THE NEW FACES OF AMERICAN MANUFACTURING

HEARING

BEFORE THE

COMMITTEE ON SMALL BUSINESS
UNITED STATES
HOUSE OF REPRESENTATIVES

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THE NEW FACES OF AMERICAN MANUFACTURING

THURSDAY, MAY 12, 2016

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SMALL BUSINESS,
Washington, DC.

The Committee met, pursuant to call, at 11:00 a.m., in Room 2360, Rayburn House Office Building. Hon. Steve Chabot [chairman of the Committee] presiding.

Present: Representatives Chabot, Hanna, Luetkemeyer, Gibson, Radewagen, Knight, Curbelo, Hardy, Kelly, Velázquez, Chu, Hahn, Meng, Lawrence, Clarke, and Adams.

Chairman CHABOT. The Committee will come to order. Good morning. We want to thank everyone for being with us today as we discuss the present and future state of American manufacturing.

Given the importance of manufacturing to our economy, I am delighted to be holding this hearing and listening to the testimony provided by our outstanding panel here this morning. When people think of manufacturers, too often they think of giant corporations with huge production facilities and steam whistles commanding shift changes. The truth is that the vast majority of American manufacturing is done by small businesses. In fact, 99 percent of all manufacturers are categorized as small.

Though they might be considered small, their effect on our economy is enormous. Manufacturers in the United States employ over 12 million people and directly contribute over $2 trillion to our economy each year. We cannot underestimate their indirect influence either. Every dollar spent on manufacturing in America adds $1.37 to the economy, and a single manufacturing job can lead to the creation of three to five more jobs in other industries.

Without a doubt, manufacturing plays a vital role in America's economic well-being. The economic force that is American manufacturing is now facing a significant challenge—preparing a workforce that can do the job.

According to the National Association of Manufacturers (NAM), over the next decade, nearly 3.5 million manufacturing jobs will likely be needed, and 2 million of those are expected to go unfilled due to what is being referred to as the skills gap.

There are two major contributing factors to this widening gap: baby boomer retirements and economic expansion. An estimated 2.7 million jobs are likely to be needed as a result of retirements of the existing workforce, while 700,000 jobs are likely to be created due to natural business expansion and growth.

In addition to retirements and economic expansion, other factors have contributed to the shortage of skilled workforce, such as lack of science, technology, engineering and mathematics, or STEM, skills among workers, and a gradual decline of technical education programs in public high schools.

Frankly, another big problem plaguing American manufacturing is its perception. As the old saying goes, perception is reality. The things we build, the way we build them, and the skills required to do so are significantly different than in generations past. This is not your grandfather's, or even your father's industry anymore. It is high-tech. It is skills-based, and it provides good jobs with good benefits that can provide for growing American families.

We must do a better job educating young people to improve the perception of what manufacturing really is, and getting the word out that manufacturing oftentimes, for the most part, is clean, safe, and high-tech, rather than dirty and dangerous.

I am looking forward to hearing your thoughts on the innovative ways that we can work together with academia, and manufacturers, and former actors on Cheers, to address the workforce development issues facing the next generation of American manufacturers.

I would now like to yield to the Ranking Member, Ms. Velázquez, of New York.

Ms. VELAZQUEZ. Thank you, Mr. Chairman, and thank you for holding this important hearing.

Throughout much of the 20th century, American manufacturing was the nation's economic engine. The country rose to its place as a global economic superpower as customers clamored for the latest American-made products. However, manufacturing sprawl in the U.S. economy has changed considerably since then, but today, we are seeing a manufacturing resurgence. Following years of decline, U.S. manufacturers added 856,000 workers to the payrolls in the last seven years. Moreover, the country's exports, a key measure of manufacturing activity, has been growing exponentially and are now at their highest level in recent memory.

These are positive developments. With almost one-eighth of our economy rooted in manufacturing, strengthening this sector is vital to our country's overall economic health—and to job growth for working families and the middle class.

Although this renaissance is promising for our nation, there remain challenges that are preventing this sector from reaching its full potential. According to the latest U.S. Census Bureau data, small and medium-size businesses account for 95 percent of world consumers, so we must ensure American small manufacturers have access to this global market. As the U.S. becomes an attractive destination for new manufacturing facilities, workforce training programs must adapt to provide the skills necessary for manufacturing jobs in the 21st century. Greater federal investment in Science, Technology, Engineering, and Math education will enhance domestic manufacturing. Local and private sector apprenticeship programs can prepare young people for careers in rapid growth areas.

For manufacturers everywhere, access to capital is a persistent problem. This is especially true for smaller startup firms that are on the cusp of fast growth. For these reasons, I introduced the

Scale-up Manufacturing Investment Company Act. This legislation will expand investment opportunities for small and emerging manufacturers. We must also remember that economic growth depends on innovation. Research and development fuels technological advancement, and it is critical in fostering new jobs.

Unfortunately, the federal policy shift from domestic investment to deficit reduction could have severe implications for U.S. competitiveness in international markets and for manufacturing jobs. All of these and other challenges point to a need for concerted efforts at the federal, state, and city levels. In recent years, House Democrats have united behind the "Make It in America" agenda, a series of proposals to strengthen and expand our manufacturing base. These efforts are important, but they can only succeed if they are guided by insight from the actual businesses. That is what makes today's hearing so important. As such, I would like to thank you for being here today and sharing your experiences.

Thank you, Mr. Chairman. I yield back.

Chairman CHABOT. Thank you. The gentlelady yields back.

I will now, before introducing our panel, explain briefly our rules. We operate on the 5-minute rule. You will each get 5 minutes. We will get 5 minutes when you are finished to ask questions, and we have a lighting system to kind of assist you there. You have 5 minutes. The green light will be on for 4. The yellow light will come on when there is a minute to go, and then the red light will come on and we will ask you to wrap up, if at all possible, within that time. We will give you a little leeway.

Now, to introduce our distinguished panel here today, our first witness is multi-Emmy-nominated actor, director, producer, author, and staunch Made in America advocate, John Ratzenberger. While he may be best known for his role as Cliff Clavin on the television show Cheers, or for his voice acting in Pixar movies, John has spent the better part of the past 2 decades passionately campaigning about how important it is for Americans to recognize the needs for and to provide the training to produce skilled laborers. To that end, he produced and starred in the Travel Channel series Made in America, which highlighted American-made goods and the workers who build them. With speaking engagements across the country, he continues to encourage the reintroduction of trade, mechanics, shop, and carpentry skills back into the schools so that we can marry human talent and skills to today's innovative society in order to create a better America. Thank you for being with us today, Mr. Ratzenberger.

Up next will be Dustin Tillman, Founder, President, and CEO of Elite Aviation Products in Irvine, California. Elite is an aircraft component design, engineering, and manufacturing company committed to providing cost-competitive, quality manufacturing, and customer-centric solutions to its clients. A graduate of the University of California-Los Angeles where he received his Bachelor of Arts degree in Economics and Political Science, Dustin entered the supply chain management industry and quickly attained a role of director of supply chain management for Zodiac Airspace, a multi-billion dollar airspace company. More recently, he maintained a role in the business management sector for Panasonic Avionics Corporation, where he oversaw the strategic and tactical perform-

ance, as well as the business relationships of dozens of worldwide partners. We thank you also for being here this morning, Mr. Tillman.

Our next witness will be Dr. Ray Perren, president of Lanier Technical College in Oakwood, Georgia. He is testifying on behalf of the Association for Career and Technical Education. Dr. Perren is completing his 36th year as an educator, and is currently leading efforts to construct a new main campus for Lanier Tech in Hall County, Georgia. He previously served as President of Wiregrass Georgia Technical College, as Assistant Commissioner for Technical Education for the Technical College System of Georgia, and is President of East Central Technical College in Fitzgerald, and is Dean of Academic Affairs for DeVry University's operations in Georgia and North Carolina. His first 20 years as an educator were spent in the Paulding County School System in Dallas, Georgia, where he served as a teacher, elementary and middle school principal, and as the district's superintendent of schools. We thank you for being with us here this morning also, Dr. Perren.

And I would now like to yield to the Ranking Member, Ms. Velázquez, to introduce our final witness.

Ms. VELÁZQUEZ. Thank you, Mr. Chairman. It is my pleasure to introduce Ms. Kim Glas, executive director of the BlueGreen Alliance. Over the past 15 years, Ms. Glas has served in senior leadership positions in the Obama Administration and the U.S. House of Representatives, most recently serving as the deputy assistant secretary for Textiles, Consumer Goods, and Materials at the U.S. Department of Commerce. In that capacity, she worked to improve the domestic and international competitiveness of a wide array of products. She served for 10 years on Capitol Hill, working extensively on manufacturing, trade, and economic policy issues for Congressman Mike Michaud from Maine, and Congressman John LaFalce from New York. Welcome. Thank you.

Chairman CHABOT. Thank you very much.

Mr. Ratzenberger, you are recognized for 5 minutes.

STATEMENTS OF JOHN RATZENBERGER, EMMY-NOMINATED ACTOR AND MADE IN AMERICA ADVOCATE; DUSTIN TILLMAN, PRESIDENT & CEO, ELITE AVIATION PRODUCTS; RAY PERREN, PRESIDENT,LANIER ECHNICAL COLLEGE; KIM GLAS, EXECUTIVE DIRECTOR, BLUEGREEN ALLIANCE

STATEMENT OF JOHN RATZENBERGER

Mr. RATZENBERGER. Good morning, everybody, and thanks for having me and inviting me up.

You are probably still wondering, what does he have to do with manufacturing, this guy, this actor? I grew up in Bridgeport, Connecticut. At the time, it was the jewel and the crown of the industrial northeast. We pretty much made everything there. We made ships. We made rifles. We made boats. Bead chains for electric lights. As a matter of fact, evidence is mounting more and more that the first mechanized air flight took place there by a German immigrant named Gustave Whitehead 2 years before the Wright Brothers.

So that is the kind of town it was. Everybody had a skill. I grew up amongst people who knew how to do things. All the neighbors had skills. We never called a handyman into the house because if you could not do it, your father could not do it, your uncles, there was a neighbor. And everybody traded skills. Whether it was carpentry or electronics, everybody knew how to do something. As the years have gone on, we find that just the opposite now is happening. It is very difficult to find someone to lay bricks or to build cabinets, and we all know that. But there is a reason that happened, and it is because early on just after the sixties and into the seventies, we sort of got the idea that everybody has got to go to college. I went to college, but I can also build a house.

When I was 14 years old, I decided, I want to learn to build a house and everything in it because I was surrounded by people who knew how to use tools. And I did. So after college, that is really what kept me alive was my carpentry skills. I raised my children in the same say saying get a skill that nobody can take from you, and also a skill that you can go anywhere in the world and tomorrow you will have a job. But when we were kids, also it was different because we were free-range children. On Saturday it was, what are you doing inside? Get out. Go play. Well, that was it. That was the order. There was no structure to it. There was no helicopter parenting. We went outside and played. We built treehouses. We rode off on our bicycles 5, 10 miles from home. We did not even know our own telephone number. But, you know, the chain on the bicycle breaks, you have got to be home before the streetlights are on, well, you have got to fix that bicycle chain. So we thought we were playing, but in actuality, we were problem-solving every single day. When you are building a treehouse, you have got to put the ladder on the side of the tree and you knew very early on that you did not use finishing nails to put those ladders on because it popped out and before you know it you were in the hospital with a broken arm. It was part of the deal.

But once again, we were problem-solving. We have taken that away from our children now. They do not grow up problem-solving anymore. We cosset at them and make sure that everything is okay in their world, and then when they get to college they have nervous breakdowns because things are not going their way. We did not get trophies for just showing up, and that was the big difference.

But the most dangerous thing we have done for our civilization is that, again, in the seventies, you know, 30, 40 years ago, we canceled shop classes and we canceled home ec classes because whether it was political experimentation, social experimentation, they said all boys and girls are the same and girls should not be in the kitchen and boys should not have this advantage, so we took those skills away from our kids and nowhere along the line do they learn those skills, especially if they do not have a father or an uncle to teach them that. Again, I was a carpenter and I made sure my kids knew how to handle tools, and to this day they are doing real well because of it because you also learn common sense when you use tools. But we took that away from the kids, too.

