate of any OECD country.

Another policy we can address is the role trade can have in boosting our exports to support manufacturing and other industries. The vast majority of Michigan's exports – 94 percent – were manufactured goods and were primarily exported to Canada and Mexico – our free trade partners. I am encouraged by the Administration's stated commitment to double our exports. Opening additional markets for our products through free trade agreements puts our companies in a better position to compete. It is one of the easiest policy changes we can make that will yield immediate results; it should remain a top priority.

I look forward to our discussion and yield back the balance of my time.

The Honorable John Bryson

Former Secretary of U.S. Department of Commerce

Response to Additional Questions for the Record

House Subcommittee on Commerce, Manufacturing, and Trade

"Where the Jobs Are: Can American Manufacturing Thrive Again?"

April 19, 2012

Questions for the Record for the
House Subcommittee on Commerce, Manufacturing, and Trade hearing on
Thursday, April 19, 2012, entitled
"Where the Jobs Are: Can American Manufacturing Thrive Again?"

The Honorable Mary Bono Mack

Q: Former Secretary Bryson stated the tax package the President proposes would, among other things, end the tax incentive for corporations to move jobs offshore. What is the tax incentive?

The tax code currently allows companies moving operations overseas to deduct their moving expenses – and reduce their taxes in the United States as a result. In his most recent State of the Union Address, the President asked Congress to change the law and eliminate these deductions so that companies will no longer be provided deductions for moving their operations abroad. Further, the President requested that Congress give a 20 percent income tax credit for the expenses of moving operations back into the United States to help companies bring jobs home.

Q: For example, the President's green jobs agenda is very costly. Green jobs are subsidized through grants, loans and loan guarantees, and other Federal programs that cost many billions in taxpayer dollars every year. These outlays mean that money – and jobs - are siphoned away from the rest of the economy. Do you agree that jobs created at government expense cost jobs elsewhere?

No--Leading the world in clean energy is critical to strengthening the American economy and providing a path to a cleaner, more energy independent future. As with much basic research, public sector investment is needed to fund cutting-edge research to produce the next generation of technologies. If the federal government does not invest now, then the energy technologies of the future will be developed and manufactured elsewhere—and the jobs tied to this sector will go to workers in other countries.

Q: In contrast, jobs created at the initiative of the private sector – such as the thousands of jobs that would be created by privately-funded projects like the Keystone XL pipeline - come at no taxpayer expense. Isn't it more advantageous to adopt policies removing the government impediments to private sector job growth rather than have costly government programs?

The State Department requested, and the President granted, additional time to seek information. This permit decision could affect the health and safety of the American people as well as the environment. The questions raised during the public process need to be properly addressed and the potential impacts understood before a permit can be responsibly issued. This Administration is committed to reducing regulatory burden wherever possible, but that does not mean that we should abdicate our commitments to ensuring adequate safeguards are maintained.

Q: Much of the President's green jobs agenda centers around alternative energy sources, and indeed we hear a great deal about all the jobs created in the solar and wind energy sectors, but don't policies that subsidize renewable energy sources cost jobs in the conventional energy sector, such as those associated with coal and coal-fired electric generation?

By supporting the development of important new technologies around alternative energy sources, we are creating the environment necessary to ensure that the United States is positioned to be a world leader in their production going forward. Although coal use in electricity generation has declined somewhat, the cause is not "subsidized" renewable energy. According to the Energy Information Administration (EIA), although coal has been the largest source of electricity generation for over 60 years, its annual share of generation declined from 49% in 2007 to 42% in 2011 as some power producers switched to lower-priced natural gas. The Administration supports an all-of-the-above energy policy, which includes supporting domestic production of traditional energy sources while also encouraging the development of alternative energy sources.

Q: The Energy Information Administration (EIA) has found that alternatives like wind and solar are more expensive than the conventional sources they are slated to replace, and expect them to remain so for the next several decades. However, high energy costs are themselves proven jobs killers, especially for energy-intensive manufacturers. Are you concerned that policies favoring expensive green energy will serve to outsource domestic manufacturing jobs to nations with lower energy costs?

Many new technologies are relatively more expensive than existing substitutes early in their lifecycles. However as these technologies mature and the manufacturing processes used in their production improve, their costs decline. Unless the United States wants to exchange its dependence on foreign oil to a dependence on foreign-produced wind and solar generation, then we need to invest now in these technologies.

Q: One problem that undercuts innovation by U.S. companies is the theft of intellectual property. Is there more the U.S. can do to fight this problem and strengthen protection for our intellectual property?

The effective protection of intellectual property (IP) rights continues to be a major priority for the Commerce Department and the Administration. The importance of IP to our economy cannot be overstated. The recent Commerce report titled "Intellectual Property and the U.S. Economy: Industries in Focus," prepared by the United States Patent and Trademark Office and the Economics and Statistics Administration, found that IP-intensive industries support at least

40 million jobs and contribute more than $5 trillion (or almost 35 percent) to the U.S. gross domestic product. The Commerce Department and the Administration have a broad array of ongoing programs and initiatives to help increase public awareness and combat the theft of American innovators' IP and continue to work to review, strengthen and otherwise improve those efforts. With respect to legislative recommendations to strengthen IP protection, in March 2011 the U.S. Intellectual Property Enforcement Coordinator (IPEC) issued the "Administration's White Paper on Intellectual Property Enforcement Legislative Recommendations." This White Paper contains a number of specific recommendations, including increasing criminal and administrative penalties for IP theft; giving enforcement agencies improved tools to combat IP theft; sharing information with rights holders; and improving enforcement efforts regarding counterfeit drugs. It should be noted that the Administration recently invited rights holders and other interested parties to provide input and participate in shaping the Administration's future IP enforcement strategy.

Q: We repeatedly hear that we need to redouble our efforts to increase trade in order to increase demand for U.S. products. What are the Commerce Department's priorities in helping businesses grow their export share?

While the United States and other advanced markets consistently grow by 2-3 percent annually, emerging markets are growing by 6-8 percent. A major factor driving emerging market growth is the emergence of new middle class consumers. These new consumers represent a major revenue growth opportunity for U.S. businesses.

There are several key ways the Commerce Department is working to help businesses export:

- **Export Counseling**: Since the implementation of the National Export Initiative, the Commerce Department's International Trade Administration (ITA) has helped 15,000 companies, resulting in nearly 47,000 export successes. In 2011 alone, the U.S. & Foreign Commercial Service, the trade promotion arm of the ITA, assisted 5,600 American companies – including more than 3,000 small- and medium-sized enterprises –to export for the first time or increase their exports to new markets. The Commercial Service works in more than 70 countries to connect U.S. businesses with buyers overseas.

- **Advocacy Center**: The Commerce Department's Advocacy Center within ITA has helped hundreds of U.S. companies win foreign government contracts across the globe. Since the launch of the NEI in 2009, the Advocacy Center has helped companies win foreign government contracts totaling approximately $160 billion dollars, supporting hundreds of thousands of jobs. The Advocacy Center has increased its caseload 52 percent, which is putting the Center on track for a record-breaking year.

- **Partnerships**: The Obama Administration is expanding the breadth of partnerships to improve trade advocacy and export promotion efforts. To date, the Commerce

Department's private sector partners have reached out to more than 25,000 client companies, and more than 1,000 U.S. companies have requested assistance in entering new markets.

- **Interagency Trade Enforcement Center**: In February 2012, President Obama signed an Executive Order creating a new Interagency Trade Enforcement Center (ITEC) within the Office of the U.S. Trade Representative with a Deputy Director detailed from the Commerce Department, to enhance the Administration's capabilities to enforce U.S. trade rights under international agreements, enforce domestic trade laws, and aggressively challenge foreign trade barriers and unfair trade practices around the world. ITEC has gotten off to a strong start in fulfilling the President's goals, playing a critical role in providing research and analysis in the launch of three important WTO matters (China Rare Earths Export Restraints, Argentina Import Licensing, and China Export Bases), and undertaking planning and research for future enforcement actions.

- **Trade Agreements**: Trade agreements eliminate or reduce tariffs and other trade barriers between countries, making it easier for businesses to export. The United States currently has trade agreements in effect with 19 different countries after the U.S.-Colombia Trade Promotion Agreement went into effect on May 15. In addition, a new trade agreement with Panama is expected to enter into force this fall.

- **Trade Agreements Compliance Program:** Through the ITA's Trade Agreements Compliance Program, the Department of Commerce works to break down barriers to market access abroad and proactively monitors and pursues foreign government compliance with trade agreement obligations. The program provides a framework for proactive monitoring of trade agreements, a process for identification, investigation, and removal of trade barriers facing our companies, and the strategy for conducting outreach to inform stakeholders of efforts and services in this area. In calendar year 2011, Commerce initiated 246 trade barrier investigations in 72 countries and resolved 91 cases in 45 countries affecting a broad range of industries.

- **Intellectual Property Rights:** The Commerce Department urges U.S. trading partners at the highest levels to ensure that they have robust systems that respect intellectual property rights. Strong intellectual property right protections and enforcement mechanisms in foreign markets allow U.S. businesses to grow and increase their exports. Robust systems include not only the recognition and protection of these rights through registration or other systems, but also meaningful opportunities to enforce those rights against violators and to obtain redress that compensates the right owner and deters future unlawful behavior. ITA and the U.S. Patent and Trademark Office also educate U.S. businesses, particularly small and medium-sized businesses, on protecting and enforcing their intellectual property rights and handling infringements in foreign markets. The one-stop online portal – www.STOPfakes.gov – provides U.S. businesses with free resources to assist with the protection and enforcement of IPR in foreign markets and a mechanism for reporting IPR theft.

Q: Commerce Department officials have recently spent a good deal of time with China's Vice President Xi, and I'm sure the Department has been in touch with the distinguished former Secretary, Mr. Locke, who is now Ambassador to China. Is there anything China is doing that you think we should emulate?

As the world's two largest economies, it is clear that the United States and China must continue to build a mutually-beneficial and balanced trade-and-investment relationship. The Administration believes that a policy of engagement is the most effective way to achieve that objective. Our engagement with China includes exchanging high-level visits and conducting high-level dialogues such as the Joint Commission on Commerce and Trade (JCCT) and the Strategic and Economic Dialogue (S&ED).

Senior Commerce officials including then Secretary Bryson and current Under Secretary Sánchez were actively involved in Chinese Vice President Xi's visit to the United States in February and the S&ED meetings in May. During Vice President Xi's visit, China agreed to open its third-party liability auto insurance market to foreign-invested companies, leave technology transfer decisions to private companies, and ease restrictions on importing American films. During the S&ED Economic Track meetings, the United States and China agreed on key outcomes including China's commitment to submit a new WTO Agreement on Government Procurement offer this year, to prioritize enforcement against trade secret misappropriation, and to hold on-going discussions on concerns related to technology transfer and market access. For the Strategic Track, the United States and China agreed on outcomes in the areas of energy, environment, and climate change.

Commerce is currently working with USTR, the Department of Agriculture, and other U.S. Government agencies to prepare for additional outcomes on intellectual property protection and other trade issues at the JCCT to be held later this year.