So now we are in a situation where there are 600,000 jobs available in manufacturing. That is just in manufacturing. There are hundreds of thousands of jobs available in construction all over the

country. But at one time we were an agrarian society. We grew up on farms or near farms. You learn the advantage of using tools because you had to. You could not call 1-800 fix my barn door when it blew off in a storm at 2:00 in the morning. You dealt with it yourself and you saw your parents dealing with it and you knew that was possible in your life. So you stretched out more. Even during World War II, a lot of the accounts I read said we won it because if a Jeep broke down, at least 9 out of 10 people standing around knew how to fix it. Now that is not the case because we have so many people now, you know, we moved into cities since the Industrial Revolution, but even then we had shop classes to keep up with the Industrial Revolution. But we canceled those, so now the kids growing up in a lot of the cities, and if they do not have the advantage of growing up on farmland or near the sea, everything is done for you. Someone else picks up your garbage. Someone fixes the heating in your building. So your mindset growing up is, oh, somebody else will take care of it. That is not healthy for our civilization. We have to get back to the "I am capable of doing that. I can fix that. I can build that." So we must reinstate shop classes back in the schools. There has got to be a way of doing that. There is actually several ways of doing it.

The disadvantage is that we are not going to have works showing up. The average age is 58 years old right now of people that know how to make things in the United States of America. When they are retired, that is it. We also have 70 percent of everyone incarcerated in the United States is a high school dropout. When the shop classes were canceled at schools nationwide, the dropout rate went up 30 percent because these kids had nothing to do. You were not offering them anything to do. Those of you in the room that know how to fix things, make things, you know a lot of self-esteem goes along with that. You do not need a trophy. You do not need someone to show up and say, here, good job for tying your shoes. Because you built that coffee table. You fixed that roof. Your self-esteem is just there. It is married to the accomplishment of making something with your very own hands.

When I cross the country and I talk about this, and I have been doing it now for 15, 20 years, because when I was doing my show Made in America there was one thing, I went to a company that was making sports equipment. A specific sporting equipment. I do not want to say what it is because the CEO will get angry at me, but the man who was going around fixing all the machines, I was talking to him and I said, so you are probably pretty close to retirement, huh? He said, yeah, a couple of years. I said, what are you going to do? He said, well, go fishing, this and that. We started talking. I said, well, who are you training? He said, well, there is nobody to train. Kids come out of high school. They cannot even read a ruler because they do not teach them to use some tools. There is nobody coming up after this guy. This fellow's job was to fix the machines when they broke down. I said, what happens when the machines break down and you are not here? He said, they are going to have to fly in somebody from the company that made the machine. I said, that could take a couple of weeks. He said, yeah. That machine will be shut down for at least a couple of weeks, maybe three. Productivity stops and the orders stop be-

cause if you cannot deliver that product to the customer, they are going to go somewhere else for that product. That company could fail just for the want of that one man who knows how to use tools. I found that all over the country. That is what made me start, because I do love this country dearly. I lived overseas for 10 years, and I know what a great country this is. I know that it is the strength of America that keeps the world at peace. The strength of America is manufacturing. Manufacturing is to America what spinach is to Popeye.

Chairman CHABOT. Mr. Ratzenberger, I think we will conclude with that if you do not mind. We will get a little longer with questions.

Mr. RATZENBERGER. Oh, does this mean I am 3 minutes over?

Chairman CHABOT. Yeah. Yeah, it does.

Mr. RATZENBERGER. I thought I had 3 more minutes to go. I thought, geez, I thought I have been talking more than 5 minutes. Well, thank you.

Chairman CHABOT. Thank you very much. You will have more time. We will just get to questions.

Mr. RATZENBERGER. I do not need it. You are fine. Thanks.

Chairman CHABOT. Mr. Tillman, you are recognized for 8 minutes and 17 seconds, apparently.

Mr. TILLMAN. Thanks.

Chairman CHABOT. No, 5 minutes, if you can.

STATEMENT OF DUSTIN TILLMAN

Mr. TILLMAN. Thank you. Good morning, Chairman, Ranking Member, and members of the Committee.

First off, wonderful remarks from the both of you. You hit the nail on the head.

We are very proud, our company, to be an American manufacturing company. I am proud to be a part of the reshoring effort. We have been able to bring a lot of jobs back, and I am also proud to say that we have been able to take work back from China, believe it or not, by introducing some of these efficiencies, a focus on innovation that you guys made reference to.

We are doing a lot of exciting things and we are supporting what is being referred to as the Second Golden Age of Aviation. When I started the company in 2013, there were certainly struggles that we faced. Struggles from a capital perspective as was alluded to. Struggles from a human capital perspective is what I want to talk about. But by far and away, the biggest question that I got was, what the heck are you doing starting a company manufacturing parts in America? And that is a travesty, you know?

As John made reference to, I believe in the American Dream as well. I believe in the spirit of America. Now is the time for us to really reassert our dominance as a manufacturing powerhouse that we once were. I think through Committees like this, and through the testimony and some of the strategies and policies that we can talk about, that we can apply this, and not just for aerospace and defense companies like ours, but for all businesses, because it is important and it needs to be a priority.

When you talk about the working capital challenges, the government has done some significant things. They have introduced the

Jobs Act. This was a very important piece of legislation for us raising capital, articulating the message that we have as an organization to grow, and making it a successful vehicle for us to accomplish.

The human capital challenge is by far and away the biggest one. People come to our facilities and they say, what is your biggest struggle? Is it the machine tools? Is it the facilities? No, it is finding good, qualified people. They do not exist anymore in the numbers that they once have, and it is a sad state of affairs right now.

I have to say, for as great of a country that we are with regards to media, we do a horrible job demonizing manufacturing these days. Nowadays it is the millennials that we need to focus on. We need to make manufacturing cool. This is where we found a tremendous success, really dedicating ourselves to institutional folks from academia. You have to showcase the exciting aspects of manufacturing, because it is exciting. Nowadays when you walk into our facilities, it is like walking into a new-tech environment. There is not the dingy machine tools with grease everywhere. You are walking into an extension of the cutting-edge of technology that is exciting. When you watch these operators making parts nowadays, it is like watching a thing of beauty. There is certainly art and there is a lot of science behind it, and getting that message out there is going to be important so that we do not fall short and have this enormous generational gap affect our ability to remain competitive.

For us, as an organization, we have had significant success working with veterans. We founded a nonprofit called Elite Veterans Initiative where we focus on not just providing support to these folks, and there are over 500,000 unemployed veterans today, I would argue the number is probably higher, and I would also cite that veterans in general say that finding a job is their biggest challenge getting out of the military. This is a problem for us as a nation. These are folks who are well trained. They have all the skillsets, the discipline, the honor, integrity, that makes manufacturing, and business in general, great. We need to embrace these individuals, and not just by providing support, turkey dinners, but also training and providing employment. We are proud to say that 10 percent of our workforce is veterans, and this number is growing as we grow.

I would also like to shed light on some of the legislation. I think that traditionally, there has been a lot of focus on small minority disadvantaged businesses, which were very important, particularly in the sixties and seventies. We need to take a fresh look at this legislation. We need to make sure that it is evolving with the changing dynamics of the marketplace.

I will speak from a supply chain guy for a second. To remain competitive, the large folks out there—the Boeings, the Northrop Grummans—they have to consolidate their supply chains. Unfortunately, as part of that consolidation effort, you are finding a lot of those businesses, once participants of the supplier diversity initiative, going out of business. I think we need to take another look at that. We need to not only empower individuals, but also companies employing these individuals because that is going to be a recipe for long-term success in my opinion. This is what I have experienced growing a business and struggling to do so. But we are grow-

ing. We have three sites in just over 2-1/2 years, and we are, again, very proud to be a part of the reshoring effort. The good news is, like I said before, we are in the midst of the second golden age of aviation. There is more booked, undelivered work now than at any time in the history of flight. The time is now, ladies and gentlemen, to really reassert ourselves as the dominant manufacturing powerhouse that America once was. Thank you very much.

Chairman CHABOT. Thank you very much. I appreciate it.

Dr. Perren, you are recognized for 5 minutes.

STATEMENT OF RAY PERREN

Mr. PERREN. Good morning, Chairman Chabot, Ranking Member Velázquez, and members of the Committee. I appreciate the opportunity to come before you today to discuss the changing face of American manufacturing and the need to assure that we have a well-trained workforce. I have so much I would like to say, but in respect of the 5-minute rule, I am going to give you the Reader's Digest version.

I think it is a given that the face of manufacturing has changed greatly in the last few decades. In fact, manufacturing has probably changed as much from the technological revolution as it did from the industrial revolution back in the early 1800s. Although the face of manufacturing is changing, the perception of manufacturing has not changed. Too often people think of manufacturing jobs as being physically repetitive work carried out in dirty environments with little or no ability to use critical thinking to improve job performance. Nothing could be further from the truth.

Many, if not most, of our country's manufacturers utilize highly technical equipment, practice lean manufacturing and quality philosophies that require the workplace to be clean, safe, and highly organized, and encourage critical thinking. Yes, manufacturing has changed. It is important to note that educational programs are also changing in order to meet the needs to today's manufacturers.

Another lingering perception is that in order to be successful in this country, one must have a 4-year degree in a white collar job. While there will always be a demand for individuals with 4-year college degrees, the truth is that most of today's high-tech jobs can be filled by individuals with 2-year degrees or shorter certificates awarded by our nation's technical colleges. These technical colleges are our nation's pipeline to assure manufacturers have the workforce needed to thrive in the United States. Most technical colleges are regionally accredited, connected to business and industry, and allow students to prepare for good-paying jobs and without accumulating large amounts of debt. And that is a real win-win.

As has already been said here today, according to the National Association of Manufacturers, over 98 percent of our nation's 250,000 manufacturers are considered small businesses. Three-fourths of all manufacturers employ fewer than 20 people.

Manufacturers are in almost every community across the nation. The average manufacturing worker in this country earns over $52,000 per year, and that is nearly $80,000 per year when benefits are factored in. The overwhelming majority of these workers participate in health insurance programs through their employer.

Over the next decade, nearly 3.5 million manufacturing jobs will be needed. Although manufacturers provide excellent pay and benefits, 2 million of these nearly 3.5 million jobs are likely to go unfilled due to the skills gap. We have good jobs, and today's young people represent the brightest generation this country has ever raised. So what is the disconnect?

I believe that it goes back to the perception I have already mentioned, that our longstanding belief that one must have a 4-year degree in a white collar job to achieve the American Dream. More discussions, such as the ones that we are having here today are necessary to change this perception. We need events to encourage this discussion, such as the Manufacturers Forum held by the Greater Hall Chamber of Commerce in Gainesville, Georgia, which bring together community leaders, high school administrators and counselors, business leaders, parents and students. We need creative outside-the-box solutions, such as the partnership between Lanier Tech, the Georgia Governor's Office of Student Achievement, the Hall County and Gainesville City schools, and Goodwill of North Georgia, which provide an alternate pathway to high school completion. This program has provided outstanding results and has allows a group of young people to go from being potential high school dropouts to skilled welders working for manufacturers such as Kubota.

We need community involvement, as typified by the Mahalo spirit found at King's Hawaiian. This manufacture is so tied in with the community that people everywhere see the quality of life enjoyed by its employers.

While I believe that local efforts are essential, I also believe that the Congress has a unique opportunity to support technical colleges and workforce development as you reauthorize the Carl D. Perkins Act. I also ask that you consider funding year-round Pell. Just as manufacturers and other employers never stop operations for more than a week or two, technical colleges operate on a year-round calendar. Manufacturers and businesses are looking for a steady stream of graduates, not just in May.

Most importantly, I think it is the spirit that has been expressed here already, I think that Congress should look at taking lead in creating a sputnik moment for technical and career education. Just as the nation got behind the effort to become the world's leader in space exploration in the 1950s and '60s, this nation needs to get behind the effort to secure our role as the world's leading manufacturer.

I would like to ask Congress to consider providing funds to improve our nation's education infrastructure. Many of our technical colleges were built in the 1960s, and although these colleges work to keep equipment up-to-date, some equipment is in service much too long due to lack of resources. Just as our nation's highways and bridges form critical transportation infrastructure, education infrastructure provides the pathway from today into the future.

Finally, every time I come to this place I am in awe. I am awe of the great history of this place. I am in awe of the leadership that this nation has been blessed with. I am in awe of the work that you do every day. I ask that you be in awe of us. Be in awe of the amazing work that happens in our nation's technical colleges. Be

in awe of the life-changing work we do in preparing young people and adults to enter the workforce with skillsets that are in high demand. Being that all the changes that we are affecting are generational in nature, grandchildren who are not even born today will have a better quality of life thanks to the work that is being done by our technical colleges with their grandparents today.

In conclusion, I appreciate the time you have afforded me and this panel to discuss the new faces of American manufacturing. I ask for your help and for the help of the entire business and manufacturing community in ensuring our nation's technical colleges provide the trained workforce we need in order for our economy to prosper for generations to come. Thank you.

Chairman CHABOT. Thank you very much.

Ms. Glas, you are recognized for 5 minutes.

STATEMENET OF KIM GLAS

Ms. GLAS. Thank you. Good morning, Chairman, Ranking Member, and the distinguished members of the House Small Business Committee. My name is Kim Glas, and I am the executive director of the BlueGreen Alliance, and we are a partnership of labor unions and environmental organizations committed to creating that fair economy for our manufacturing base.

I am delighted that you are holding a hearing like this today, and I am really honored to be asked to participate on behalf of all my organizations.

At the center of the BlueGreen Alliance work is strengthening American manufacturing. Driving new business and quality job creation across a clean energy economy. The BlueGreen Alliance Foundation helps to fulfill that mission because we directly work with manufacturers, a lot of small manufacturers across the country, to enter those clean energy economy supply chains, and providing assistance to those manufacturers of all sizes to participate in some of these emerging sectors.

But I would be remiss to not mention some of the challenges that our manufacturers across this country, both small and large, are facing. The United States lost millions of manufacturing jobs between 2000 and 2014, and of the more than 2 million jobs lost during the Great Recession of 2007 to 2009, less than half of those have been recovered. Lack of adequate resources to enforce our trade rules, currency manipulation, and failed trade policies all risk turning back the clock and further exasperating these threats to our manufacturing base. But while there are challenges, we do see opportunity. Domestic and global markets for energy efficiency, renewable energy, clean transportation, and infrastructure are growing, and our small and medium-size companies that we are working with are looking at those opportunities to grow their business here at home.

Here is an example. As part of our larger national initiative, we have been working on a housing initiative regarding retrofitting low-income housing across this country. There is a transformation in retrofitting low-income housing. We have identified more than 1,000 U.S. manufacturers and distributors of products ranging from insulation, to energy efficiency lighting, to HVAC systems, looking for opportunities to grow in the United States and globally. Indus-

trial manufacturers of all sizes are already are investing in energy efficiency and to help keep down their costs, but an additional 15 to 30 percent reduction over all energy consumption can be achieved through further deployment of industrial energy efficiency with onsite renewable technologies, and if we are taking advantage of some of these efficiencies, that creates opportunities for small and medium-size manufacturers to make those technologies here at home and making our businesses much more globally competitive.

Public infrastructure projects utilize significant financial resources, whether it is building bridges, tunnels, or transit systems. When you use inputs sourced from countries with weak environmental or labor standards, that has long-lasting implications, not only on our workforce here but with higher greenhouse gas emissions, toxic air emissions, and potential impacts to the safety and the reliability of the materials used for public infrastructure. We believe strong procurement standards—Buy America, Buy Clean—for publicly-financed infrastructure projects will help make sure that these projects are more domestically sourced and provide enhanced opportunities for smaller U.S. manufacturers to break in and further grow their businesses.

Finally, the automotive industry has regained its competitive position globally and brought back over 250,000 direct manufacturing jobs building new and more fuel-efficient vehicles, advanced auto components, and innovative materials, and it is critical that we continue the growth of advanced automotive manufacturing, and a lot of small, medium-sized businesses are seizing those opportunities.

But to further seize the opportunity to grow these quality jobs, we need to prioritize key policies and investments.

First, our companies are looking for market certainty. Manufacturers across the energy sector depend on policy leadership and consistency to create the climate for a robust, private investment in these promising, yet emerging fields.

Second, additional investment is needed to bring more energy and transportation infrastructure up to the level needed to support our country and the global economy.

Third, we need to look at forward-leaning standards, procurement policies, to spur adoption of clean and efficient technologies and encourage investments to deploy advanced energy, transportation, and infrastructure, and to manufacture these technologies in America.

Fourth, it is important to provide technical assistance to small manufacturers looking to enter the market. That one-on-one support is absolutely critical.

And finally, the energy workforce is aging. It is critical we utilize established apprentice and other training programs to ensure all manufacturers, regardless of size, have skilled applicants for the jobs that they are looking to fill.

I really appreciate the opportunity and your support and your work around small business, and thank you for the opportunity to appear here at today's hearing.

Chairman CHABOT. Thank you very much. We will now have 5 minutes to ask questions, and I will begin with myself.

Mr. Ratzenberger, you had mentioned, when you were making the Made in America series, the story about the gentleman that if the machine broke down there really was not anybody here to fix it so he would have things shut down for weeks and bring somebody in from Europe or somewhere else. Were there any other stories of that nature that you think we could learn from experiences that you had while making that series?

Mr. RATZENBERGER. Even recently to that point, I was in the airport, in Kennedy, and a fellow came up to me and thanked me for my work in promoting jobs and skills training. I asked him what he did, and he said he made tanks for compressed air. I said, where are you off to? He said he was going to Argentina to hire welders. He said he had jobs for 30 welders to start tomorrow. He was flying to Argentina to find them. That, more than anything, I find nationwide. People come and say, look, I could use 10 welders. We are talking salaries $65,000 and up. Some welders are making $100,000 a year in very specialized welding. But people are desperate for those jobs. Employers cannot find them. They do not exist anymore because the ones that still work are working, they are making good money, and they do not want to uproot their families and move to another state. There is no reason.

Chairman CHABOT. Absolutely. Thank you.

Mr. Tillman, let me turn to you. A topic our Committee has examined extensively is the cost of Federal regulation and how that cost is borne by various segments of the economy. Research has found that manufacturers pay nearly $20,000 per employee per year on average to comply with Federal regulations, or nearly double the $10,000 per employee that is borne by other firms as a whole. Manufacturers' costs are much higher. How much of a factor do you believe that things like this, the regulations that businesses have to deal with every year, and those are increasing, how much is that related to firms in this country to say, well, I am heading to Mexico, or I am heading to China or elsewhere to do business there because regulations are a lot less?

Mr. TILLMAN. It is a determining factor. I think it is different state to state, obviously. We are a company that has a presence not only in California, but also in Washington State. Absolutely, it plays heavily on where we decide to expand to. We have big growth initiatives. We would like to expand to most states within the domestic economy located near some of these hot centers of aviation activity, and there is a lot of stuff going on right now. It certainly needs to be relooked at. The fact of the matter is it is inevitable that folks, in order to stay alive, are being subject to some extremely competitive pressures now to keep doing what they are doing. The more regulations that continue to weigh them down, it is not that they want to; they are absolutely, as a necessity, forced to. That is something that we do not want to see happen, certainly. We have had to fight, and fight, and fight, to stay competitive in the state of California. And while we have done it, it certainly does not hurt having regulations that really foster and incentivize wanting to stay there.

Chairman CHABOT. Thank you. I have only a little more than a minute to go.

Dr. Perren, Mr. Ratzenberger had talked about the 30 welders that somebody was going all the way to Argentina to get, and I have heard similar stories to that and other things which we are not training people anymore. You still have 5 percent, approximately, of Americans that are unemployed, which is probably double that if you really look at the people who have given up looking for a job and they are no longer counted in those statistics, or people that are working part-time that used to be working full-time, or people that are underemployed. They have the qualifications to work, and ought to be earning a lot more but they are working at a fast food industry job or something, and that is honorable work, but oftentimes that is work you might want to start out and then move up. But what ought we be doing in the education system to deal with those types of things? What are we not doing now that we ought to be doing?

Mr. PERREN. A couple things come to mind. First of all, reintroducing career technical education programs at a stronger level at the high schools. Even though they are strong in many of our communities, affording high school students to begin welding, even in middle school learn how to do basic welding. Our technical college, we are limited only by our physical space in terms of the number of welders that we can turn out. Every welding booth we have is full, and we have the same issue in our community. Kubota is expanding their manufacturing facility near Gainesville. They will be hiring 600 additional welders in the next 3 years. Where are they coming from? And again, we are at capacity now. And again, helping our K through 12 system also continue to reenergize their vocational programs is important.

Chairman CHABOT. Thank you very much. I am sorry I ran out of time, Ms. Glas, but my time is expired.

The gentlelady from New York, the ranking member is recognized for 5 minutes.

Ms. VELÁZQUEZ. Thank you. I would like to hear from Ms. Glas and Dr. Perren. As more manufacturing begins to move towards clean and green products and technologies, education in these technology products and business operations must do the same. Are the curriculums keeping up with this move towards green technology?

Mr. PERREN. All of our programs meet with industry advisory boards two times a year. These industry advisory boards are made up of employers, manufacturers. They provide us with guidance as to what they expect in the workplace. We do revise our curriculum based on what our employers are telling us. We also introduce green equipment and other equipment that is used in the workplace based on what our employers tell us from those biannual meetings.

Ms. VELÁZQUEZ. Ms. Glas?

Ms. GLAS. I will just note that I have building and construction trades as part of the BlueGreen Alliance, including the plumbers and pipefitters where those welding skills are needed, and their apprenticeship programs are wildly popular. They have done major recruitment efforts to ensure that that next generation workforce is learning the skillsets necessary for that clean energy economy and learning that skillset that when they are doing the work, that it is qualified work, that it is certified to meet the standards, that

it is delivering what that work should be. So we are very excited about some of the work, and I think there are more opportunities for apprenticeship programs like the building and construction trade apprenticeship programs to work even further with technical colleges to ensure we are all pulling in the same direction.

Ms. VELÁZQUEZ. Thank you. Mr. Tillman, manufacturing in my district is alive and growing. The problem that we are facing is the lack of space. As more manufacturing work moves towards automation, workers need advanced education to operate the machinery that produces highly technical goods, like computers and aerospace parts. These jobs also command higher pay, helping more families live the American Dream. Do you feel your employees are adequately trained, or must you invest in training and education upon hiring them?

Mr. TILLMAN. Yeah, we have taken a very aggressive stance on human capital. Again, we are in the people business. We work with a lot of local technical schools, which is something that not a lot of manufacturers do. We bring in training programs into our facilities if they are not offered, in terms of apprenticeship and things like this. We have a pretty robust human capital management training program. I think in general, as automation becomes—which is the trend certainly that it is going, these environments, they need to foster innovation. They need to embrace it. I think oftentimes with traditional manufacturers, they are possessing a lot of antiquated technologies. You do not see a lot of reinvestment, and it certainly prohibits them with the aging workforce. If you have a lot of people trained on previous generations of technology, it is not so easy to embrace these new practices. I think you have to get in front of it. We are certainly doing that.

Ms. VELÁZQUEZ. Do you have any recommendations as to what we can do at the state and federal level to provide the kind of incentives or the kind of support that you need? Because I can believe that that could be very costly.

Mr. TILLMAN. Absolutely. Certainly, we would like to see more incentives for us to go that extra mile and ensure that we are, again, it is an ultracompetitive environment out there, and organizations have to be incentivized to want to go the extra mile. We would like to see more work done at the academic level as well, and not just at the technical school level, but even before that. K through 12, this is the time.