Commerce has been working closely with former Commerce Secretary and now Ambassador to China Gary Locke to advance our commercial interests in China. Ambassador Locke participated in last year's JCCT meeting co-chaired by Commerce and USTR. Since November 2011, Ambassador Locke has led four trade missions within China for U.S. companies seeking clients for products and services in demand within the Chinese market. The commercial section has been the chief organizer of these missions.

The Chinese Government has been pursuing and experimenting with discriminatory industrial policies to drive growth. Such policies seek to direct markets rather than open them and have the government instead of the market choosing winners. They may generate faster economic growth in the short term, but in the long term will not be sustainable. Such policies lead to misallocation of resources, prevent markets from making optimal selections, and raise the cost structure of the entire economy.

Q: China is often held up as a nation winning the green energy race and the Administration often states with urgency that we need to catch up to China. The real energy story in China is not its use of green energy but tremendous growth in its use of low-cost coal.

a. Isn't low-cost coal and not renewables the primary source of energy fueling China's manufacturing sector?

In 2011, coal accounted for 71% of China's electricity consumption compared to 42% in the United States. Although coal plays a larger role than renewable energy in China's energy mix, China's leaders have made a strategic commitment to pivot away from reliance on fossil fuels in favor of cleaner forms of generation such as renewable energy. Three out of the seven sectors identified in China's 12th five year plan for specific attention focus on clean technologies (clean energy, clean transportation, and energy conservation).
China has set very ambitious goals for growing its renewable energy sector. The 12th five year plan targets 15 gigawatts (GW) of solar installations, 8 GW of biomass, and 100 GW of wind installations by 2015, all of which exceed any other country's targets for these subsectors. The targets have driven the development of manufacturing capacity in China. For example, in 2011, firms in mainland China and Taiwan accounted for 61% of global production of solar photovoltaic modules, compared to the United States share of 4%. In 2010, China exceeded the United States as the world's largest wind energy market and retained its lead in 2011. In 2011, China installed nearly half (44%) of the world's new wind energy capacity; the United States installed only 16% of the world's total.

b. Isn't China's rate of coal use growing many times faster than that in the U.S.?

According to the Energy Information Administration, over the period 2006-2011, China's rate of coal consumption grew by 8.3 percent, compared to a negative growth rate of -1.9 percent for the U.S. The U.S. Energy Information Administration attributes the decreasing U.S. reliance on coal to the availability of lower-priced natural gas. China has significant reserves of shale gas, and is moving aggressively to develop these resources and expand its domestic natural gas production.

c. Isn't China winning the affordable energy race, and isn't the affordable energy race far more important than the green energy race in determining whether American manufacturers will remain globally competitive?

Today, U.S. manufacturers enjoy a number of advantages related to the cost of energy compared to their competitors in China. For example, the price of natural gas in the

United States is at a ten year low, and is currently more economical than coal. U.S. manufacturers will likely be able to enjoy low cost energy from natural gas for decades to come.

China, on the other hand, faces a number of energy constraints and is focusing its infrastructure development on all forms of energy production: coal, oil, gas, nuclear, and renewable to meet fast-growing energy demand as its economic growth continues and its population becomes more prosperous. While China has significant coal reserves, it still faces energy supply volatility, high natural gas prices, and large portions of its economy that are highly energy inefficient.

As a result, China's manufacturers face rising and volatile energy costs while the manufacturers in the United States should benefit from predictable energy prices. From the reliability, efficiency, and accessibility perspective, the United States is therefore winning the race for affordable energy *today*. A future Chinese competitive energy advantage is not inevitable. Strong policies in the United States could ensure that we win both the affordable and green energy races.

Q: In our hearings we have heard some sharply different opinions about the current health of U.S. manufacturing and the prognosis for the future. How do you view the situation overall: Are you optimistic or pessimistic?

Through the concerted efforts of public and private entities, we are optimistic about the future of U.S. manufacturing. While we face challenges to retaining global manufacturing leadership, the U.S. operates from a position of strength in research, technologies, and innovation. As highlighted by the President's Council of Advisors on Science and Technology (PCAST) along with many others, the U.S. has a fragmented innovation infrastructure where technologies invented here are often scaled up to production elsewhere. A number of actions and planned programs will provide the needed infrastructure for a healthy American manufacturing sector. For example, last summer President Obama launched the Advanced Manufacturing Partnership (AMP), a national effort bringing together industry, universities, the Federal Government, and other stakeholders to identify emerging technologies with the potential to create high-quality domestic manufacturing jobs and enhance U.S. global competitiveness. The recommendations from this group, released in a PCAST report last month, will serve as a blueprint to inform the Federal government's actions.

The AMP Steering Committee developed a set of 16 recommendations around three pillars, which address issues which are important to the health of U.S. manufacturing:

- Enabling innovation
- Securing the talent pipeline
- Improving the business climate

The recommendations are aimed at reinventing manufacturing in a way that ensures U.S. competitiveness, feeds into the Nation's innovation economy, and invigorates the domestic manufacturing base. The NIST-hosted Advanced Manufacturing National Program Office

(AMNPO) is an interagency office that has been formed to serve as a "whole-of-government" response to the needs of U.S. manufacturing. Existing and planned programs in Advanced Manufacturing across Federal agencies will continue to provide needed support that is required. New programs proposed in the President's FY 2013 budget include the National Network of Manufacturing Innovation (NNMI) and the Advanced Manufacturing Technology Consortia (AMTech) Program.

Q: In Former Secretary Bryson's testimony, he described a lot of different programs in which the Commerce Department is looking at different aspects of manufacturing. When we talk to manufacturers, however, there are some broader themes that emerge. Even with the world's greatest innovators and entrepreneurs, it's hard to compete globally when the government takes too much of your profits. Our corporate tax rate is nearly the highest in the world. Do you agree that lowering the corporate tax rate makes sense to improve the competitiveness of U.S. manufacturers?

The President has proposed a framework for business tax reform that would, among other things, lower the corporate tax rate while broadening the base and eliminating tax loopholes and subsidies. Lowering marginal tax rates is particularly important for small businesses, which typically have access to fewer deductions than do large firms. However, other aspects of the tax code are important. For example, President Obama is proposing a tax credit for companies that bring jobs back to the United States, and has asked Congress to create a new credit for businesses that invest in communities affected by job loss. The President is also pushing to extend tax credits to drive nearly $20 billion of investment in domestic clean energy manufacturing and a provision that allows companies to expense the full cost of their investments in equipment.

As stated in *A National Strategic Plan for Advanced Manufacturing*, from the National Science and Technology Council (NSTC) of the Executive Office of the President:

"Federal tax policy has long provided incentives for private investments in Research and Experimentation (R&E)[1]. [...] the structure and size of the current U.S. R&E tax credit is ineffective. Although the U.S. was one of the first nations to enact such a credit, other nations have surpassed the U.S. over the years by offering more attractive provisions. Sixteen industrialized countries that are members of the OECD, for instance, offer tax credits that provide a greater incentive than that of the United States.[2] Such incentives are increasingly important in a world in which there is growing international competition for corporate R&D investment. The President's 2013 Budget proposed enhancing and making permanent the R&E tax credit."

Q: Earlier this year, the National Science Foundation indicated that the United States is losing ground in the area of research and development—traditionally a particular strength for the U.S. What should be done to address this problem?

American leadership in R&D is an important component of long-term competitiveness and one

[1] The statutory definition of "research and experimentation" differs from the colloquial "research and development" in that it excludes spending that supports the development of a specific product.
[2] *OECD, Science, Technology and Industry: Outlook 2008,* http://www.sourceoecd.org/9789264049918

of the building blocks of American innovation, as highlighted in the President's *Strategy for American Innovation* (February 2011). This strategy calls for a significant increase of federal support for R&D to three key basic research agencies – the National Science Foundation, the Department of Energy's Office of Science, and the National Institute of Standards and Technology. It also identifies the need to catalyze breakthroughs by investing in research that will accelerate developments in emerging technologies including advanced manufacturing, biotechnology, and nanotechnology. In support of these priorities, the President has requested $140.8B for overall R&D in FY2013, with a particular focus on increasing support for advanced manufacturing with a proposal to invest over $2.2B across the government, including programs such as:

- NIST laboratory research in areas such as smart manufacturing, biomanufacturing, and nanomanufacturing;
- Proposed as a new program in FY 2013, the Advanced Manufacturing Technology Consortia program (AMTech) is a public-private partnership that will incentivize industry to develop road maps for long-term technical challenges and fund basic research (e.g., in universities) directed at meeting those needs;
- In his budget for fiscal year 2013, the President proposed creating a network of up to 15 regional Institutes for Manufacturing Innovation. Funded by a proposed one-time, $1 billion investment, this network—the NNMI—responds to a crucial competitiveness challenge and threat to future prosperity by closing the gap between research and development (R&D) activities and the deployment of technological innovations in domestic production of goods.

Q: After so many consecutive months of high unemployment, it is stunning to hear that there are hundreds of thousands of manufacturing jobs that are available right now but can't be filled for lack of qualified applicants. What are your thoughts about how to close this gap and get our people back to work?

Workforce training is a critical element in strengthening U.S. manufacturing. The Federal Government is engaged in support and enhancement of several programs designed to bolster the advanced manufacturing workforce.

- NIST's Manufacturing Extension Partnership (MEP) and Department of Labor Employment and Training Administration support public-private partnerships that establish registered apprenticeship programs in advanced manufacturing. For example, in 2011, a major expansion was announced of Skills for America's Future, an industry-led initiative to improve industry partnerships with community colleges and build a nation-wide network to maximize workforce development strategies, job training programs, and job placements. Included in the expansion was an emphasis on skills certification.
- As the manufacturing industry has advanced, the Department of Labor's Employment and Training Administration has worked with manufacturing partners, particularly the National Institute of Metalworking Skills (NIMS), to develop competency-based Registered Apprenticeship training models that establish unified skill standards throughout the industry, creating a portable pipeline of qualified, skilled workers
- The National Science Foundation Advanced Technical Education (ATE) program supports community colleges working in partnership with industry, economic development agencies, workforce investment boards, and secondary and other higher

education institutions to respond to industry needs for highly qualified manufacturing technicians.

- President Obama announced an effort to help 500,000 community college students obtain credentials for advanced manufacturing as part of the Administration's Skills for America's Future initiative in 2011.
- Federal agencies are making some 252 distinct investments in science, technology, engineering and mathematics (STEM) education, amounting to $3.4 billion, much of which is directed toward preparation and training to enter the manufacturing workforce.

- On August 16, 2012, the Obama Administration announced the launch of a new public-private institute for manufacturing innovation in Youngstown, Ohio. The new partnership, the National Additive Manufacturing Innovation Institute (NAMII), was selected through a competitive process, interagency in nature and led by the Department of Defense, to award an initial $30 million in federal funding (from multiple federal agencies), matched by $40 million from the winning consortium, which includes manufacturing firms, universities, community colleges, and non-profit organizations from the Ohio-Pennsylvania-West Virginia 'Tech Belt.' Workforce development will be an integral component of the NAMII. The Advanced Manufacturing National Program Office is integrating lessons learned in launching and executing the NAMII as they plan for the President's proposed National Network for Manufacturing Innovation, which would create up to 15 additional institutes throughout the country that would invest in industrially-relevant manufacturing technologies with broad applications..