Ms. VELÁZQUEZ. Do you sell your products abroad?

Mr. TILLMAN. We do not currently.

Ms. VELÁZQUEZ. You do not?

Mr. TILLMAN. No, we do not currently.

Ms. VELÁZQUEZ. I yield back.

Chairman CHABOT. The gentlelady yields back.

The gentleman from New York, Mr. Hanna, who is the Chairman of the Subcommittee on Contracting and Workforce is recognized for 5 minutes.

Mr. HANNA. Pell grants. You could not be more correct. They ought to be year-round, and there is a conversation ongoing about that.

Interesting, Mr. Ratzenberger, I asked my wife why she married me, and it is because I do not watch TV, I do average plumbing,

average electrical work, and I am an okay carpenter. That is her short list. But there is something strange about this conversation, and I say that because there is also something insidious about it which Mr. Ratzenberger sort of alluded to. Correct me if I am wrong, but we discouraged years ago the very thing that we are missing today. Now, one would naturally think that the laws of supply and demand would fix all these problems that we are talking about, right, but clearly, they have not. In my own community, there are a few hundred jobs that we know of, maybe a couple thousand, that is defined as the skills gap, and yet you would say that where there is a vacuum, labor flows in. But it is not happening. I am interested to hear what you said. It is because we discouraged people from going into the trades. I have Ms. Glas, 35 years in the operating engineers. That is what I did. That is how I made a living. They are great ways to make a living, but we told people that was not good enough. Somehow that was not appropriate if you wanted to, whatever it was, do. Now we find ourselves in a place where we are short of jobs for the very reason we thought we would not be. At the same time, we have this enormously costly 4-year educational process.

Mr. Perren, you talked about 2-year trade schools that prepare you for a lifetime of jobs, and we know that most people change jobs—it used to be once, now it is seven or eight times. It is disturbing to think that something so valuable at any point in our history was diminished, but Mr. Ratzenberger, what do you think about that? How did we get to place where we—this may be a philosophical question, too.

Mr. RATZENBERGER. Sometimes I joke around saying it was my fault because I was a carpenter and I helped build the stage at Woodstock. It was right around then that the perception shifted where we started honoring mediocrity instead of success. It flipped the whole idea of what it is to be a success right on its head. That seeped into the school system. Certainly, the media, because now, instead of—and I always use the Beatles song. Forgive me, you Beatles fans out there, but Lucy in the Sky with Diamonds. Picture yourself in a boat down the river, with tangerine trees and marmalade skies. So it is lionizing the people who do drugs and have hallucinations floating down the river, but my question always was, who built that boat? The boat is the key factor. Someone with a work ethic, someone with skills built the boat so you could do nothing. I think the media, especially, anytime it depicted someone with tools who knew what they were doing, somehow they were either the villain or depicted as stupid. Why would a child growing up, looking at that, want to be that? I even think, I go so far as to say we should change that term "blue collar worker" to essential worker, because if they all went home, did not show up to work tomorrow, we would screech to a halt.

We can do without actors and sports celebrities. Only our families would miss us if we disappeared. Society would go on just fine, seamlessly. Imagine if all the truck drivers pulled off to the side of the road and said, nah, we are not going to work today. These are the people that should be honored in the media, certainly in commerce. My mother worked in a factory, too, and when I picked her up late at night, the 3 to 11 shift, and I thought there should

be an audience here applauding these people because this job and these people are what keeps us going. I am icing on the cake, you know, and that is my favorite part of the cake.

Mr. HANNA. To Ms. Glas, that is why I have always supported Davis-Bacon. What is wrong—Davis-Bacon is parody. You know who it is. What is wrong with making $70,000 to $100,000 with benefits? When you walk around the capitol here, people are a lot of things, but the thing that strikes me is the construction. The actual building, the physical presence of what we see here and the talent that went behind it. It is quite amazing. It is. It makes you feel bad, does it not? What we have come to is we need to be a society now because the world is so competitive and the world is leveling that it is those value-added products through higher education, more complex, more intellectual capital, like Elite, that will actually make us competitive with the world to sell those things that we cannot make here because they do not pay well and they can be done someplace else. But now we are in a position where we have to say we need to educate ourselves better, compete better, and as I said, make value-added products.

My time is expired, thank you, Chairman.

Chairman CHABOT. Thank you very much. The chair will note for the record, I think that is the first time in, at least my 20 years, that we have heard a Lucy in the Sky with Diamonds quote here in this Committee. We thank you for that.

The gentlelady from California, Ms. Chu, who is the Ranking Member of the Economic Growth, Tax, and Capital Access Subcommittee is recognized for 5 minutes.

Ms. CHU. Thank you, Mr. Chair.

Ms. Glas, my state of California is home to the largest manufacturing base in the country, and, it has some of the strongest carbon reduction policies in the nation. In fact, California is responsible for about 11 percent of the nation's manufacturing production. Can you tell us about how Federal and state governments can encourage industry growth to ensure that the clean energy economy is developing good manufacturing jobs in the U.S.?

Ms. GLAS. I think the state and Federal policy plays a key role in contributing to how and whether manufacturers continue to grow. California has been a leader across the country on environmental policies to help spur that sort of next generation of investments. I would caution, though, that there are some big industrial manufacturers who are producing products in California and on the West Coast that are producing aluminum or steel products, steel inputs that go into some of that next generation product. You want to ensure that we are sourcing those products here in the United States where it is less carbon intensive. Importing steel from China is two to three times more carbon intensive. How do we ensure the full value of the benefits for the clean energy manufacturing economy go from the raw material producer all the way through the chain? The state and the Federal government have a lot to do with whether manufacturing in this sector will grow and really seize the opportunities that lie ahead.

Ms. CHU. How about some of these tax credits? For instance, how has the long-term extension of the production tax credit and the investment tax credit impacted clean energy manufacturers?

Ms. GLAS. They have been enormously helpful in ensuring that these industries see a longevity and making sure that they are cost competitive with those companies that are importing product. I will say that because there has been uncertain around those tax credits in the past, a lot of companies have been hesitant to make the investments that they wanted to make in the sector. I really appreciate Congress moving forward on that. I think that was a significant leap ahead. But markets demand certainty, and so I would continue encouraging this type of thinking of how to get to the next generation technologies.

Ms. CHU. The research and development tax credit was made permanent. How could this R&D credit be made to be more business friendly?

Ms. GLAS. I think that was a wonderful step forward. A lot of this work actually happens on the ground level of manufacturers talking to technical colleges, talking with apprenticeship programs. There is a lot more fostering and convening that needs to happen locally to ensure that next generation workforce is in the pipeline and that manufacturing is a career opportunity that everyone wants to be a part of because it is part of the gateway to the middle class.

Ms. CHU. Mr. Tillman, I enjoyed your story on reshoring which is when a company shifts manufacturing back to the U.S., jobs are not only created at the new factory but at many surrounding business, like parts suppliers, restaurants, and real estate agents. Can you elaborate on this secondary economic impact of reshoring manufacturing?

Mr. TILLMAN. Absolutely, we have seen that as well. Bringing jobs back from a manufacturing perspective, certainly in the aerospace and defense industry supply chain, there is quite an extensive supply chain. We have seen elements of that locally for us, even within the southern California region. That is all part of the effort. Again, we speak about the successes we have, but moreover, it is about the success of America, and that is why we are here. If we can see more of that in general, not only in California but throughout the rest of the U.S. economy, you are going to see the multiplier effect of that. We are going to do our part, and obviously, we are here to ensure that Congress is doing their part. But again, I think together we are going to get there. The momentum has changed. Reshoring is here to stay. We are doing a better job at getting the message out there to local schools. We need to continue that. This needs to be an ongoing effort. Again, now is the time to do it because there are so many opportunities out there.

Ms. CHU. Anyone else on the panel?

How could we invent, incentivize, and increase in the purchases made by large businesses from small business suppliers and reshoring? Is there a way we could do that?

Mr. TILLMAN. With regards to incentivizing for raw material product, I think Ms. Glas spoke to it. From parts that we manufacture, there is a value stream to that, and it begins with raw material production. Emphasizing production in the United States would be a huge benefit to this initiative, in my opinion. I think clarity with regards to some of the policy. I know, as Ms. Glas mentioned, there is a lot of leaps forward, and I think we need to en-

courage that. After the legislation is put into place, let's take the next steps and really get at the ground floor and see how that legislation is affecting tactical business management and strategy. Once we do so, I think it is going to shed light on some other opportunities there. Clarification within that legislation. Making it aware. We as a company, obviously seek these sorts of things, and oftentimes, it is not terribly accessible to us, so more broad education on how these policies affect local businesses would be tremendously helpful.

Chairman CHABOT. Thank you.

Ms. CHU. Thank you.

Chairman CHABOT. The gentlelady's time is expired.

The gentleman from Nevada, Mr. Hardy, who is the Chairman of the Subcommittee on Investigations, Oversight, and Regulations, is recognized for 5 minutes.

Mr. HARDY. I would like to thank you all for being here. I think it is an informative discussion we are having here. Mr. Ratzenberger, you hit right on what I have always believed. I grew up as a fifth generation son of farmer ranchers, and we could hold just about anything together with a baling wire and duct tape to make things keep moving. Through that process, I went to college for 1 year, and that year of college, the first thing that was taught to me by my aide was to make sure I get an academic education because the trades and everything are going out of style.

Mr. Perren, do you believe that is part of maybe the problem; that academia has pushed so hard to make everybody get a college education that they have looked down on the trades as being a viable opportunity to raise a family?

Mr. PERREN. It goes back to some comments I made that the perception of success in this country tends to be tied to a 4-year degree, and the trades do not tend to be in that career path or that education path.

Yes, there is a perception that everyone wants their son and daughter to graduate from a 4-year institution, and there is nothing wrong with that. Most everyone in this room did that. Absolutely nothing wrong with that, but not at the expense of keeping others from going into areas where they are passionate. There are so many kids that if they had the ability to use their hands, if they even knew what they could do with their hands, if they were exposed to career explorations where they know what the careers are that are available to them, they could follow their passions and go into the trades and view these things as not something you do if you cannot go to college, but something you do because you are following your heart. You are following your dreams and you are doing what you are wired to do.

Mr. HARDY. One of the issues that has really been frustrating for me, I think Mr. Ratzenberger, you brought it up, but 35 years ago the schools changed. When I grew up, we had auto body. We had shop. We had welding. We had all these opportunities to do certain things. You can learn trades, but you also have to learn work ethic, and I believe you brought that up.

In our state of Nevada, we saw that shift almost 40 years ago, when I graduated, where these were leaving. Now, it is starting to come back but it is coming at a different level which is higher tech,

but it has to do with the drones and building robotics. But these youth have to get involved. It is not part of academia. It is something they do on the side, and the trades are providing opportunity for these youth to come out and learn how to build something with their hands with fancy machines and everything else that is donated by society. Do we need to invest more in our high school education to prepare people for going into college, in your opinion?

Mr. RATZENBERGER. I think we should be investing in the grammar schools. Every innovator, from Leonardo da Vinci, Benjamin Franklin, Thomas Edison, Steve Jobs, started as a child tinkering. I knew Steve Jobs, and we would talk about that. He loved working on car engines with his dad. Thomas Edison had 3 months of formal educatin—3 months. That is it. He hung around a boatyard and learned how to do things. Leonardo da Vinci was an illegitimate child, he grew up on a farm. You have to get them when they are young, tinkering and making things. Old cardboard boxes. My mother, God bless her, she used to get old radios from garage sales and cut off the cord and just say, here, take it apart. I have been a tinker and an inventor ever since. Putting things together, taking things apart. That is all you have to do with a child. It is very cheap, too.

But you have to start young. Thomas Edison never went to a school and said, I want to learn how to invent a lightbulb. It all happened in here when he was very young. So my recommendation is start at the younger ages, K through 12, as Dustin mentioned. That is where it needs to start. Once they are in high school they are already set. They have their likes, dislikes, their priorities. Certainly, by college, it is gone.