Q: Some people think that in order to help our manufacturers compete globally, the United States needs a national manufacturing strategy. To others, this smacks too much of Soviet-style central planning. The reason we became the best manufacturing nation on earth, they argue, isn't because of the Federal government deciding what we should be making or what favored industries to subsidize, but for the opposite reason--because the U.S. government traditionally kept out of central planning and allowed the free market to flourish and allocate resources more efficiently. How do you see the government's role in this arena now?

The role of the Federal Government in supporting manufacturing in the U.S. is to ensure that the United States has an economic environment in which manufacturing can thrive. This includes sound standards along with robust physical and innovation infrastructures that help to strengthen U.S. economic competitiveness. Technical infrastructures critical to advanced manufacturing are shared by competing companies just as traditional infrastructure has long been shared by U.S. companies. These standards and infrastructure benefit all U.S. manufacturers, to make the United States an attractive place to do business and locate manufacturing. A national manufacturing strategy can ensure the right programs and initiatives are in place to optimally strengthen our manufacturing infrastructure. A skilled workforce is also important.

As former Secretary Bryson testified, the Commerce Department is helping to lead the Administration's manufacturing agenda. The Commerce Department has grouped programs and initiatives around four strategic objectives:

- Promoting innovation and protecting intellectual property;

- Establishing regional manufacturing partnerships;
- Promoting investment and trade; and
- Providing information and analysis on the manufacturing sector.

Today's emerging technical infrastructures are as complex as the manufacturing technologies they support and therefore investment through public-private partnerships is critical. As noted in the NSTC *National Strategic Plan for Advanced Manufacturing*, geographically-located clusters of innovation (such as the NIST MEP and the NNMI) can engage small and medium enterprises (SMEs), academics, large industry, and the government in a manner to foster innovations that benefit SMEs in the manufacturing space by shared investments that result in shared access to equipment and resources. Commerce is also taking steps to further improve market access overseas for U.S. manufacturers. A crucial part of continued export growth is removing trade barriers through negotiations, enforcing trade obligations, and expanding access to new markets. Robust enforcement of existing agreements is both a short-term and long-term priority and an effective way for the Federal Government to help increase exports.

Q: Some observers criticize the Commerce Department's efforts in a variety of areas as "picking winners and losers." They think that rather than bestow grants to a favored few—even if the winner is chosen competitively—it would be better to emphasize approaches that help all businesses (like tax cuts) and let the markets choose the winners and losers. What is your reaction?

The Commerce Department distributes a relatively small amount of grant funding. However, Commerce is deeply engaged in wide array of activities that directly help businesses compete, such as export promotion, standards setting, patent protection, providing accurate and up to date economic data, etc. As for the grants that Commerce does provide, most are awarded by the Economic Development Administration, aiming to establish a foundation for sustainable job growth and the building of durable regional economies throughout the U.S. To the extent that the Commerce Department awards funds for R&D, it does not pick winners and losers; rather, Commerce efforts seek to fill gaps in private sector R&D investment—specifically, reducing risk to the point that industry can apply its decision making criteria in a successful manner. Commerce is implementing this strategy through various models of public-private partnerships so as to lower the risks of private-sector R&D investments.

The need to strengthen the "industrial commons" is described in the NSTC *National Strategic Plan for Advanced Manufacturing*. Programs like the MEP, AMTech, and NNMI are designed to strengthen the U.S. manufacturing industry through public-private partnerships and constitute an important component of a balanced national manufacturing strategy. In addition to tax and trade policies, there are benefits to implementing key elements of a manufacturing strategy. In cases where the risk to develop a novel, breakthrough technology is too great to be borne by one entity alone, public-private partnerships can accelerate the transformation of ideas to marketable goods while lowering the investment risk during development. By leveraging underlying strengths that enable U.S. manufacturing enterprises to be responsive to changes in the global market, and combining them with an appropriate amount of structure, innovation in key, cross-cutting manufacturing technologies will be accelerated. This public-private collaboration also exists now with the Department of Labor's Employment and Training Administration working

with employers and labor-unions to secure a talent pipeline through the establishment of Registered Apprenticeship programs that prepare workers to meet the needs of industry.

Q: Are we losing manufacturing because we are failing to create new manufacturing companies or because existing companies are losing jobs, or both?

The reasons for the past decline in manufacturing employment are varied and complex; the manufacturing sector is not monolithic and the reasons for the decline vary industry by industry. The January 2012 report *The Competitiveness and Innovative Capacity of the United States*, released by the Department of Commerce in consultation with the National Economic Council, identified several possible factors, some of which include: productivity impacts, competition from low-wage countries among several other factors. There is no single explanation for why manufacturing has declined. However, since 2009 manufacturing jobs have grown in this country, with 500,000 additional U.S. manufacturing jobs created over the past two and one-half years[3]. We need to build on this trend, by supporting manufacturing in the ways described in response to previous questions. Additionally, there are over 3,000 active apprenticeship programs in advanced manufacturing of which 112 were registered over the last 2-3 years.

[3] Blogpost at http://www.commerce.gov/blog/2012/08/15/acting-secretary-blank-talks-administration-support-american-manufacturing

Q: Former Secretary Bryson's testimony highlights a number of government initiatives, including the proposal for $1 billion for the National Network for Manufacturing Innovation, that are predicated on a certain level of taxpayer funded projects or investments. Is there a structural reason why the private markets are not funding similar efforts? Is there an argument that as long as the government continues to fund research and development, the private sector will see no reason to do so?

There is an abundance of evidence indicating that the private sector under-provides for basic R&D, which is why it is common amongst major industrialized economies to provide public support in this area. As stated above, there is a fundamental need for public-private partnerships in order to accelerate innovation in the manufacturing sector. As Under Secretary of Commerce for Standards and Technology, Patrick Gallagher, testified before the House Subcommittee on Technology and Innovation in March 2012, the NNMI fills a critical gap in U.S. manufacturing infrastructure. Building on the work of the President's Council of Advisors on Science and Technology (PCAST), the Departments of Commerce, Defense, and Energy worked together to lead an interagency effort under the National Science and Technology Council's (NSTC) Committee on Technology to assess the patterns and trends in U.S. Advanced Manufacturing.

Through these analyses, it became clear that the acceleration of innovation for advanced manufacturing requires bridging a number of gaps in the present U.S. innovation system, particularly the gap between R&D activities and the deployment of technological innovations in domestic manufacturing production. Small innovative firms often develop a new product with significant market potential but may find they do not have the manufacturing expertise to produce it efficiently. When this happens SMEs cannot access the resources needed to scale up to produce the new product at prices and quality levels demanded by the marketplace. New industries based on new technologies such as nanotechnology need new supply chains; government can convene firms and universities to learn about new opportunities and agree on directions for further (pre-competitive) research and development.

NNMI Institutes will invest in industrially-relevant manufacturing technologies with broad applications to bridge the gap between basic research and product and process development, provide shared assets to help companies – particularly small and medium-size manufacturing enterprises – access cutting-edge capabilities and equipment, and create an unparalleled environment to educate and train students and workers in advanced manufacturing skills. Each Institute will serve as a regional hub of manufacturing excellence, providing the innovation infrastructure to support regional manufacturing and ensuring that our manufacturing sector is a key pillar in an economy that is built to last. This model has been successfully deployed in other countries and would address a gap in the U.S. manufacturing innovation infrastructure that would not be fulfilled without public-private partnerships.

Q: The Advanced Manufacturing Partnership and the Steering Committee will soon present its recommendations to the President. How will those recommendations be incorporated into actions already initiated by the Administration? What will the Department do if the recommendations conflict with any of the Administration's four strategic objectives?

Based upon review of the recently released AMP recommendations, the Commerce Department finds that all three pillars of manufacturing strategy recommended by the AMP Steering Committee are aligned with Administration priorities. These include enabling innovation, securing the talent pipeline, and improving the business climate.

Enabling innovation is a priority activity within Commerce. For example, as former Secretary Bryson testified, the Administration has proposed FY13 funding of $135 million at NIST in its programs to directly address R&D and measurement challenges in the area of advanced manufacturing. These programs target nanomanufacturing (including flexible electronics), biomanufacturing, smart manufacturing (including robotics), and next-generation materials measurements, modeling, and simulation. Through these efforts, NIST is providing the R&D and measurement infrastructure necessary to support manufacturing in a number of areas, including the automotive industry, computers and advanced electronics, machine tools, chemicals, and biopharmaceuticals. The outputs of NIST's investment include new performance metrics, measurement and testing methods, predictive tools, protocols, technical data, reference materials, calibration services, and inter-comparison studies. Industry and academia utilize the outputs in product development and further research. NIST's investments are part of our government-wide effort to increase investments in advanced manufacturing R&D, and enhance coordination and collaboration across agencies. Additionally, The NIST Hollings Manufacturing Extension Partnership (MEP) is a federal-state partnership with a national network of MEP Centers located in all 50 states and Puerto Rico. In these centers, more than 1,400 technical experts assist small and medium-sized manufacturers connect to public and private resources essential for increased competitiveness, innovation, and profitability.

The Commerce Department is also working to secure the talent pipeline. For example, NIST and DOL/ETA are supporting public-private partnerships that establish registered apprenticeship programs in advanced manufacturing. In addition, President Obama announced an effort to help 500,000 community college students obtain credentials for advanced manufacturing as part of the Administration's Skills for America's Future initiative in 2011.

With respect to the business climate, President Obama is proposing a tax credit for companies that bring jobs back to the United States, and he's asking Congress to create a new credit for businesses that invest in communities that are affected by job loss. The President is also pushing to extend tax credits to drive nearly $20 billion of investment in domestic clean energy manufacturing and a provision that allows companies to expense the full cost of their investments in equipment. Additionally, the Commerce Department is currently taking steps to further improve market access overseas for U.S. manufacturers. A crucial part of continued export growth is removing trade barriers through negotiations, enforcing trade obligations, and expanding access to new markets.

The Honorable Adam Kinzinger (PTO)

Q: In the President's Regulatory Review Executive Order, he tasked each agency with seeking the least burdensome rules to accomplish the laws that are currently on the books. Has the Administration reviewed current laws to determine if Congress needs to repeal or update laws that have created outdated and burdensome regulation?

President Obama has created an unprecedented government-wide regulatory "lookback," designed to revisit rules on the books to see if they really make sense. According to OMB, government agencies have identified over 580 reform proposals and have already acted on over 100 of them. Just those reforms already finalized or proposed to the public will save over $10 billion over the next five years and eliminate tens of millions of hours of paperwork requirements. This is just a beginning. As the reforms continue, OMB expects that we will be able to produce far greater savings into the future.

Q. What is your Department doing to ensure small manufacturers have the ability to compete on a level playing field with our foreign competitors? Specifically, what are you doing to ensure the US is defending our trade and intellectual property laws and how can small manufactures seek relief under trade remedy laws for theft of intellectual property?

We are proud of the Commerce Department's efforts to provide the training, resources and support that help guide small U.S. manufacturers as they enter into the global marketplace and when they face particular challenges to enforcing their IP rights. Our efforts include: participation with other agencies in international treaty negotiations to secure strong protections for IP; a website STOPfakes.gov that contains a wealth of information to help small businesses navigate IPR challenges abroad; STOPfakes.gov Road Shows put on by USPTO and ITA across the country in collaboration with local law enforcement to educate inventors on commercializing and protecting their innovations and inform SMEs on how to protect and enforce their IP in foreign markets; a dedicated mailbox independentinventor@uspto.gov for receiving and responding to inventor inquiries; a hotline (1-800-999-HALT) staffed by IP attorneys at the USPTO with international expertise; an online mechanism (www.stopfakes.gov/contact) for SMEs to report trade barriers and receive assistance from experts who can suggest strategies to evaluate and resolve IPR problems encountered abroad, as part of Commerce's Trade Agreement Compliance program; inventor regional conferences sponsored by the USPTO with presentations on how to protect and enforce IP rights domestically and internationally; an IP attaché program, administered by the USPTO in cooperation with the Department's Foreign Commercial Service, that provides U.S. companies with on-the-ground assistance by IP professionals in regions of the world that present IP enforcement challenges; and a USPTO-administered Global Intellectual Property Academy that provides training and capacity-building support for judges, customs personnel and other foreign officials charged with IP enforcement.

July 12, 2012

Dr. Robert D. Atkinson
President
Information Technology and Innovation Foundation
1101 K Street, N.W., Suite 610
Washington, D.C. 20005

Dear Dr. Atkinson,

Thank you for appearing before the Subcommittee on Commerce, Manufacturing, and Trade on Thursday, April 19, 2012, to testify at the hearing entitled "Where the Jobs Are: Can American Manufacturing Thrive Again?"

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for 10 business days to permit Members to submit additional questions to witnesses, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and then (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on Thursday, July 26, 2012. Your responses should be e-mailed to the Legislative Clerk, in Word or PDF format, at Kirby.Howard@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Mary Bono Mack
Chairman
Subcommittee on Commerce,
Manufacturing, and Trade

cc: G.K. Butterfield, Ranking Member, Subcommittee on Commerce, Manufacturing, and Trade

Attachment

The Honorable Mary Bono Mack

1. Mr. Lubrano points out that we have lost market share of world exports in the past 10 years, decreasing from 13 percent to only 9 percent of world exports.

    a. Did we lose market share because we are not as competitive?
    YES, EVEN AS THE GLOBAL MARKET GROWS AND OTHER NATIONS INCREASE EXPORTS, THEY SHOULD ACCORDING TO ECONOMIC THEORY ALSO INCREASE IMPORTS. AS SUCH OUR SHARE OF GLOBAL EXPORTS SHOULD NOT HAVE DECLINED. IT WOULD NOT HAVE DECLINED IF CHINA HAD NOT CONTINUED TO RUN TRADE SURPLUSES WITH US (IN OTHER WORDS IF THEY IMPORTED MORE FROM US).

    b. How are manufacturing jobs losses correlated to our decline in world market share for manufactured goods?
    IN OUR ITIF REPORT "WORSE THAN THE GREAT DEPRESSION: EXPLAINING US MANUFACTURING JOB LOSS" WE ESTIMATE THAT OVER 55 PERCENT OF US MANUFACTURING JOB LOSS FROM 2000 TO 2010 WAS DUE TO A LOSS OF OUR COMPETITIVE POSITION (RELATIVELY FEWER MANUFACTURING EXPORTS AND RELATIVELY MORE IMPORTS). WITH LOWER SALES FROM US FACTORIES COMES FEWER JOBS.

2. Can our energy policy – if it lower costs to manufacturers - become a competitive advantage for manufacturing? IT CERTAINLY CAN HELP, PARTICULARLY FOR ENERGY-INTENSIVE MANUFACTURING SECTORS, LIKE CHEMICALS, CEMENT, PULP AND PAPER AND OTHERS. BUT EVEN IF THESE INDUSTRIES ENERGY IS USUALLY LESS THAN 10 PERCENT OF TOTAL COSTS, SO ENERGY COST REDUCTIONS WHILE HELPFUL CANNOT "CARRY ALL THE LOAD." WE WILL NEED A MULTIFACETED SET OF SOLUTIONS.

3. In your testimony you state that the U.S. lost a large share of manufacturing jobs because the country lost its "competitive edge for manufacturing." How has the U.S. become less competitive? IN SOME INDUSTRIES (SUCH AS APPAREL, ELECTRONICS, TEXTILES AND FURNITURE) WE HAVE LOST PRODUCTION AS IT MOVED TO NATIONS WITH LOWER LABOR COSTS. IN OTHER INDUSTRIES (E.G., AVIATION, PHARMACEUTICALS, AUTOMOTIVE) WE HAVE LOST COMPETITIVE EDGE FROM NATIONS THAT ARE HIGHER WAGE BUT HAVE TAKEN STEPS (SOME LEGITIMATE, SOME NOT) TO INCREASE THE COMPETITIVE POSITION OF FIRMS IN THESE INDUSTRIES IN THEIR NATION. FOR EXAMPLE, MASSIVE EUROPEAN SUBSIDIES TO AIRBUS HAVE CUT INTO BOEING'S MARKET SHARE AND LED TO RELATIVELY FEWER BOEING JOBS IN THE U.S.

4. You mentioned that other nations have adopted mercantilist and protectionist measures that boosted their manufacturing competitiveness while ours fell. Can you describe these measures? THERE ARE AN ARRAY OF MEASURES, INCLUDING GOVERNMENT SETTING OF CURRENCY PRICES, TARIFFS, DISCRIMINATORY PRODUCT STANDARDS, FORCED TECHNOLOGY TRANSFER AS A CONDITION OF MARKET ACCESS; DISCRIMINATORY GOVERNMENT

PROCUREMENT PRACTICES; IP THEFT THROUGH MEANS LIKE INDUSTRIAL ESPIONAGE, CYBER THEFT AND ONLINE PIRACY; DISCRIMINATORY TAX POLICIES THAT FAVOR DOMESTIC OWNED FIRMS, AND OTHERS. WE DESCRIBE THESE IN THE ITIF REPORT "THE GOOD, THE BAD AND THE UGLY OF INNOVATION POLICY."

5. One of the mercantilist practices you specifically mentioned is forced technology transfer. Do you think American companies have made a deal with the devil in some of their choices to manufacture outside this country? Do you think it will have long term negative consequences on our innovation capabilities? US MULTINATIONALS HAVE LITTLE CHOICE UNDER THE CURRENT REGIME BUT TO CAPITULATE TO THE CHINESE, SINCE THE CHINESE MARKET IS SO BIG. CHINA IS ESSENTIALLY A MONOPSONIST – A SINGLE BUYER. THE ANSWER IS MONOPOLY – WE NEED TO EMPOWER OUR COMPANIES TO COLLECTIVELY COOPERATE IN TERMS OF THEIR ACTIONS TOWARD THE CHINESE MARKET SO THE CHINESE CAN'T KEEP PICKING THEM OFF ONE A TIME. THIS IS A PROBLEM MOSTLY IN CHINA AND BIG NATIONS LIKE BRAZIL WITH A BIG MARKET TO DANGLE. US COMPANIES ARE MORE WILLING TO WALK AWAY FROM EXTORTIONIST DEMANDS FROM NATIONS LIKE ARGENTINA.

6. You testified that the Federal government's labor productivity growth figure is overstated by as much as 122 percent, and that BEA's output growth figure is also "significantly overstated" due to "import substitution bias"? How are these estimates so inflated? IMPORT SUBSTITUTION BIAS IS ONE BIAS. THIS IS BECAUSE WHEN THE PRICE OF NEWLY IMPORTED INPUT IS LOWER THAN ITS DOMESTIC SUPPLY BLS ATTRIBUTES MUCH OF THE GAIN IN VALUE ADDED TO THE US FIRM DOING THE IMPORTING. THIS IS IN PART OF A LACK OF RESOURCES ON THE PART OF BLS TO BETTER MEASURE IMPORTS. BUT THE REALLY LARGE BIAS IS IN MEASUREMENT OF THE COMPUTER INDUSTRY. ACCORDING TO BEA ALL AND MORE OF THE INCREASE IN US MANUFACTURING OUTPUT IS FROM THIS INDUSTRY AND IT'S THE WAY THEY CONTROL FOR QUALITY. IF A COMPUTER DOUBLES IN SPEED OR STORAGE BEA COUNTS OUTPUT AS DOUBLING. GIVEN 'MOORE'S LAW' COMPUTER SPEEDS HAVE INCREASED RAPIDLY

7. You dispute the notion that assembly line efficiencies are the driver behind the contraction in manufacturing jobs, but rather the loss in manufacturing jobs is due to less output. YES, BASED ON THE ABOVE COMMENT THAT THE OFFICIAL OUTPUT NUMBERS OF MANUFACTURING ARE OVERSTATED, THEN IT BECOMES CLEAR THAT ACTUAL US MANUFACTURING OUTPUT DECLINED OVER THE LAST DECADE. WE SEE THIS IN THE FACT THAT MANY INDUSTRIES ARE ACTUALLY PRODUCING LESS THAN THEY DID A DECADE AGO, WHILE THE ECONOMY HAS GROWN 15 PERCENT.

8. Does it all come down to the cost of manufacturing or are there other factors such as quality and innovation where we are not as competitive as well? IT'S A COMBINATION OF FACTORS. WE WONT LIKELY REGAIN COMPETITIVENESS IN COST-DRIVEN, COMMODITY PRODUCTION. BUT COSTS STILL MATTER – WHICH IS WHY WE NEED A LOWER EFFECTIVE CORPORATE TAX RATE. BUT WE ALSO NEED MORE INNOVATION IN

MANUFACTURING BECAUSE THAT IS HOW WE WILL BE ABLE TO BETTER COMPETE WITH LESS INNOVATIVE LOW WAGE NATIONS AND WITH HIGHLY INNOVATIVE HIGH WAGE COUNTRIES.

9. If not the primary reason, do you believe that such modernizations have had any impact on the decreasing number of manufacturing jobs? YES, OF COURSE. BUT I DON'T BELIEVE IT IS 100 PERCENT AS SO MANY ADVOCATES CLAIM. IT'S LIKELY RESPONSIBLE FOR BETWEEN 40 AND 50 PERCENT OF THE JOB LOSS IN MANUFACTURING IN THE LAST DECADE.