I sit on the board of a university and I am always joking, and say to the president, every year before we give them their degrees, they should be required to go out to the parking lot and change the tire on their car. If you cannot do that, what good is your degree? You do not have enough common sense to do that? But I also joke and I say, before anybody can be sworn in, any elected official, you should be required to assemble a coffee table from IKEA. I mean, that is tough.

Chairman CHABOT. Now you are hitting too close to home.

Mr. RATZENBERGER. Well, I know you farm boys can.

Mr. HARDY. My time is expired. I just want to tell you, Mr. Tillman, thank you for lunch last night, or dinner last night. No, he did not buy me dinner.

Mr. RATZENBERGER. Good restaurant, too.

Chairman CHABOT. The gentleman's time is expired.

The gentleman from Mississippi, Mr. Kelly, is recognized for 5 minutes.

Mr. KELLY. Thank you, Mr. Chairman, and thank all you witnesses. It is so important, and I have a very—my district has a lot of manufacturing and a lot of agriculture, and I would say in Mississippi, my part of the district, even though it is rural, most of the manufacturing that is coming there right now, it is coming because of workforce. We have a very skilled workforce that is getting better every day. We also have water and rail and energy and all those things that are important, as well as a workforce. We have a community college system in Mississippi that is still pretty good,

and I think it is one of the best in the nation. It is one of those things that I think we should thump our chest about.

It is often funny. We have people who come to manufacturing jobs in Mississippi and they come kicking and screaming, telling their folks, I cannot believe I have to go to Mississippi. Do you know what the problem with that is? They never want to go back. They want to stay because of the people and the things that are so great there.

Veterans are also very good in my heart. I have served a long time. I know you have veterans that work for you, but we talk about certificates of skill or journeyman's license or professional trade associations. What are we doing to recognize those skills that these soldiers, sailors, airmen, and marines—because we have heavy equipment operators, welders, carpenters, mechanics, all of these things—are there anything in the civilian side or Small Business Administration that recognizes or certifies these guys coming off active duty or reserve component who have on-the-job training that is not necessarily recognized in the civilian side? Does anybody know, and specifically, Mr. Tillman?

Mr. TILLMAN. It is actually interesting. I was at Northrop Grumman, the global headquarters, earlier this week, and the woman that I was meeting with is a veteran. She was saying a big part of the problem that exists is interpreting a military resume, which has a lot of the same fundamental attributes that normal college resumes have but it is written differently, and there are different skillsets that are emphasized. She brought that to light because she is a veteran, she is able to, and oftentimes on a hiring committee say, no, that is actually what we are looking for, it is just called something else. I think, in general, businesses need to be more equipped on that. That is going to happen inevitably if you are hiring more veterans because you are going to be embracing that skillset and just the knowledge and know-how that goes into interpreting it. The reality is, again, it is quite a travesty when veterans cite finding a job as the hardest thing. As they retire from active military, as they are entered into the job force, companies need to be incentivized. Again, not because it is not something that they want to do; it is just so competitive out there that there has to be an overwhelming desire for them to go the extra mile. When we have done it, it has been very successful. And introducing training programs, like I said, these are the folks that we need to, and it is a cultural thing. A lot of active military that are retiring now are millennials, they do fall into that 18-to-34 category.

Another part of that question made me think about what we hear a lot, which is the sort of Google myth that you have to have sleeping pods in order to make employment exciting, and that is not the case. A sense of belonging. A sense of community. Listening. Empowering them to be successful, giving them a voice. This is really what they want ultimately. If we can work towards creating that culture, you are going to have a higher success rate, whether it is veterans or any other millennials, or people even before that.

Mr. KELLY. Mr. Chairman, that is one of the things. There are so many skillsets. First of all, people who come out of the military generally are very humble and do not inflate their resumes with

the things that they are capable of doing, unlike a lot of kids who come straight out of college. They are trying to turn certain leadership positions into doing these great things, and these kids in the Army are coming out, and Navy and Air Force, and they are coming out with great leadership skills that do not show up on their resumes.

So, one, we need to teach these guys how to write about their skills. Two, I think we really need to look at a civilian equivalency skillsets to go with all MOSs and all the military services, because you have airplane mechanics and helicopter mechanics. Even in our signal and intelligence scores, these guys are dealing with cutting-edge technology that you guys have not seen yet. Fortunately, I have been exposed to that, but these kids are way ahead in technology but it is a hard job to transition that from the military to the civilian skillset. So I really hope you guys will think about ways that we can highlight these skills and make sure. I apologize, I only have 8 seconds left, but I yield back. Please think about ways we can take care of our service members and use their skills to maintain our role as the greatest manufacturer in the world. I yield back.

Chairman CHABOT. Thank you. Thank you. The gentleman yields back.

The ranking member is recognized for the purpose of asking questions.

Ms. VELÁZQUEZ. Yes, just one question. Dr. Perren, and Ms. Glas, and even Mr. Tillman. How can we get more young girls and women interested in order to change the mindset that the trades are not for girls or women?

Ms. GLAS. This might get to Mr. Ratzenberger's comments about sort of tinkering and learning early. As a woman who has devoted her entire career to growing the manufacturing base, I do not recall a single time in elementary school or in high school where a guidance counselor or career counselor ever said, have you considered going into manufacturing? Do you know what manufacturing today looks like? Because it is a lot more innovative. It is not your mom and dad's manufacturing anymore. It is very lean. It is very automated. It takes high skills in terms of engineering skills, math skills, and science skills.

Personally, I think women do not fully understand or appreciate the type of employment and how it can be a family-sustaining wage. There is a gap. There is a gender gap in the building and construction trades. There is no doubt about that. But I think——

Ms. VELAZQUEZ. And even when you look at STEM.

Ms. GLAS. Yep.

Ms. VELAZQUEZ. Right? And the national focus on it. When you look at the numbers, you see a great gap when it comes to women.

Ms. GLAS. Completely. It is something that I do not know, exactly how to bridge that gap. A lot of people have been thinking about ways to do that, but I think earlier on in the school age, women need to be shown that there are possibilities in this sector. What these sectors are about. What are the types of jobs in these sectors? What is the income level of these sectors? To get people more talking about the fact that they want to be part of a manufacturing skilled training future.

Mr. PERREN. We also encourage nontraditional learners. Whether it is women going into welding, air conditioning, and also, men going into nursing or whatever. We encourage nontraditional learners to try to bridge that gender gap. We actively encourage that.

If I may address the gentleman from Mississippi's statement, returning military veterans, when they bring their MOSs to us, we evaluate that, and we actually give them course credit based on the service work that they did in the military, so they can actually earn significant course credit when they return from service towards a degree at colleges all across this nation. We are trying to recognize the tremendous skills that they have learned while they were in the military.

Chairman CHABOT. Thank you. Did you want to comment, Mr. Tillman?

Ms. VELÁZQUEZ. I yield back.

Chairman CHABOT. You yield back?

Mr. TILLMAN. The only comment that I would have is I think it is a curriculum issue. I think there is a certain social level of acceptability in schools. John spoke a lot about solving the problem by bringing shop classes back, and that is, by and large, a lot of it. I think kids in general—I have children—they are encouraged to do more traditional things. I think if you make that more acceptable in general at the lower level, K through 12 area, they will not feel so awkward by pursuing a nontraditional pathway because the reality is it absolutely is misinformation. As Dr. Perren was referring, we have very high-paying jobs, and as a manufacturing company, we maybe see 1 in 1,000 women who apply because it is such a rarity. We would love to encourage more of that.

Chairman CHABOT. Thank you. The gentlelady yields back.

Before wrapping up, we will check with the gentlelady, but Mr. Ratzenberger, did you want to comment on kind of the role of women as you have seen in manufacturing? I think you mentioned your own daughter?

Mr. RATZENBERGER. Oh, my daughter is a great carpenter. She is a producer in Hollywood, but she had her own toolbox all through college.

In addressing that, I talked to a retired commandant at West Point, and I said, where do the best officers come from? Without skipping a beat he said farms. Boys and girls. I said, why is that? He said because they are always problem solving from a very young age. Instantly they have to deal with it, as you well know. If we reinstate those manual training classes in school, the children, the boys and the girls who do not have the advantage of growing up on a farm, they have the advantage of putting their hands to physical things and problem solve. The brain is formed between birth and 3 years old; 5 years old, maybe. So that is the age you have to get kids interested, and they can mold the world around them to their liking. You do not let the world mold you; you mold the world. You take what natures gives you and you say, how can I make something else? Again, Steve Jobs, da Vinci, Thomas Edison, it all starts at a very young age. So boys or girls, it does not make a difference at all.

Chairman CHABOT. Very good. Thank you very much.

I would like to comment as Chair, I think all four of you were great. Excellent panel here. There are a lot of takeaways. We spend a lot of money on education in this country every year and we need a highly trained and skilled workforce for jobs that are now going unfilled and that we have to seek people in Argentina to do our welding. I mean, it is incredible. I think you have given us a lot to think about here as members of the Small Business Committee. As we have said, 99 percent of the manufacturers are small business folks, so this was right in our sweet spot. Thank you very much for sharing your experiences with us. We will share it with our colleagues, not only on this Committee but other Committees in Congress as well.

I will ask unanimous consent that members have 5 legislative days to submit statements and supporting materials for the record.

Without objection, so ordered.

If there is no further business to come before the Committee, we are adjourned. Thank you very much.

Mr. RATZENBERGER. Thank you.

[Whereupon, at 12:22 p.m., the Committee was adjourned.]

A P P E N D I X

House Committee on Small Business

Presented by John D. Ratzenberger - May 12, 2016

This great country of ours, this land we call the United States of America was founded and nurtured on 2 basic guiding principles: Freedom and the Ability to use that freedom to build the finest civilization yet seen on earth.

We built this nation guided by our imaginations and the skills we learned from our elders. We cut our own timber with saws we made ourselves from the ore we mined using tools that we machined and honed on machines that we built from scratch with our own hands. We drew, measured and shaped the tools we needed to build our homes and the villages towns and cities in which we lived. We travelled from place to place in vehicles we built and maintained ourselves to harness the pulling power of the livestock given to our use and care. We used our own hands to build the barns, fences, and corrals that kept our animals protected so that we could feed our families with food we grew ourselves in fields plowed with more tools that we designed and proudly crafted.

We were always a nation of builders, tinkerers and craftsman that met each and every task and challenge with hands-on skills that were passed from generation to generation. We built our own ships that gave birth to the United States Navy. The same ships that fought the Barbary pirates off the coast of North Africa when Thomas Jefferson was President. We used the same time honored skills to construct the battleships and landing craft that were necessary for our victories on D-Day as we pushed the Nazi nightmare back and extinguished the flame of evil so that our children could live in peace. We made every one of the weapons carried by our brave men and women throughout our history to protect the place we call home.

With our own hands, we designed and constructed a rocket ships that landed us on the moon and launched the satellites that transmit our cell phone signals from one place to the next. We used our hands to construct medical equipment that have saved millions of lives worldwide. Make no mistake, we are the peacekeepers of the world because of our manufacturing might. Manufacturing is to America what spinach is to Popeye.

While future generations may have to explain that analogy, we in the year 2016 understand that without tinkerers, builders, and manufacturing throughout the land, we are rendered spineless and helpless. Manufacturing is the backbone of Western Civilization. Everything we do every single day is reliant first on someone's ability to not only put a nut and a bolt together but to make that nut and that bolt in the first place. I have always known these truths to be self evident because I grew up in the once mighty industrial town of Bridgeport Connecticut surrounded by people who knew

how to design, make, build, fashion, repair and maintain anything you wanted. My uncles proudly boasted about their ability to hone a piece of metal down to 1/5000th of an inch tolerance as though the fate of western civilization rested on it. As a ten year old, I thought it was funny but as I got older and a tad more sophisticated, I realized that my uncles were right. The fate of Western Civilization rests entirely on our ability to make things. The world would get along just fine without actors, reality stars, musicians and sports celebrities. Our loved ones would be sad but the world would continue to hum along seamlessly. Think, however, what would happen if all the skilled trades people from carpenters and plumbers to farmers and truck drivers decided not to show up for work tomorrow. We, the entire nation, would instantly grind to a halt causing problems that would take generations to overcome.