10. You endorsed the idea of a public-private R&D initiative for advanced manufacturing, but we increasingly see wasteful or unwise spending choices – or perhaps worse, picking winners and losers among American businesses - when the government becomes involved. Why would such an initiative be different? BECAUSE IT WOULD HOPEFULLY BE INDUSTRY LED. INDUSTRY SHOULD IDENTIFY THE AREAS WHERE THERE IS A NEED FOR COOPERATIVE R&D EFFORTS AND AGREE TO PUT UP SOME OF THEIR OWN MONEY AND LEADERSHIP. ONLY THEN WOULD THE FEDERAL GOVERNMENT COMMIT TO BE A PARTNER. WHY SHOULDN'T INDUSTRY FUND ALL OF IT? BECAUSE OF THE FREE RIDER PROBLEM – IF YOU CAN GET THE BENEFITS OF THIS PRE-COMPLETIVE RESEARCH WITHOUT PARTICIPATING YOU WONT. FEDERAL MATCHING FUNDS REDUCE THIS PROBLEM. THIS IS HOW THE 50 YEAR SUCCESSFUL GERMAN FRAUNHAUFER SYSTEM WORKS – INDUSTRY PUTS UP 75 PERCENT OF THE MONEY

11. You state manufacturing can provide good jobs for non-college educated workers. Can STEM education needed to fill the skills gap be met without college education? CLEARLY MORE ADVANCED MANUFACTURING TECHNICIAN EDUCATION IS NEEDED. WE HAVE SOME PROGRAMS HERE AND THERE THROUGHOUT THE NATION THAT DO A GOOD JOB, BUT THEY NEED TO BE PAR FOR THE COURSE. IF WE ARE TO COMPETE IN MANUFACTURING IT MUST MORE TECHNOLOGICALLY ADVANCED MANUFACTURING AND THAT REQUIRES MORE SKILLED WORKERS

12. You note 13 of the 19 manufacturing sectors had less output in 2010 than in 2000, shrinking while the rest of the economy grew. To what is that shrinkage attributable? LOSS OF GLOBAL MARKET SHARE THROUGH INCREASED IMPORTS IN THESE SECTORS AND REDUCED EXPORTS. IT GENERALLY IS NOT DUE TO REDUCED DOMESTIC CONSUMPTION OF MANUFACTURING GOODS AS THAT HAS BEEN STABLE AS A SHARE OF GDP.

13. You state that as a percentage of their GDP, a number of countries are seeing manufacturing remain stable or grow – including Japan, Korea, Austria, and Finland. What are they doing differently than the U.S., Canada, and Spain? MULTIPLE THINGS. FIRST, SOME INVEST MORE IN MANUFACTURING-FOCUSED R&D IN PARTNERSHIP WITH INDUSTRY. SOME HAVE LOWER CORPORATE TAX RATES AND/OR STRONGER INCENTIVES FOR R&D AND CAPITAL EQUIPMENT INVESTMENT. IN JAPAN'S CASE THEY HAVE FORMAL AND INFORMAL IMPORT RESTRICTIONS.

14. You state the some trends are moving in the right direction, including the U.S. dollar continuing to get weaker, "as it should." Is that statement made in recognition of where our fiscal situation is or are you advocating it as a policy goal? If so, why should we have a weaker dollar? WE SHOULD HAVE A DOLLAR THAT IS BASED ON WHAT THE MARKET SAYS THE PRICE OF IT SHOULD BE, JUST LIKE THE PRICE OF MUCH OF THE THINGS IN OUR ECONOMY SHOULD BE BASED ON PRICES. BUT WHEN YOU ARE RUNNING A LARGE TRADE DEFICIT THE NATURAL MARKET REACTION IS FOR THE VALUE OF THE DOLLAR TO FALL SO MAKE IMPORTS CHEAPER AND EXPORTS MORE EXPENSIVE. THIS IS HARD WHEN THE CHINESE AND MANY OTHER NATIONS MANIPULATE THEIR CURRENCIES AND WHEN OUR TREASURY SECRETARIES PERSIST IN DEFENDING A STRONG DOLLAR. OUR DOLLAR SHOULD BE STRONG BUT IF ITS STRONG ARTIFICIALLY AS IT IS NOW, THAT'S NOT SUSTAINABLE. WE CAN AFFORD A STRONG DOLLAR WHEN OUR TRADED SECTOR FIRMS ARE MORE COMPETITIVE.

15. You state that unless our corporate tax reform is NOT revenue neutral, it will not effectively address our competitiveness problems. Could you explain? What would that impact of a policy that is not revenue neutral look like for budget purposes? IF ITS NOT REVENUE NEUTRAL THAT MEANS THAT ON AVERAGE FIRMS WILL PAY THE SAME AMOUNT THEY PAY TODAY. YET OUR EFFECTIVE CORPORATE TAX RATE IS STILL RELATIVELY HIGH. IF WE WANT TO BOOST COMPETIVENESS WE NEED OUR FIRMS IN TRADED SECTORS LIKE MANUFACTURERS TO BE PAYING LESS, NOT THE SAME AMOUNT OF TAXES.

16. You testify many U.S. companies make bad decisions forced by financial markets looking only at the short term and often results in underinvestment in key manufacturing technologies. Given our competitiveness problem and cost structure, are U.S. companies in a position to make such investments? COMPANIES CAN MAKE INVESTMENTS FOR THE LONGER TERM AND CERTAINLY SOME DO. BUT WHEN WALL STREET REWARDS THIS QUARTER'S RETURNS AND PUNISHES FIRMS THAT INVEST FOR THE LONG TERM, IT TAKES A STRONG CEO TO BUCK THAT TREND. THAT'S WHY STRONGER TAX INCENTIVES LIKE THE R&D CREDIT ARE IMPORTANT TO LEAN "INTO THE WIND" OF SHORT-TERMISM

The Honorable Marsha Blackburn

1. What is the competitive impact and economic cost to US manufacturers on foreigners' misuse of pirated information technologies? THIS COST IS SIGNIFICANT AND TWO-FOLD. FIRST IT REDUCES REVENUES OF US IT COMPANIES, MAKING THEM LESS COMPETITIVE. BUT SECOND IT IS A "PIRACY SUBSIDY" TO OTHER COMPETITOR FIRMS IN OTHER NATIONS. OUR FIRMS HAVE TO PAY FOR THE IT THEY USE, RAISING THEIR COSTS. IF THEIR COMPETITORS GET IT FOR FREE THEY CAN SELL AT LOWER PRICES, UNDERCUTTING LAW-ABIDING US FIRMS. IF YOU ASSUME THAT THE TYPICAL U.S. MANUFACTURER INVESTS ABOUT 3 PERCENT OF SALES IN IT AND HALF OF THIS IS SOFTWARE, YOU CAN ASSUME THAT A TYPICAL COMPANY IN CHINA IS LIKELY GETTING A 1 PERCENT COST ADVANTAGE BECAUSE OF PIRACY, ASSUMING THAT

SOFTWARE TO HARDWARE RATIO IS ABOUT 1 TO 1 AND THAT THEIR PIRACY RATE IS AROUND 75 PERCENT.

2. How important is it for US manufacturers to have more spectrum freed up for commercial use? IT IS NOT THE MAIN DRIVER OF COMPETITIVENESS, BUT IT WILL HELP IN A COUPLE OF DIFFERENT AREAS. IT WILL HELP OUR IT COMPANIES DEVELOPING NEW PRODUCTS AND APPLICATIONS THAT REQUIRE HIGHER CAPACITY WIRELESS NETWORKS. AND TO SOME EXTENT IT WILL HELP US MANUFACTURERS THAT USE WIRELESS LANS AND OTHER WIRELESS NETWORKS WITHIN THEIR MANUFACTURING OPERATIONS.

NAM Response to Additional Questions Sent to Al Lubrano on July 12th

The Honorable Mary Bono Mack

Q: You pointed out that we have lost market share of world exports in the past 10 years, decreasing from 13 percent to only 9 percent of world exports.

a) **Did we lose market share because we are not as competitive?**

b) **How are manufacturing jobs losses correlated to our decline in world market share for manufactured goods?**

A: According to a 2011 study conducted by the NAM's Manufacturing Institute, it is 20 percent more expensive to do business in the United States as compared to our nine largest trading partners. Manufacturers believe we need policies that enhance our competitiveness by limiting costs and other impediments on manufacturers, opening foreign markets, and leveling the playing field for American exporters. In addition, the domestic market is not growing rapidly enough to generate the rate of job growth that we would like, making it more important than ever that we support policies that help to grow our exports. As our competitor countries are engaged in numerous market-opening trade agreement negotiations, the United States is lagging behind as it is only a party to one.

In order to increase U.S. exports, it also is imperative that we modernize our outmoded export control system, which severely hampers the export of products that should no longer be controlled and does not provide effective protection of our security. We strongly urge Congress to act on the major changes needed. A study sponsored by the NAM concluded that we lose some $60 billion of exports annually because of the existing export control system.

Attached is a table illustrating the decline of market share of the U.S., EU, Japan, and China from 1980 to 2010.

Chart in Microsoft PowerPoint....

Q: Can our energy policy – if it lower costs to manufacturers - become a competitive advantage for manufacturing?

A: The United States currently has a slight competitive advantage over the rest of the manufacturing world in terms of the cost of energy. We have momentum as a result of the shale gas revolution but we need to continue this revolution and utilize all sources of energy. The low cost of natural gas has helped our manufacturers be more competitive in the global market place. In the report, "Shale Gas: A Renaissance in US Manufacturing" it is estimated that natural gas has the potential to create an additional 1 million jobs between now and 2025. With our

range and wealth of resources, we have the opportunity for a continued our competitive advantage in the area of energy. Our energy resources are unmatched by any other nation. We are the Saudi Arabia of coal, we have tremendous oil resources offshore and onshore which includes unconventional oil plays like tight oil and oil shale. We continue to increase our estimates of our natural gas supplies and those supplies currently exceed demands. Current estimates are that we have a 100 year supply of natural gas.

One of the most important factors is our energy policy. Will the Federal government recognize this opportunity and provide access to these energy resources or are will they keep them under lock and key? We are already seeing new manufacturing jobs from the shale gas boom. If policymakers will allow access to these abundant energy resources than manufacturers will lead the way to an economy that is strong and vibrant.

Q: Mr. Giffi highlighted a study conducted with NAM's Manufacturing Institute in which Deloitte found there are as many as 600,000 unfilled manufacturing jobs because of a lack of qualified workers. What are the skills the current workforce lacks? How do we best train or re-train the current workforce to fill those positions?

A: Basic personal effectiveness and STEM skills are necessary for success in modern manufacturing. In addition the Skills Gap concludes that, "Shortages in skilled production jobs – machinists, operators, craft workers, distributors, technicians, and more – are taking their toll on manufacturers' ability to expand operations, drive innovation, and improve productivity." More and more manufacturers are looking for workers with nationally portable, industry recognized certifications to determine if the candidates they are hiring have the right skills. For example a hiring manager can look at any resume that includes the National Career readiness Certificate and know that the candidate has the basic STEM skills necessary for success. As you move up the career ladder, an America Welding Society certification ensures a base level of knowledge in that field. Both small and large employers embrace the standardized knowledge associated with these industry-recognized certifications. Current Federal training dollars existing in WIA, TAA and Perkins, should be focused towards these types of certifications to ensure the most efficient use of Federal Resources.

Q: You testified that we need to address a number of non-tariff barriers, including arbitrary standards and duplicative testing and certification rules. Does your company encounter those problems? Are their some examples you can share with the Committee? Do you communicate with the USTR to work with the other countries to eliminate the duplicative testing? Are those requirements imposed intentionally by other countries as an additional cost to prevent competition?

There are truly countless examples of these kinds of Non-Tariff Barriers to trade. One example, though, is the marine product manufacturing sector trying to export their products. The U.S. governing authority for boats and associated equipment is the U.S. Coast Guard (regulations are in 33 CFR Part 183). If a U.S. company sells boats in the EU, these manufacturers are required to build those products under the Recreational Craft Directive, which has more than 60 ISO standards that have to be deciphered and interpreted into your build process. Conversely, EU manufacturers only have to comply with the U.S Coast Guard CFR – which are significantly less restrictive.

Australia, as another example, has regulations regarding boat construction aimed particularly at electrical safety. Boats built for the EU receive the CE mark indicating compliance to standards. Australia refuses to recognize reciprocity to the CE mark, even though they admit that the ISO electrical standards cover their issues. Also, electrical components are required to have their own Australian RCD mark (much like a UL listing mark here in the United States). They will not recognize reciprocity with other testing labs in the world, essentially requiring U.S. companies to purchase components made for the Australian market place only.

There are significant opportunities for global standards organizations and regulators to utilize the reciprocity concept, with no loss of compliance or safety.

Another pervasive NTB is Intellectual Property (IP) counterfeiting. Successful market entry and growth is often tied to innovation. The methods of challenging counterfeiting are complex, though, and the cost of litigation is significant – and the outcomes often are not satisfactory.

Our own trading partners often create NTBs. For example, the Canadian Standards Association appears intent on adopting a European Directive mandating that all energy consumption devices be adapted to address alleged harmonics concerns voiced by Canada's hydroelectric community. Three consumer products sectors in the U.S. have already agreed to phase in corrective technology, in that they are producing "globally designed" products that data show will address 80% of the perceived problems in electricity transmission. CSA, through the IEEE, is going forward in mandating the use of such technology in all industrial equipment as well. This requirement will certainly create a barrier to U.S. exports to Canada. .

The ongoing use of the Precautionary Principle by our European trading partners, and its transmission across the globe, also leads to standards and directives that impose NTBs on U.S. exports. There is much anecdotal evidence that European customs agents are diligent in enforcing CE mark and other compliance enforcement on imports, while competitive products travel from EU countries like Germany and Spain with no similar enforcement.

Q: As vice chair of the small and medium manufacturers, what is the number one regulatory burden you would like to see disappear or reduced that would help those manufacturers?

The problem of excessive regulation weighs heavily on the minds of manufacturers. In a recent NAM/IndustryWeek Survey of Manufacturers, an unfavorable business climate caused by regulations and taxes was cited by 64 percent of the respondents as the top challenge facing businesses. An aggressive federal bureaucracy has imposed unworkable and excessive regulations with little regard for their impact on job creation and the economy. Since 2009, 294 final major regulations—on average, one every 4.4 days—have been published in the Federal Register.

The burden of regulation falls disproportionately on manufacturers, particularly on small manufacturers because compliance costs typically are not affected by economies of scale. A 2010 study commissioned by the U.S. Small Business Administration's Office of Advocacy concluded that manufacturers spend $14,070 per employee to comply with regulations. For small manufacturers with less than 20 employees, the compliance cost per employee is $28,316—three and a half times the per-employee cost imposed on all U.S. businesses. Manufacturers face a regulatory environment that imposes significant costs that affect their ability to grow their businesses and create jobs.

There is no single regulatory burden that could be lifted to assist all small and medium manufacturers. Manufacturing is an extraordinarily diverse sector of the economy. Congress should work first to prevent the most costly new burdens from being imposed on manufacturing as outlined in our June 4, 2012 letter to the House Committee on Oversight & Government Reform, attached below.

NAMIssaJordanRegulation6-4-12.pdf

Q: You allude to an "ongoing attempt" to redirect the efforts of the Office of Industry Analysis and undermine its ability to participate in the review of regulation. Could you please explain?

A: The Office of Industry Analysis is within the Office of Manufacturing and Services (MAS) at the Department of Commerce's International Trade Administration (ITA) and assesses the cost competitiveness of American industry and the impact of proposed regulations on economic growth and job creation. It was created in response to a 2003 Executive Branch initiative to improve the global competitiveness of the U.S. manufacturing sector and included as a recommendation in a January 2004 report entitled, *Manufacturing in America: A Comprehensive Strategy to Address the Challenges to U.S. Manufacturers*. The report stated the office should develop "the analytical tools and expertise...to assess the impact of proposed rules and regulations on economic growth and job creation before they are put into effect."

The focus of the Office of Industry Analysis in recent years has shifted away from assessing the effects of domestic regulations on our global competitiveness. It has been reported to us that staff that previously evaluated domestic regulations now engages in projects to support the Administration's National Export Initiative. The cost of regulatory compliance is an important factor influencing our competitive profile within the global economy. The Office of Industry Analysis was created to reduce the regulatory burdens placed upon domestic firms, and its role as a provider of subjective, third-party analysis to regulators should be restored and strengthened.

Q: You see recent manufacturing job growth as a reason to be cautiously optimistic about future production and employment. However, Dr. Atkinson states there is little reason for celebration because of the major hit the sector took not just in losing 2 million jobs due to the recent recession, but the additional 4 million jobs lost since 2000. How optimistic are you – is any news good news, or do you see a trend that could make a significant dent in the nearly 6 million manufacturing jobs lost?

A: Manufacturing has been one of the primary drivers of growth in the economy since the recession has ended, adding nearly 500,000 net new workers since December 2009. In general, we have seen larger-than-normal contributions from the sector in terms of both employment and output over that time, with much of the gains coming from the durable goods sectors. Manufacturing has become much more competitive globally, and as a result, we have even begun to hear comments from some of our members about the attractiveness of the U.S. as a possible location for production. Of course, in order to ensure that production does occur in this country, policymakers need to advance pro-growth strategies that remove some of the structural barriers which make the U.S. less attractive (e.g., taxes, regulation, legal environment, etc.).

Looking ahead, we anticipate modest growth in the economy mostly from consumer and business spending and increased exports. The consumer continues to spend, even as the savings rate has fallen. In fact, the largest contributor to real GDP growth in the first quarter of this year was private consumption, especially on durable and nondurable goods. This has aided the manufacturing sector, which benefits from increased demand for its goods. Investment is also improving, with slow-but-steady gains in residential construction (albeit still below where it was prior to the bubble bursting) helping. One challenge moving into 2013 on the investment front will be higher taxes on investment income resulting from the possible expiration of the 2001 and 2003 tax cuts; on the other hand, interest rates are expected to remain exceptionally low for the next couple years. In terms of exports, manufacturers are more proactive about international sales than in the past, as it is central to their growth strategies. Manufactured goods exports have slowed recently with global weaknesses, and yet, they are still up nearly 8 percent year-over-year. One could easily make the case that the sectors which have grown the most since the recession ended have been the ones that have exploited trade opportunities the most.

The Honorable Marsha Blackburn

Q: What is the competitive impact and economic cost to US manufacturers on foreigners' misuse of pirated information technologies?

A: Manufacturers are competing globally in every aspect of their business and lead the world as innovators. Unfortunately, they are increasingly facing an uneven playing field when unscrupulous actors utilize pirated intellectual property. This is not limited to information technology (IT). It includes pirated goods, services, content, trademarks and other proprietary resources manufacturers have developed strategically to outperform their competitors.

On the specific issue of information technology, manufacturers make significant investments in this space to increase their competitive edge both here and abroad. IT helps drive efficiency in product design, communication, manufacturing processes, customer safety, enterprise efficiency, and even environmental impact. Now more than ever the IT leveraged by manufacturers provides an increasing competitive advantage in the global marketplace.

Unfortunately, not everyone is playing by the rules. Many companies – usually from outside the U.S. – are illegally utilizing pirated information technology inside their enterprise. This practice provides for an unfair advantage over manufacturers that follow the law. It can lead to job loss, a drain on innovation, and a direct negative impact on the bottom line.

Last year when the NAM released our "Four Goals for Economic Growth" it gave policymakers the blueprint for ensuring the U.S. remains the best place in the world for manufacturers. In it, we urge them to recognize intellectual property (IP) as the basis of America's innovative economy. The NAM strongly believes that IP is a critical aspect of our manufacturing economy and any effort to steal it or utilize it illegally puts US manufacturers at a disadvantage.

Q: How important is it for US manufacturers to have more spectrum freed up for commercial use?

A: The availability of wireless spectrum directly correlates with the tools manufacturers use to run their businesses and the products they generate. The NAM is concerned that spectrum

capacity constraints could lead to costly delays in the manufacturing process and lost productivity.

Manufacturers have become increasingly dependent on the wireless Internet and advanced telecommunication devices in their daily operations to connect with customers, employees, suppliers, and valued partners. Specifically, manufacturers use smartphones, tablets, GPS receivers and similar wireless devices and technologies to track production and inventory, to provide online learning tools to employees, and to assist all aspects of customer service operations from ordering to final delivery of a product. For these devices and the systems on which they run, wireless networks need to be robust and reliable to benefit manufacturers and consumers alike.

The NAM applauds Congress for recognizing the pending spectrum "crunch" by passing the Jumpstarting Opportunity with Broadband Spectrum (JOBS) Act of 2011 as part of the payroll tax cut extension bill. The JOBS act will enhance our nation's telecommunications infrastructure and help manufacturers grow their businesses and create jobs by increasing the availability of wireless spectrum.

These and other measures will work toward reducing the current broadband capacity constraints which have the potential to slow investment, innovation, and job creation in the manufacturing sector.

July 12, 2012

Mr. Craig A. Giffi
Vice Chairman and U.S. Leader
Consumer and Industrial Products
Deloitte & Touche USA LLP
127 Public Square, Suite 3300
Cleveland, OH 44114-1291

Dear Mr. Giffi,

Thank you for appearing before the Subcommittee on Commerce, Manufacturing, and Trade on Thursday, April 19, 2012, to testify at the hearing entitled "Where the Jobs Are: Can American Manufacturing Thrive Again?"

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for 10 business days to permit Members to submit additional questions to witnesses, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and then (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on Thursday, July 26, 2012. Your responses should be e-mailed to the Legislative Clerk, in Word or PDF format, at Kirby.Howard@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Mary Bono Mack
Chairman
Subcommittee on Commerce,
Manufacturing, and Trade

cc: G.K. Butterfield, Ranking Member, Subcommittee on Commerce, Manufacturing, and Trade

Attachment

The Honorable Mary Bono Mack

1. Mr. Lubrano points out that we have lost market share of world exports in the past 10 years, decreasing from 13 percent to only 9 percent of world exports.

    a. Did we lose market share because we are not as competitive?

    The United States has lost market share because America is viewed as less competitive than other nations.