So why then have we stopped teaching our children the joys of crafting something out of nothing? About fifteen years ago while visiting a number of factories and filming the different ways companies make things for my TV show "John Ratzenberger's Made in America", I realized that there were hardly any workers under the age of forty in any of the facilities. After talking with dozens of CEOs and plant foreman in every state, I was made aware of the fact that nationwide, the manual arts, that is: wood shop, metal shop, auto repair and even home economics were taken out of the middle and high school curriculums about 35 years ago. Not only did that result in a dropout rate back then of 30 percent instantly but it left us with a skilled essential workforce whose average age today is 58 years old.

There are close to a million jobs available right now in small businesses around the country that rely on people with mechanical common sense skills that we've stopped offering in our public schools 2 generations ago. The most repeated complaint today from potential employers is that it's impossible to train someone for any of the jobs available when they graduate from high schools everywhere without the ability to even read inches and fractions from a simple ruler.

The big worrisome question then is this... How do we reinstate the necessary programs in our schools to give our children a familiarity of the tools that built and maintain our civilization and way of life? If the average age of the people that keep our nation and the nation's infrastructure working is 58 years old then how long do we have before it all stops?

I also submit that we do away with the term "blue collar worker" and replace it with "essential worker" because that's exactly what they are. Once they are all retired then no more ships, buildings, trains, planes, or automobiles. No more tractors, no more farms, no more food unless we grow it ourselves in fields we plow with tools we've made with our own hands. That's the way it's always been and if we someday want to explore the universe, cure disease and marvel at what awaits us in the oceans depths then we'd better get busy introducing our youngsters to the vital art of using tools and the joy of self reliance. Thank you....

John Dezso Ratzenberger

Testimony of

Dustin Tillman
President & CEO
Elite Aviation Products, Inc.

"The New Faces of Manufacturing"

House Small Business Comittee
Thursday May 12th, 2016

About Elite Aviation Products

Good morning and thank you for inviting me to testify before this committee. I am Dustin Tillman speaking on behalf of Elite Aviation Products, Inc. as its President & CEO. Bringing manufacturing jobs back to America is something that has always been very important to use as a company. This process has become affectionately referred to as "re-shoring," and is a topic that has been garnering a great deal of attention in the mainstream media as of late. Elite Aviation Products is an American aerospace & defense (A&D) engineering and manufacturing company, and is a proud participant of the re-shoring movement. Elite was born through recognition that despite surging demand pressures in both the commercial aviation and A&D marketplaces, American manufacturing over the decades has been stifled by an overwhelming lack of investment in emerging technologies, a slowness to adapt business models with 21st century efficiencies, immense growth capital requirements as well as a lack of investment and prioritization of cross-trained workforces. By recognizing and addressing these issues, Elite Aviation Products has been able to quickly break into the Aerospace marketplace while creating domestic manufacturing jobs, and dispelling the myth that successful manufacturing in America is a thing of the past.

However, for Elite, and many companies out there just like Elite, there's still a lot more work to be done so that our nation can reassert itself as the manufacturing powerhouse it once was. Many say that in our current socioeconomic environment, the vision that our country will be a nation of builders once again is all but attainable. Manufacturing operations tend to be one of the most capital intensive businesses to develop. Manufacturing requires large investments in real estate, machine tools, and human capital (employees) development and acquisition. These vast overhead costs has driven many corporations to take their operations abroad in order to improve their bottom line, and has discouraged countless others from attempting to venture into this space.

Weathering the Storm—The Challenges We Face

When starting or growing a business it's challenging enough to continually position oneself for success. Business can often times be affected by capital constraints, cyclicality, market uncertainty, difficulty developing and procuring proper human capital, change in the tastes and preferences of consumers as well as unfavorable or antiquated legislation.

Encouraging Growth in the Skilled Labor Workforce & Making Manufacturing Exciting

Throughout my career I was exposed to legislation whose intent was to protect small, minority owned, and disadvantaged businesses because government wanted to affect diversity amongst those qualified to support this work. Instead of creating jobs for the many, often times, over the years I've watched it allow very few to prosper to the detriment of those employees and customers who depended on these organizations for longer-term sustainable support.

The reality is that often times those that fall within these parameters generally remain small, and are therefore unable to truly embrace the changing dynamics of the marketplace, which are demanding more and more from them. Many times, unable to evolve, these once protected businesses fall short and end up disqualified and out of business. While the intention of this legislation was benevolent, in my experiences it fails to achieve the desired growth and sustainability it set out to.

Instead of watching history continue to repeat itself what would be wonderful to see is emphasis placed not just on small, minority owned, and disadvantaged businesses, but also small and midsized businesses that are capable of growing through the empowerment and development of all its employees, not just those categorized. Rather than crafting legislation that only incentivizes select individuals to own a business, it would be encouraging to see legislation that supports and rewards those businesses who commit themselves to training, developing, and employing all skilled labor.

As a nation we also need to do a better job of accurately characterizing the multi-faceted and exciting careers that exist within manufacturing. Despite our talent as a culture for crafting top-notch media, we do a poor job at shining a spot light on the exciting and fulfilling career paths that exist within modern manufacturing; full of all the intricate and challenging dynamics that would enthrall and captivate the young workforce entering the job market.

Empowering our Nation's Heroes

For us, and many other businesses out there, the best pool of talent that I've been exposed to have been veterans. These highly trained individuals who possess key characteristics for success in business, e.g., honor, integrity, discipline, and leadership are right in our own backyards, and, from what I've seen, eager to get to work. Motivated to plunge into this untapped pool of talent, Elite Aviation Products founded the Elite Veterans Initiative, whose mission is to support, empower, and employ our Nation's heroes. What we discovered through this process is that often times while these individuals are out there keeping our borders safe they are unable to *build their resumes*, which often times is an important pre-requisite in the job market. Consequently, this often works against these individuals when they retire from active military and assimilate back into the marketplace. Because employers are not adequately incentivized to hire from this pool, unfortunately the net result is they pass for someone who has the resume that solves their immediate requirement.

Capital Requirements

As mentioned above, the amount of capital required to enter a marketplace like manufacturing (whether it be aerospace, automotive, or any other sector) is immense, particularly if a company is properly positioning itself for sustainable efficiency and long-term growth. The proper foundation of a modern manufacturer requires large investments in advanced machine tools (many small

manufacturers work off slow, antiquated technologies and are unable to expand for this reason), expensive software systems, real estate, and a large amount of employee development and training. The amount of capital required and the lack of avenues to obtain this capital has precluded the growth and development of the workforce within the manufacturing sector.

With the introduction of the JOBS Act (Jump Start Our Business Startups) in 2012, more businesses have been able to obtain the capital they needed in order to begin and expand. While at times a difficult and complex piece of legislation to navigate and full utilize, this type of legislation is a big step in the right direction. Without this legislation, Elite Aviation Products would never have been able to procure the capital needed purchase the advanced machine tools, technology, develop human capital, and acquire the real estate necessary to create a modern manufacturing company. Continued simplification and support of legislation similar to the JOBS Act is in our opinion one of the most crucial components in encouraging more Americans to start manufacturing businesses and thus create high quality jobs and development opportunities for many Americans.

Unlimited Opportunities for Growth

The world has entered into what's being referred to as the 2nd Golden Age of Aviation characterized by the simultaneous development of entirely new fleets of aircraft by all premier airframe manufacturers. As such, there's more backlogged work now than at any other time in the history of flight, and visionaries and industry moguls alike are seeking to expand this into the cosmos. The current supply chain supporting the A&D industry is unable to keep up with these demand pressures, which has left the door wide open to the flood of new young talent entering the job market. With so many opportunities now and into the distant future it is time for America to once again showcase its dominance. We have a tremendous opportunity to get it right and make a huge impact on society.

Call to Action

If during this 2nd Golden Age we are to make a significant impact and showcase our ingenuity as a country, aggressive legislation to incentivize programs related to job creation and lowering the barriers of entry to the manufacturing industry must be seen.

- Additional efforts to help place veterans and disadvantaged groups in training programs or positions in growing manufacturers
- Shift in focus from diverse business owner incentives, to incentives aimed at growing and sustaining diverse work forces
- Tax vehicles that incentivize reinvestment in newer more efficient machine tools and other technologies
- Continued support and simplification of legislation like the JOBS Act, which enable new manufacturing businesses to secure growth capital and create jobs

- Incentivize companies who hire fresh talent straight from trade-schools and community colleges
- Subsidized internships for students seeking career opportunities within the manufacturing sector

Thank you again for the opportunity to participate in this committee hearing.

Testimony of D. Ray Perren, D.S.L.

President

Lanier Technical College, Oakwood, Georgia

A Unit of the Technical College System of Georgia

Before the Committee on Small Business

United States House of Representatives

"The New Faces of American Manufacturing"

May 12, 2016

Good morning Chairman Chabot, Ranking Member Velazquez, and members of the committee. I appreciate the opportunity to come before you today to discuss the changing face of American manufacturing and the need to assure we have a well-trained workforce. My name is Ray Perren. I am the president of Lanier Technical College. Lanier Tech is a public two-year postsecondary institution within the Technical College System of Georgia. I am just completing my thirty-sixth year as an educator. I spent my first twenty years in K-12 education serving in roles including classroom teacher, elementary school principal, middle school principal, system curriculum director, assistant superintendent, with my last four years in K-12 spent as district superintendent of schools. For the last 16 years I have served as dean of academic affairs for a university, and for the last ten as a technical college president. All of these stops along the way have allowed me to be involved in education from Pre-Kindergarten through graduate programs. I have been fortunate to be involved in education during the time of the Technological Revolution.

The New Faces of Manufacturing vs. Lingering Perceptions

I think it is a given that the face of manufacturing has changed greatly in the last few decades. In fact, the Technological Revolution has changed the face of manufacturing as much in the 21st Century as did the Industrial Revolution in the 19th Century. In his classic work, *The Wealth of Nations*, Adam Smith identifies the factors of production as land, labor, and capital. The technological revolution has allowed manufacturers to increase productivity and profitability by decreasing the costs associated with labor. We've all heard the comments, "Robots are going to replace humans in the workforce." Although this is a bit of an exaggeration, it is true that technological advances—such as robotics—allow manufacturers to increase productivity while managing labor costs. Technology allows us to produce more using less human labor. But technology does not and will not replace humans in the workforce.

We have all heard of the concept of "reshoring." Reshoring is where manufacturers who moved production from the United States in the last one-third of the 20th Century are bringing operations back. These operations are not returning in the same form in which they left. The jobs created by reshoring require a different skill set than the jobs lost by offshoring. It is no longer acceptable to simply have warm bodies in manufacturing settings. Today's manufacturing environment requires highly skilled individuals who not only understand complex technological applications but also are adept at problem solving.

Although the face of manufacturing is changing, too often the perception of manufacturing has not changed. Too often, people think of manufacturing jobs as being physically repetitive work, carried out in dirty environments, with little or no ability to utilize critical thinking to improve job performance. Nothing could be further from the truth. The repetitive motions and monotonous tasks that would have been performed by workers of the past have been replaced by robotics and other forms of automation.

A couple of years ago, I had the opportunity to tour the manufacturing facility Caterpillar had recently opened just outside of Athens, Georgia. I was impressed by the cleanliness of the work environment, the focus on teamwork, and the encouragement of critical thinking by all employees. In Gainsville, Georgia, American Yazaki Corporation has a program that allows workers to change work assignments every two hours. This reduces the possibility of repetitive motion injuries and provides for a very flexible workforce. These are examples of how manufacturers invest in and treat their workforce. All across this nation, the modern manufacturing environment is very clean and is very likely air conditioned. In fact, many if not most of our nation's manufacturers practice lean manufacturing and quality philosophies that require the workplace to be clean, safe and highly organized. Today's manufacturing jobs are well-paying. For example, graduates of our Industrial Systems Technology, Machine Tool Technology, and Welding Technology programs can expect entry level wages of $35,000 to $45,000 annually. Wages for people with five or more years of experience could easily reach $55,000 and above. Very often skilled craftsmen earn six figure incomes when overtime pay is factored in. Yes, manufacturing has changed. It is important to note that education programs are also changing in order to meet the needs of today's manufacturers.

One lingering perception is that in order to be successful in this country one must have a four-year degree and a white-collar job. Parents, high school guidance counselors, and others who have influence over our young people tend to steer high school students away from technical colleges. Too often, those that are steered toward technical colleges are the ones that counselors feel are "not cut out for college." While there will always be a demand for individuals with four-year college degrees, the truth is that most—and I do mean most—of today's high-tech jobs can be filled by individuals with two-year degrees or shorter certificates awarded by our nation's technical colleges. These technical colleges are our nation's pipeline to assure manufacturers have the work force needed to thrive in the United States. If I may use Georgia's technical colleges as an example, these institutions are regionally accredited, connected to business and industry, and allow students to prepare for good paying careers without accumulating large amounts of debt.

Technical Colleges Provide Real-Life Education for Real-Life Careers

Georgia's technical colleges use a hands-on, lab based instruction model. Although our students learn theory, the majority of their course work is done in laboratory and clinical settings. Our instructors not only have the credentials needed to teach in a regionally accredited post-secondary institution, but they also have work experience in the field in which they are teaching. For example, all of our welding instructors have been welders, all of our mechantronics instructors have worked as maintenance technicians in manufacturing plants, and all of our engineering technology instructors have worked as engineers or engineering technicians in

industrial settings. Additionally, instructors from each of our more than 40 program areas meet at least two times each year with industry advisory boards from the specific industry for which they are preparing our graduates. These industry advisory boards review curriculum, examine laboratory equipment, and keep the college informed of trends so that the programs stay current and relevant. Our programs not only focus on the hard skills necessary to be successful in the workplace, but also on the work ethic, soft skills if you will, that employers expect to find in employees. These work ethics include attendance, character, teamwork, appearance, attitude, productivity, organizational skills, communication, cooperation, and respect. Because of this hands-on instructional model, delivered by practitioners, regularly reviewed by industry partners, with additional focus on soft skills, we guarantee our graduates. If an employer hires a technical college graduate and finds that he or she does not perform at an acceptable skill level, then we will retrain the graduate at no cost to the graduate or the employer. Our nation's technical colleges are uniquely prepared to assure manufacturers have the workforce needed to keep America's economy the strongest in the world.

The Disconnect

According to the National Association of Manufacturers, 98.5% of our nation's 256,363 manufacturers are considered small business. Three-fourths of all manufacturers employ fewer than 20 people. Manufacturers are in almost every community across the nation. The average manufacturing worker in this country earns over $52,000 per year. When benefits are factored in, the average compensation for manufacturing jobs is just short of $80,000 per year. The overwhelming majority of these workers participate in health insurance programs through their employer. Over the next decade, nearly 3.5 million manufacturing jobs will be needed. Although manufacturers provider excellent pay and benefits, nearly 2 million of these 3.5 million jobs are likely to go unfilled due to the skills gap.

So we have good jobs. Today's young people represent the brightest generation this country has ever raised. So why the disconnect? I believe it goes back to perception and our long-standing definition of the American Dream where we all have good paying jobs, with benefits, allowing us to support a happy, healthy family. More discussions such as the one we are having today are necessary to help change the perception. These discussions need to be held not only in the halls of Congress, but also in every community in America. We need events to encourage this discussion such as the Manufacturer's Forum held by the Great Hall Chamber of Commerce which bring together community leaders, high school administrators and counselors, business leaders, parents, and students. We need creative, outside the box solutions such as the partnership between Lanier Technical College, the Hall County and Gainesville City School Systems, Goodwill of North Georgia, and the Georgia Governor's Office of School Achievement which provide an alternate pathway to high school completion and career preparation for the growing number of very bright young people who have disengaged

from the education process because they don't see the relevance. This program has provided outstanding results and has allowed a group of young people to go from being potential high school dropouts to skilled welders working for manufacturers such as Kubota.

What Can Congress Do?

I truly believe that in order to create awareness of the amazing careers available in manufacturing—and the critical nature of providing a highly-skilled, job ready workforce to meet the needs of manufacturers—this nation needs to experience a Sputnik Moment. Just as the national got behind the effort to become the world's leader in space exploration in the 1950s and 60s, this nation needs to get behind the effort to secure our nation's role s the world's leading manufacturer. Our world-wide communications and defense systems would not exist today without the efforts to lead space exploration 50 years ago. Our place in the global economy 50 years from now will be determined by how we address the need to prepare today's young people to enter the nation's manufacturing workforce today.

While I believe that local efforts are essential, I also believe there is a role for the Congress and the Federal Government. I believe the Congress has a unique opportunity to support technical colleges in workforce development as you reauthorize the Carl D. Perkins Career and Technical Education Act. I urge you to use this opportunity to encourage secondary and postsecondary institutions to work together with local business and industry partners to develop career pathways that support manufacturing and other careers in each specific community. A "one size fits all approach" to career pathways is not practical in a nation as large and as diverse as is ours.

If a community is heavily engaged in manufacturing, then career pathways should reflect manufacturing. If a community is significantly engaged in manufacturing, health care and logistics, then career pathways should support those specific workforce sectors. These pathways should lead to postsecondary awards (degree, diploma, or certificate) and/or an industry recognized licensure or credential.

I also ask that you consider funding year-round Pell. Just as manufacturers and other employers never stop operations for more than a week or two, most technical colleges operate on a year-round calendar. Students are expected to attend fall, spring, AND summer semesters. Because many of our programs are "lock-step" in nature, students must go summer semester or risk having to sit out until that coursework is offered again. Technical training to support manufacturing is very rigorous. It requires the individual to learn a skill and become a proficient problems solver on a year-round basis. Manufacturers and businesses are looking for a steady stream of graduates—not just in May. Many of our students rely on Pell Grants and other forms of state and Federal financial aid to help them afford postsecondary education. Year-round Pell would go a long way to helping college become even more affordable for many of our students.

As we look to create a "Sputnik Moment" for career education, I would like to ask Congress to consider providing funds to improve our nation's education infrastructure. Many of our technical colleges were built in the 1960s. Although technical colleges work to keep equipment up-to-date, some equipment is in service much too long due to lack of resources. Just as our nation's highways and bridges form critical transportation infrastructure, education infrastructure provides the pathway from today into the future. I would also like to ask Congress to consider tax credits for businesses that invest in technical colleges by purchasing new or donating gently used equipment to help keep our infrastructure as current and modern as possible.

Finally, every time I come to this place I am in awe. I am in awe of the great history of this place. I am in awe of the great leadership this nation has been blessed with. I am in awe of the work you do here every day. I ask that you be in awe of us. Be in awe of the amazing work that happens in our nation's technical colleges. Be in awe of the life-changing work we do in preparing young people and adults to enter the workforce with skills the skill sets that in high demand. Be in awe that the changes we are effecting are generational in nature. Grandchildren yet unborn will have a better quality of life thanks to the work our technical colleges are doing with their grandparent today.

Conclusion

In conclusion, I appreciate the time you have afforded me and this panel to discuss the new faces of American manufacturing. I ask for your help, and the help of the entire business and manufacturing community, in assuring our nation's technical colleges provide the trained workforce our nation needs in order for our economy to prosper for generations to come. Help us facilitate that "Sputnik Moment" to business, industry, young people, parents, and others who influence the decisions of our youth and make them aware of the high-tech nature of today's manufacturing environment, the excellent jobs with strong pay and benefits that are available in almost every community, and the understanding that you can attain the American Dream through graduating from one of our nation's technical colleges. Thank you. I will be happy to answer any questions.

Testimony of Kimberly Glas

Executive Director of the BlueGreen Alliance

United States House of Representatives

Small Business Committee

Thursday, May 12, 2016

As prepared for delivery

Good morning Chairman Chabot, Ranking Member Velázquez, and members of the House Small Business Committee. My name is Kimberly Glas, and I am the Executive Director of the BlueGreen Alliance. On behalf of my organizations, our national labor unions and environmental partners, and the estimated 15 million members and supporters they represent, I want to thank you for holding these hearings today on, "The New Faces of American Manufacturing."

In 2006, the United Steelworkers and the Sierra Club formed the BlueGreen Alliance with the belief that creating good jobs and protecting the environment were not mutually exclusive. In fact, in this increasingly globalized economy, we could no longer choose between jobs and the environment. We can and must have both.

Since then, the BlueGreen Alliance has worked to create and maintain quality, family-sustaining jobs while also addressing our greatest environmental challenges. Our unique national partnership is dedicated to creating good jobs, a clean environment, and a fair and thriving economy.

The clean energy economy is growing. A recent report by Environmental Entrepreneurs (E2) found that more than 2.5 million Americans work in clean energy. Using data from the U.S. Bureau of Labor Statistics and the Department of Energy, the report found that there are 1.9 million jobs in energy efficiency and m ore than 400,000 in renewable energy.[i]

At the center of all of our work is strengthening American manufacturing—driving new business and quality job creation across the clean economy. As the world moves to a cleaner, more efficient economy, there is a significant opportunity to ensure that these technologies—which are largely developed in the United States—are also produced here, creating good jobs and strong communities. Building and industrial energy efficiency, renewable energy, and advanced technology vehicles—these industries are growing rapidly and it is imperative that the United States commit to ensuring that they create quality jobs and strong communities in every corner of our country. The long-term health of the U.S. econony—and the prosperity of our families and communities—depend on American leadership in these industries.

A number of years ago, the BlueGreen Alliance Foundation created the Clean Economy Manufacturing Center, which works directly with small manufacturers to help them identify opportunities

and overcome obstacles to entering clean energy supply chains. The Center has worked hands on with hundreds of small companies, providing technical advice, research support, and training to aid them in evaluating capabilities and potential for becoming suppliers in key sectors of the clean energy economy. Over the past few years, and working with government initiatives like the Manufacturing Extension Partnership, this program served more than 1,200 companies nationally, including 100 companies that requested customized technical assistance.

The manufacturing industry is core to the American economy and—while there have been success stories of growth—significant challenges remain.

Challenges to U.S. Manufacturing

Manufacturing comprises a diverse market basket of goods and service production worth $2.08 trillion—or 12.5 percent of U.S. Gross Domestic Product, and supports 17.4 million jobs with 25 percent higher compensation than the U.S. economy overall.[ii] However, the U.S. manufacturing sector—a key driver to our economy—has faced significant challenges in recent years.

According to the Economic Policy Institute, the United States lost more than 5 million manufacturing jobs between January 2000 and December 2014, thanks to destructive trade and tax policies and other measures that contributed to a growing trade deficit and an un-level playing field for American manufacturers—both large and small. Since the recession of 2007-2009, an estimated 900,000 of the 2.3 million manufacturing jobs lost during that period have been recovered.[iii] However, a lack of adequate resources to enforce trade rules, in addition to currency manipulation and failed trade policies, risk turning back the clock and further exacerbating these threats to American manufacturers.

Meanwhile, incentives remain for manufacturers to offshore production to lower wage locations with weak labor and environmental standards—in what amounts to a race to the bottom. For example, the United Steelworkers—a founding member of the BlueGreen Alliance—represent workers at a Carrier Corporation facility in Indiana. The company announced in February that it would close that facilities—which produced HVAC systems—outsourcing 1,400 jobs to Mexico.[iv] As we have seen over the last decade or so, when manufacturing jobs are lost, communities, workers, and local tax bases are devastated.