    Broadly, manufacturing is proven to be an engine for economic growth, particularly for emerging nations. The research conducted by Ricardo Hausmann, director of Harvard's Center for International Development, and César Hidalgo, assistant professor at the MIT Media Laboratory (and outlined in *The Future of Manufacturing*), demonstrates why most of the sustained growth miracles of the past 60 years have been manufacturing miracles. Think of Japan, Korea, China, Thailand or Germany. As these nations have focused on the economic benefits that result from a vibrant industrial base, they have also created attractive destinations for companies to invest and establish manufacturing operations. In doing so, the United States' market share of world exports has steadily eroded as goods once manufactured in America are now produced in these other nations.

    b. How are manufacturing jobs losses correlated to our decline in world market share for manufactured goods?

    Deloitte has not investigated any statistical correlation between global exports, worldwide market share, and the decline of manufacturing jobs in the United States; however, we believe a correlation does exist as the production of low-cost goods has shifted to overseas markets.

2. Can our energy policy – if it lower costs to manufacturers - become a competitive advantage for manufacturing?

    Historically, labor and material costs have been critical production factors. However, as global energy costs rise and scarcity increases, the cost and availability of energy have also become a critical factor contributing to overall manufacturing competitiveness for both companies and countries.

    With increasing global demand, and a shift in the supplies of traditional energy (e.g., an increase in the supply of fuel sources like shale gas and oil), market forces are expected to play a more formidable role in the development and diffusion of all forms of energy and their efficient use. Government policies, for their part, can allow us to take advantage of burgeoning unconventional fossil fuel sources – and also foster the development of cost-effective alternative energy for the decades ahead. A sensible energy plan will provide a springboard whereby a country can leapfrog competing nations in the near term and set the stage for a balanced energy portfolio in the future.

3. You state that research suggests "the advancement of manufacturing capabilities is directly linked to a nation's economic prosperity." How and why is that?

   According to research by Ricardo Hausmann and César Hidalgo, most manufactured goods are network hubs, meaning that they tend to be connected to many other goods. This is a strong difference between manufacturing and other activities like mining, oil and gas, and agriculture. At the lower end of manufacturing, garments constitute a highly connected cluster. A country that is successful at making a few kinds of garments will find it relatively straightforward to diversify into others. A similar pattern is observed for higher-end products such as machinery, electronics, chemicals and pharmaceuticals. This is so because the productive knowledge required to make some of these products is relatively similar, making them adjacent in the product space. As a result, manufacturing creates a set of stepping-stones, or a stairway to development, that provides a more continuous progression of rungs than other economic activities as innovation and research and develop create more complex manufacturing processes and products – which result in the need for a continuously improving (and growing) workforce.

   Therefore, the advancement of manufacturing capabilities is directly linked to increasing economic prosperity for a nation and its citizens, because it's been enabled by the complex economic infrastructures necessary and the manufacturing knowledge and capabilities accumulated to drive the development and export of high-value manufactured goods.

4. You state the research also shows that "the more advanced the goods are that a nation makes, and the more advanced the manufacturing processes it uses, the greater the prosperity." Do you have any indication of where the U.S. ranks in comparison to other nations in terms of advanced manufactured goods and manufacturing processes?

   An analysis in *A National Strategic Plan for Advanced Manufacturing*, submitted to the President in February 2012 by the National Science and Technology Council, indicated that a gap exists between research and development (R&D) activities and the deployment of technological innovations in domestic production of goods. This gap has contributed to the erosion of key indicators, such as the balance of trade in advanced technology products as measured by the U.S. Census Bureau (Figure 1 of the report). The United States ran a trade surplus in this category throughout the 1990s, but by 2010, that surplus had become an $81 billion deficit.

   The report goes on to say that advanced manufacturing is emerging as an especially potent driver of future economic growth. A distinguishing feature of advanced manufacturing is its continual improvement in processes and rapid introduction of new products. It is this paradigm – shifting aspect of advanced manufacturing – that has the most potential to spin off entirely new industries and lead to production methods that are most likely to "stick" in the United States because they are hard to imitate.

   The report further draws upon other data sources regarding current global trends in R&D, innovation, and trade – which they argue raise concerns about U.S. competitiveness in advanced manufacturing. For example, in 2009 the United States ranked 8th among industrialized nations for R&D intensity

(defined as national R&D as a share of GDP), according to the Organisation for Economic Co-operation and Development (OECD). A 2011 report by the Information Technology and Innovation Foundation ranked the United States 4th out of 44 industrialized countries and regions in global innovative-based competitiveness, but second-to-last in progress toward increasing innovation-based competitiveness and capacity since 2000. They went on to say that the nation's trade balance for advanced technology products has deteriorated precipitously over the past decade, despite an offsetting 34% decline in the major-currency foreign exchange value of the U.S. dollar. As shown in Figure 2 of the report, currently, Germany, Korea, and Japan each have more R&D-intensive manufacturing sectors than the United States; moreover, they each have positive trade balances in goods.

5. **The participants in one of your studies closely linked research and a close connection to the process of making the products. Can you explain the linkage and why it is so important?**

   The university presidents and national laboratory leaders participating in *Ignite 2.0*, emphatically described that superior innovation is dependent on experimenting and learning from a symbiotic, closed-loop manufacturing-innovation ecosystem – where all participants (companies, universities, researchers, governments, etc.) inform and enhance the others with respect to product development and manufacturing innovation. In commenting on the closed-loop process, participants described innovation as the creation of all elements of the closed-loop product development cycle, from initial idea creation to process and product generation. Critical to the process was the development of translational pathways that help build ideas into innovations, and innovations into products. And while not required in all cases, co-location and intimate and sustained collaboration between basic researchers, applied researchers, engineers and manufacturers was identified as an essential ingredient, leading to greater innovation of both product and process.

6. **Your interviews with CEOs indicate they all believe maintaining our edge in research and development depends on a vibrant manufacturing base. Could you explain what the "close connection to the actual process of making products" means and how that relates to the research and development proposals that seek collaborations with universities? Are university and public lab research considered to be in close connection with manufacturing?**

   There is a close connection between the actual process of making things and the research and development activities performed at America's universities and national laboratories. As described in Question 5 above, universities and national laboratories are critical components in a symbiotic, closed-loop manufacturing-innovation ecosystem – where all participants (companies, universities, researchers, governments, etc.) inform and enhance the others with respect to product development and manufacturing innovation.

   With respect to R&D – and the innovation that results – these institutions are crucial to incubating creative new ideas, conducting basic research, and driving toward applied research. National laboratories in particular are catalysts for advancing basic research to applied research for ideas and innovations that are important to take to the next phase of development but not yet ready for mass commercialization.

7. Your participants reported at least 600,000 jobs that are currently unfulfilled due to a lack of qualified candidates. Did the respondents identify what skills they seek but cannot find? Did they identify solutions to rectifying the current skills gap?

As outlined in *Boiling point: The skills gap in U.S. manufacturing*, the most significant needs today are in the skilled production sector, which will also face the largest skills shortages in the near future. Eighty-three percent of companies participating in the report indicate a moderate to serious shortage of skilled production workers (machinists, operators, craft workers, distributors and technicians).

Manufacturers face challenges in other technical job classifications such as engineering technologists and scientists, with moderate to severe shortages at 60% and 50% of surveyed companies, respectively. Again, the situation for these employment categories is expected to worsen in the near term. This will present a serious problem in a few years as more and more workers retire – and their employers know that. Seventy-five percent of respondents indicated that pending retirements and an aging workforce will have the most significant impact among skilled production workers, with 40% saying it will be significant for production support.

In addition to skill and technical shortages, those participating in *Boiling point* also reported serious deficiencies in their current employees. Fifty-two percent of respondents felt their current employees lack adequate problem-solving skills, and 40% felt their employees lack basis employability skills (attendance, timeliness, work ethic, etc.). Other deficiencies were reported in basic technical training, technology/computer skills, math skills, and communication skills (reading and writing).

Paths to closing the gap

There's no one magic solution that can address growing skills gap concerns among manufacturers; however, the CEOs, university presidents national laboratory leaders, and labor leaders participating in the *Ignite* series all outlined a number of recommendations that could help close the gap. Recommendations are outline below. It is important to note that the recommendations were not consistent between stakeholders. While many agreed on a number of topics there were some differences between cohorts and these represent recommendations outlined in one or more of the *Ignite* reports.

- **Maintain long-term, predictable federal and state support for universities, community colleges and the nation's research and science infrastructure.**

- **Focus U.S. public and higher education on developing skills in science, technology, engineering and math.** The revival of America's STEM talent pool must begin in the earliest grades, with teachers who are fully prepared to teach and inspire the next generation of professionals. As part of this effort, the U.S. should:

- At the state level, adopt consistent standards and curricula for STEM disciplines. These standards should be tied to metrics followed in other leading manufacturing economies.

- Provide guidelines and incentives to attract and retain primary and secondary STEM teachers who are true subject-matter experts, able to prepare students for degrees or certifications. Incentives such as continuing education opportunities could be offered to current STEM teachers. The next generation of teachers could be cultivated with scholarship programs that attract top high-school talent to pursue STEM education. K-12 systems could be offered discipline-linked salary tiers similar to those provided to college and university professors, to reward teachers for developing and maintaining subject-matter expertise.

- **Develop flexible higher education tracks that foster STEM literacy through community colleges, vocational trade schools, work-training programs, etc.**

- **Support state universities' efforts to attract high-caliber students to STEM programs and increase the number of graduates in STEM disciplines.**

- **Develop initiatives that promote and market manufacturing as a vital and high-value industry with rewarding long-term career opportunities for high school and college students.** This commitment should involve focused, creative and measurable initiatives targeted at today's and tomorrow's students—and parents.

- **Build government-industry partnerships that provide incentives for prospective workers to pursue careers in science, engineering and manufacturing.**

- **Advance performance-based legislation and incentives such as the America COMPETES Act, the Elementary and Secondary Education Act, the Carl D. Perkins Career and Technical Education Act, the Investing in Innovation Fund and the Race to the Top and Teacher Incentive funds.**

- **Benchmark visa best practices from other countries that are succeeding in attracting and retaining top STEM talent.**

- **Expand programs such as Helmets to Hardhats® and project labor/community workforce agreements that hire and train active military personnel, disadvantaged youths and unemployed veterans for successful careers in the skilled trades.**

8. You endorsed the idea of a need for emphasis on STEM education to support and grow manufacturing in the future.

    a. Will STEM education be a requirement in the near future for entry level advanced manufacturing jobs?

    Some fundamental STEM education at the K-12 level will be necessary for entry level advanced manufacturing jobs. Moreover, those workers will also require post-secondary exposure (community colleges, vocational schools, training/certification programs, etc.) to STEM disciplines if they are to move beyond entry-level positions and advance their careers.

    America's K-12 education system needs to be improved to create the world's most desired talent pool, and in the future that will require a workforce that is strong in the STEM disciplines – regardless if pursuing a career as a skilled production worker or an engineer. Primary and secondary level students need teachers who are subject matter experts in STEM disciplines. These experts are better equipped to educate and inspire students to pursue the advanced STEM education and career opportunities that will drive growth of the U.S. economy for years to come.