This also presents a significant challenge when it comes to addressing climate change. When the United States imports manufactured goods from locations across the globe, the carbon intensity to make manufactured goods in that part of the world is contributing more greatly to climate change. For example, steel produced in China—a country that produces nearly half the world's supply—is more carbon intense than that which is produced in the United States.[v]

Other challenges also remain to manufacturers in the United States who are seeking to grow. We thank the House and Senate

for their recent longer term extension of critical federal incentives to grow renewable energy—the Production Tax Credit (PTC) and Investment Tax Credit (ITC). Policy uncertainty or inconsistency at federal level, however, has stunted industry growth in the past, and remains a concern at state level. An uncertain policy climate means inconsistent demand for new energy technologies, such as wind turbine manufacturing, and in turn for manufacturing the components and materials that go into them. In addition, while the U.S. has a variety of incentives to spur adoption of clean energy and efficiency, there are relatively few incentives for energy efficiency or clean energy manufacturing.

Opportunities for Growth

In these challenges, however, we see significant opportunity. Domestic and global markets for energy efficiency, renewable energy, transportation technology, and infrastructure are growing rapidly, resulting in potential opportunities for manufacturers across the sector. In our work, we see a particular opportunity for manufacturers to meet the growing demand for building and industrial efficiency. In addition, there is tremendous opportunity to modernize our public infrastructure, particularly in the manufacturing of components for America's passenger rail and transit sectors, and ensuring that we fully leverage the dollars we spend on infrastructure to drive clean, high quality American manufacturing and good job growth. It is also essential to ensure that the recovery of manufacturing and jobs in the automotive sector grows as technology continues to advance.

Growing the U.S. Manufacturing Base Through Energy Efficiency Retrofits

One of our newest efforts is our Energy Efficiency Housing Initiative. As the energy industry grows globally, there is a significant opportunity to grow associated domestic industries. The 2015 Green Building Economic Impact Study issued by the U.S. Green Building Council shows that green construction's growth rate is rapidly outpacing that of conventional construction and will continue to rise in the United States.[vi] It is critical that as this industry grows, domestic suppliers for the industry also grow—thereby multiplying the economic impact and creating good paying jobs across the spectrum.

However, if no effort is made to integrate the growing demand for energy efficiency products with an economic development strategy that supports and expands the local supply chain to produce those products, other countries may be better positioned to capture the jobs and business opportunities. In addition, without a clear focus on the safety and health of the materials used to make affordable housing more energy efficient, we will be trading lower energy costs for greater health impacts and ignoring the potential manufacturing job growth from the production of safer materials.

The BlueGreen Alliance Foundation's project is designed to understand more fully the gaps in the supply chain for these products and opportunities for manufacturers to grow in this sector. Our ex-

tensive outreach uncovered a broad range of energy efficiency housing products made in the United States, and is part of a larger national initiative to accelerate the retrofit of multifamily low-income facilities. Through this process, we discovered more than 1,000 U.S. manufacturers and distributors of products ranging from insulation to energy efficient lighting to HVAC systems. These manufacturers are looking for opportunities to grow in the United States and globally.

This project is designed to help local communities capture the benefits of energy efficiency retrofits, including lower utility bills, improved tenant health, and increased economic development. It will also aid domestic manufacturers that are interested in learning about opportunities to participate in the energy efficiency retrofit market supply chain, low-income residents living in affordable housing, and building owners and contractors wanting to learn about energy efficiency housing products and potentially hazardous chemicals contained in some building materials. States and federal agencies should also prioritize the use of domestically manufactured, efficient, and non-toxic building materials where they are involved in building construction and upgrades.

Industrial Energy Efficiency

Similarly, the industrial sector also provides a major opportunity for efficiency improvements and jobs and manufacturing growth. As previously mentioned, manufacturing represents a significant portion of the GDP—about $2 trillion—and supports more than 17 million workers. Manufacturing is also a heavy user of energy, accounting for 24 percent of U.S. energy consumption.[vii] And while manufacturers are already investing heavily in energy efficiency, an additional 15-30 percent reduction in overall energy consumption is possible through further deployment of industrial efficiency (and on-site renewables) technologies.

In addition to reducing emissions, taking advantage of efficiency opportunities can reduce operating expenses and the carbon footprint of energy-intensive, trade-exposed manufacturers, provide a hedge against rising fuel costs and have the additional benefit of making American manufacturing more competitive in the global marketplace. And while these benefits help major manufacturers preserve jobs in the United States, manufacturing, installing, and maintaining industrial efficiency equipment could provide a major boost to the many smaller companies that make this technology.

The BlueGreen Alliance is also currently working in Illinois, Michigan, Minnesota, Ohio, and Pennsylvania, to identify, create, and maintain good manufacturing jobs in the energy sector. Key opportunities include legislative and regulatory measures that would boost funding for carbon emission reductions in the industrial sector—perhaps as part of a compliance approach to the Clean Power Plan. Other opportunities at the state level include complementary legislative and non-legislative efforts that would expand use of industrial efficiency, combined heat and power (CHP), waste heat to power (WHP), on-site renewables; engage a qualified

workforce; and promote domestic manufacturing of clean energy components.

Driving Manufacturing through Energy and Transportation Infrastructure

The BlueGreen Alliance Foundation has also done extensive research on and outreach to manufacturers of components for America's passenger rail and transit sectors—as well as in advanced vehicles, components and materials. A 2015 report by the BlueGreen Alliance and the Environmental Law & Policy Center showed more than 750 companies in at least 39 states currently manufacturing components for passenger rail and transit rail.[viii]

New BlueGreen Alliance analysis shows over 2,000 assemblers, components, and subcomponents manufacturers who stand to benefit as the nation, states, and cities invest in transit vehicles, systems, and infrastructure. For example, these include major global companies like Siemens, which builds locomotives for Amtrak utilizing components from 69 suppliers in 23 states; one of those suppliers was Siemens' Norwood Motor plant, represented by IUE-CWA local 765. Electric motors have been built at this factory in Norwood Ohio for 100 years with many of the employees being the second or third generation of their family to work there. Similarly, investments in transportation infrastructure builds jobs at electronics manufacturers like Alstom Signaling in Rochester, New York, helping bring back jobs to manufacturing communities hard hit by previous generations of manufacturing decline.

Investment in infrastructure is critical for American manufacturing. It is important that we more fully engage smaller domestic manufacturers in the transit supply chain, opening up opportunities for growth. But investment is just the first step in ensuring we build strong clean transportation manufacturing. It is critical that we also more fully engage smaller domestic manufacturers in the transit supply chain, opening up opportunities for growth.

Incentives to Engage American Manufacturers and to "Buy Clean"

Public infrastructure projects utilize significant financial resources, often at the expense of the taxpayer. How these funds are spent can have a big impact on the overall benefits to local communities, to manufacturing, and to the U.S. economy. Compliance with long standing Buy America rules can be made more effective both for major projects and for the small manufacturers looking to take part in major projects. In addition, new model procurement language, such as the U.S. Employment Plan, recently adopted by Amtrak, provides clear quantitative measures for major bidders to take additional steps to improve domestic content, local jobs, and job quality.

There is also opportunity to improve the energy and manufacturing outcomes of major infrastructure projects. These projects use energy-intensive manufactured materials—steel, cement, and plastic—for which the environmental impact can vary greatly from one mill to another, let alone from one country to another. Building

bridges, tunnels, and transit systems that use inputs sourced from countries with weak environmental standards have long lasting implications with higher greenhouse gases and toxic air emissions. These taxpayer-funded projects can cost taxpayers much more than procurement costs. Put simply, a bridge cannot be built without steel, but a bridge can be built using the cleanest steel available.

Recent analysis by the BlueGreen Alliance Foundation found that, for example, had "Buy Clean" criteria been integrated into development, procurement, and implementation stages of one construction project—the Bay Bridge—an estimated 180,000 tons of carbon emissions would have been averted, which is equivalent to taking 38,000 cars off the road in the United States for a year. According to the American Society of Civil Engineers, there is currently a $76 billion need to fix structurally deficient bridges in the United States. Establishing procurement criteria that incentivize more cleanly produced materials would not only result in significantly lower emissions, but improved safety and overall decreases in cost.

Clean Vehicles

Finally, no discussion of the promise of clean energy manufacturing would be complete without emphasizing the critical importance of continuing the recovery and growth of advanced automotive manufacturing in the United States. The industry, which anchors American manufacturing as a whole, has been transformed over the last eight years. Thanks to sound environmental, manufacturing, and economic policies working hand in hand, and also thanks to huge investments made by auto companies and workers. Americans are driving better, cleaner vehicles that dramatically cut carbon pollution and better protect the American economy from instability in global oil markets.

At the same time, the industry has regained its competitive position globally, and brought back over 250,000 direct manufacturing jobs building new more fuel-efficient vehicles, advanced auto components, and innovative materials, in addition to millions of related jobs. But the industry continues to change rapidly, and whether considering turbocharged engines, continuously variable transmissions, high-strength steel, aluminum or carbon fiber, power electronics, or battery technology, it is vital to ensure that we build these technologies in companies large and small across the United States.

Recommendations

In summary, the BlueGreen Alliance believes several key factors are necessary to promote American manufacturing jobs.

Market Certainty

Large and small manufacturers across the energy sector need policy leadership and certainty to create the climate for robust private investment in these promising but emerging fields. The five-year extension of critical policies like the ITC and PTC is crucial

to increasing demand for renewable energy component products. But additional mandates and investments are needed to further establish a domestically sourced renewable energy industry. Similarly, consistent, long-term fuel economy and greenhouse gas reduction standards provide visibility and certainty critical for automotive assemblers and suppliers to make the large long-term investments necessary to retool to build the next generation of vehicle technology here.

Rebuilding America's Energy and Transportation Infrastructure

This year's passage of a long-term transportation bill was an important first step in providing consistent investment in infrastructure, but much more is needed to bring our energy and transportation infrastructure up to the level needed to support a leading economy. Investments to enhance and spur forward-looking infrastructure are critical to building manufacturing. Also critical are measures to ensure that public dollars drive domestic manufacturing growth, and galvanize a rebirth of small manufacturing. These measures include:

1) Facilitating and improving implementation of long-standing Buy America policies;

2) Adopting innovative and best value procurement practices that increase domestic suppliers access to major infrastructure projects, and improve job quality, skills and training; and

3) Implementing Buy Clean criteria that ensure public infrastructure dollars reinforce domestic investment in state-of-the-art clean production of key materials, and don't contribute to offshoring jobs and increasing pollution.

Manufacturing Efficiency, Clean Energy, and Vehicle Technology in America

Federal policies should continue to promote adoption of clean and efficient technology and encourage investments to manufacture these technologies in America. This means boosting and restoring critical clean energy manufacturing programs like the Department of Energy's Advanced Technology Vehicle Manufacturing (ATVM) loan program—which helps attract and upgrade the major advanced assembly plants around which networks of large and small suppliers arise—and the 48C manufacturing tax credit from the American Recovery and Reinvestment Act, which provided incentives for hundreds of smaller manufacturers to enter clean energy fields. Continuing to build and improve regional hubs that link advanced clean energy or transportation technology innovation and manufacturing is also key.

Expanding Assistance for Small Manufacturers

Small manufacturers often need tailored assistance to take advantage of opportunities in the clean energy and energy efficiency markets. The National Institute of Science and Technology's Hollings Manufacturing Extension Partnership in the Department of

Commerce partners in all 50 states, MEP "works with small and mid-sized U.S. manufacturers to help them create and retain jobs, increase profits, and save time and money," and has a number of programs aimed at helping small companies enter these emerging energy and transportation sectors.

Growing the Energy Workforce

The rapidly changing energy sector also brings big workforce opportunities and challenges. As older workers retire, it is critical to ensure that the next generation of workers is well trained for these safe, family-sustaining energy and transportation jobs. Partnering with established apprenticeship programs and other training programs can help ensure small manufacturers are on a level playing field when it comes to finding skilled workers.

Conclusion

In closing, Chairman Chabot, Ranking Member Velázquez, and members of the committee, allow me to again thank you for your important work to support small businesses and American manufacturing, and for granting me the opportunity to appear at today's hearing and provide a brief overview of how the BlueGreen Alliance Foundation and Clean Economy Manufacturing Center is working every day to achieve the goals shared by this committee—building a robust, sustainable American economy providing opportunities for businesses to thrive, American workers to prosper, and for a cleaner economy to protect the public and the environment.

Thank you.

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