    Flexible pathways for advanced degree acquisition and certifications must also be established through collaboration across K-12 schools, universities and, in particular, community colleges—which are instrumental in ensuring students are armed with requisite university-level skills perhaps not attained at the secondary level and/or offering flexible pathways to advanced vocational certifications.

b. Will an emphasis on these subject matters really help groom more manufacturing laborers – aren't those students that are most interested in STEM subjects likely to populate professional jobs such as researchers and engineers?

Manufacturing today is no longer "dirty, dumb, and dangerous." Manufacturing facilities today are high-tech facilities that, as noted above, require laborers able to operate advanced machinery and understand complex manufacturing processes. Exposure to STEM disciplines in the K-12 levels is crucial to ensuring the U.S. develops a highly educated and skilled workforce – regardless of chosen profession – because the future of manufacturing (and the economic prosperity of both countries and companies) will be driven by evermore complex and advanced manufacturing.

It is important to note that it is not only those seeking careers in research or engineering that benefit from STEM. As described by many of the leaders participating in the *Ignite* series, the United States needs to rethink its approach to STEM education and find some "middle ground" where exposure to these disciplines is provided at the primary and secondary education levels so young people have an opportunity to acquire basic science, technology, and math skills. Doing so will only benefit America's future workforce – regardless of chosen profession.

9. Regarding your survey of the American public and their preference to create manufacturing jobs above all other industries, did the American people express opinions regarding the manner in which the jobs could be created – i.e., was there support or opposition to government resources or subsidies?

The survey of U.S. citizens conducted by Deloitte and the Manufacturing Institute revealed a handful of areas related Americans' opinions of government resources. While many felt the government's role in business should be as minimal as possible, 69% of survey respondents felt lower taxes for small businesses and people would improve America's competitiveness. In addition, 65% felt manufacturing tax incentives would enhance America's ability to compete.

10. Regarding the challenges facing U.S. competitiveness, you note many of your interview participants note the growing "skills gap." Is there one common skill gap that is identified? Or are the skills gaps variable depending on which industry we are talking about?

As outlined in *Boiling point: The skills gap in U.S. manufacturing*, the most significant needs today are in the skilled production sector, which will also face the largest skills shortages in the near future. Eighty-three percent of companies participating in the report indicate a moderate to serious shortage of skilled production workers (machinists, operators, craft workers, distributors and technicians).

Manufacturers face challenges in other technical job classifications such as engineering technologists and scientists, with moderate to severe shortages at 60% and 50% of surveyed companies, respectively. Again, the situation for these employment categories is expected to worsen in the near term. This will present a serious problem in a few years as more and more workers retire – and their

employers know that. Seventy-five percent of respondents indicated that pending retirements and an aging workforce will have the most significant impact among skilled production workers, with 40% saying it will be significant for production support.

In addition to skill and technical shortages, those participating in *Boiling point* also reported serious deficiencies in their current employees. Fifty-two percent of respondents felt their current employees lack adequate problem-solving skills, and 40% felt their employees lack basis employability skills (attendance, timeliness, work ethic, etc.). Other deficiencies were reported in basic technical training, technology/computer skills, math skills, and communication skills (reading and writing).

11. Of the 600,000 available jobs that executives identify can't be filled with qualified workers, what qualifications are they seeking for which they can't find? Are these trainable skills that can be taught in short order?

Manufacturers report a severe shortage in the skilled production sector. Fully 80% of respondents indicated that machinists, operators, craft workers, distributors, and technician positions will be hardest hit by retirements in the upcoming years. These same manufacturers report deficiencies in their current employees in the areas of problem solving, basic employability skills, basic technical training, technology/computer skills, math skills, and communication skills (reading and writing).

Relative to training, some of the skills required to fill the estimated 600,000 currently available can be trained in relatively short order (6 – 24 months). These include math, machine operation, welding, and other focused training development programs.

However, that only addresses the immediate shortfall with considerable effort. To address this issue in the long term requires an overhaul of education programs beginning at the K-12 levels and continuing through post-secondary programs.

It is important to note that developing tomorrow's workforce with the required skills is only part of the equation. Respondents to *Boiling point* are also looking to develop their current talent. To make a significant impact, approaches such as competency modeling should be considered by manufacturers to gain momentum in their internal talent development efforts. Career development programs and competency models, for instance, can be an invaluable tool in aligning employees' expectations with those of their employers when it comes to the knowledge, skills, and abilities required. But today, only 31% of respondent-companies report having formal career development, and only 17% of the respondents report using competency model tools.

Clearly, many manufacturers are investing in training programs. But the evidence suggests that these programs are falling short of their goals. Two-thirds of the respondents said they're relying on overtime, while nearly half used third-party labor to close the skill gaps. These methods are costly, inefficient, and can add up to a big drag on overall performance. The responses to this question are remarkably consistent across industry groups, indicating a need across the board to embrace more analytical and innovative means of dealing with skills gaps.

The Honorable Marsha Blackburn

1. What is the competitive impact and economic cost to US manufacturers on foreigners' misuse of pirated information technologies?

   We have not conducted any research to estimate or indicate the real economic cost and competitive impact on U.S. manufacturers with respect to foreigners' misuse of pirated information technologies. That said, intellectual property (IP) protection is a critical component of manufacturing competitiveness and America's strong IP protection laws are just one driver that makes the United States an attractive manufacturing destination.

2. How important is it for US manufacturers to have more spectrum freed up for commercial use?

   Unfortunately, we have no perspectives on this topic.

April 19, 2012 House Subcommittee on Commerce, Manufacturing, and Trade
"Where the Jobs Are: Can American Manufacturing Thrive Again?"
Additional Questions for the Record
Response from Tindall – North Carolina Biotechnology Center
July 24, 2012

The Honorable Mary Bono Mack

Mr. Lubrano points out that we have lost market share of world exports in the past 10 years, decreasing from 13 percent to only 9 percent of world exports.

a. Did we lose market share because we are not as competitive?

We have not lost market share in biomanufacturing. While new international manufacturing sites are being established, most biomanufacturing is done in the US and Western Europe. In North Carolina we have seen an increase in biomanufacturing capacity, especially in vaccine production prompted, in part, by security and preparedness needs.

b. How are manufacturing jobs losses correlated to our decline in world market share for manufactured goods?

As noted above, biomanufacturing production and, therefore, jobs are growing in North Carolina. In fact, this is true nationally. According to a recent report from the Biotechnology Industry Organization (BIO), since 2007 jobs in the biological product manufacturing sector increased 5% [see: http://www.bio.org/node/9542]. However, we face market share (and, therefore, job retention) challenges correlated with the world-wide expansion of generic pharmaceutical manufacturing and the international development of biosimilars (i.e., generic biological therapeutics) on the horizon.

Can our energy policy – if it lower costs to manufacturers - become a competitive advantage for manufacturing?

Yes. Manufacturing plants have fixed costs. One is the cost of power. Energy is a significant cost for any plant, including biomanufacturing plants. Any policy that reduces the cost of power, thereby helping to drive greater margins, contributes to make the industry viable in the U.S.

You described your organization as funding research to identify and develop ideas with commercial application, and then spin them from the university lab to the private sector. One of our concerns is with the Federal government picking winners and losers among American businesses in choosing who wins Federal grant money. How do you avoid picking winners and losers in your program?

The Biotechnology Center does not pick winners and losers, although at such an early stage of technology development all of the commercial opportunities are risky. We perform extensive due diligence on each of the companies considered for our loans. We subject companies to rigorous tests of technology validation, management evaluation, and Intellectual Property review. In addition, we provide management with constructive feedback and introductions to investors (or potential collaborators) to help them secure additional funding and position them for success.

Our programs are specifically designed to build companies that can successfully recruit investor dollars at later stages.

You described North Carolina's emphasis on expanding R&D facilities in the State higher education system. At the Federal level, why is that needed? Aren't there existing Federal research grants available to universities?

Most existing federal research grants are highly competitive and oversubscribed. Many good ideas are underfunded or not funded at all. Our programs are designed to develop initial data that can position a researcher for a higher probability of securing federal funding because our grants provide funding for initial proof-of-principle experiments. For example, our grant program targeted to university researchers conducting proof-of-principle experiments has brought in $4.14 in additional, mostly federal funding, for every dollar we grant. That number increases to $69.64 for every dollar we grant for collaborative university/industry projects.

In my view, the development of more proof-of-concept grants at the federal level could significantly impact the number of potential commercial opportunities in the innovation pipeline at universities across the nation.

You, along with several of your fellow panelists, emphasize the need for STEM education in order to have sufficiently trained workforce – but that addresses the workforce of the future. According to Mr. Giffi, there are as many as 600,000 positions open right now, if not more, that are unfilled because of a lack of a qualified workforce. How do we best train (or retrain) the 5+ millions of manufacturing employees who lost their jobs over the last 12 years? Surely NC saw a great number of those losses given its history as a textile and furniture powerhouse.

In North Carolina, many tobacco, textile and furniture workers as well as information technology professionals who lost their jobs in recent years have benefitted from training programs that range from six-week certificate programs in community colleges to new baccalaureate and graduate programs at our universities. Those programs allowed individuals to make the transition from working in traditional manufacturing industries to securing jobs at a higher rate of pay in biomanufacturing relatively quickly. Note that the average salary in biotechnology industry in North Carolina is $74,829, nearly twice that of the average salary of North Carolinians working in the private sector. In addition, some of these workers were able to position themselves for future career advancement through programs within industry that pay for graduate education. There is no fast way to retrain workers, but these skills can be taught to entry-level employees in a matter of weeks.

The Honorable Marsha Blackburn

What is the competitive impact and economic cost to US manufacturers on foreigners' misuse of pirated information technologies?

In the area of biomanufacturing, (i.e., producing biological molecules) pirating as we know it in information technology is difficult to impossible. In biotech, however, data exclusivity is the key to protecting information about how a biological therapeutic is made. This is a critical issue as the development of manufacturing of biosimilars (i.e., generic biological therapeutics) is underway world-wide. The Biotechnology Industry Organization has recommended 12 years of data exclusivity to protect information about the process by which these molecules are manufactured. Some policy makers argue that five to seven years is enough. However, 12 years of data exclusivity was included and approved in the Affordable Care Act. In my view, less than 12 years of data protection could lead to an increased likelihood of biosimilars (i.e., generic biological therapeutics) being produced elsewhere. Moreover, without the 12-year data exclusivity that reasonably protects the product and process, companies have little incentive to develop and produce these important new medicines. There is an excellent article entitled, "Why is a Significant Period of Data Exclusivity Necessary in a Pathway for Biosimilars?" on the Biotechnology Industry Organization (BIO) website at [http://www.bio.org/articles/why-significant-period-data-exclusivity-necessary-pathway-biosimilars].

How important is it for US manufacturers to have more spectrum freed up for commercial use?

For biomanufacturing, there is little need for additional broad-band spectrum capacity. Most information transfer is over land lines or using local wi-fi connections. Increased capacity for unshared commercial use could be relevant for GPS tracking of shipments of high value and/or for potentially thwarting counterfeiting. In addition, new technologies being developed for monitoring the production process in real time may require wireless and secure bandwidth in the future. Typically, however, additional bandwidth needs are purchased through a vendor and at the time vendors have acquired sufficient bandwidth capacity.

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