Opening Statement
Senator Maria Cantwell (D-Wash.)
Hearing on Innovative Technologies in Advanced Manufacturing
April 12, 2016

"Thank you, Chairman Murkowski, for holding this important hearing. And I thank all the witnesses for being here today.

"The success of our manufacturing sector is vital to our economy. During today's hearing, we will discuss innovative technologies in advanced manufacturing that you all have been involved in. I am interested to hear from our panel about recent changes in the manufacturing sector and how technology can improve efficiency, reduce emissions and increase U.S. competitiveness.

"Manufacturing is responsible for more than 12 million American jobs, contributing more than $2 trillion to the U.S. economy and funding 70 percent of the nation's industrial research and development.

"But to me, these manufacturing jobs – because of the wages they pay – help people who come from working class backgrounds make it to the middle class. So we want to continue these manufacturing opportunities in America. In my state, almost 10 percent of Washingtonians work in manufacturing. That is 289,000 manufacturing jobs in my home state.

"And the health of U.S. manufacturing sector depends on exports. With the middle class around the globe expected to double by 2030, the market for goods outside the United States is growing.

"Manufacturing is important to the U.S. economy, but it does face stiff competition from those around the globe. In fact, our international competitors are not standing still; they are accelerating their investments in advanced manufacturing. So, U.S. manufacturing needs to continue to build on its strengths.

"Our goal is not just to make the cheapest product, but to continue to advance in innovative technologies—in areas such as semi-conductors and aerospace—and innovate faster than others.

"Prioritizing innovation and investing in the kinds of technologies that will grow jobs is something I think that we all should be able to agree.

“Because advanced manufacturing harnesses this innovation, makes U.S. businesses more competitive and reduces our energy costs. And because our energy and natural resources are closely linked together with manufacturing, what we are going to talk about today is very critical. After all, manufacturing consumes a large amount of energy and water and leaves behind various waste streams.

“In fact, the 2015 Quadrennial Technology Review found that manufacturing accounted for 25 percent of energy consumption in the United States and 79 percent of industrial energy use.

“So if we can develop the next generation of advanced manufacturing technologies right here at home, we will reduce emissions, save energy and ensure the competitiveness of our U.S. manufacturing sector.

“When we talk about these advanced technologies, there are still challenges that remain. One of the big ones that I saw in the Quadrennial Energy Review – which is staggering when you think about it – is the importance of developing a skilled energy and manufacturing workforce. It is reported in that document that we will need an additional 1.5 million new workers over the next 15 years to meet growing demand. In and of itself, just skilling that workforce that we need to be competitive is a goal and a challenge in and of itself.

“So that’s why Sen. Murkowski and I worked to include a workforce title in our energy bill. We created an energy workforce training program to incentivize labor and industry to work together to provide job training. It makes investment dollars available that would allow an estimated 300,000 individuals over the next 4 years to receive training to take advantage of new energy and manufacturing job opportunities.

“One delight for me is in the area composite manufacturing. We created several years ago an advanced composite program at Edmonds Community College. I was delighted last week to be at home and see on the front page that a graduate of that program opened up his own aerospace company in Arlington, Washington, with a little two-seater, hobbyist plane that they are now building there. He had not previously been in aerospace, but in another sector, got skilled in composite manufacturing and now we have another manufacturer in our state.

“These are some of the reasons why we need to pass the energy bill – because it has some great priorities in there for manufacturing.

“The Advanced Manufacturing Office at the U.S. Department of Energy partners with industry, national laboratories, small businesses, universities and other stakeholders to invest in new, energy-efficient processes to help bring them to scale in the marketplace.

“The Advanced Manufacturing Office has also focused on new materials, just like the ones I just mentioned in composites. Now we need to focus on carbon fiber recycling. This something that we were pleased to include in the Energy Policy Modernization Act.

“Recycling carbon fiber reuses leftover, scrap materials from the manufacturing process. All of this really can help us in the manufacturing process. While we’ve come a long way on carbon fiber, now we need to figure out the recycling.

“Recycling carbon fiber saves energy in the manufacturing process. Recycled carbon fiber composites use only one-tenth of the energy compared to manufacturing new carbon fiber composites. It holds great potential.

“In Washington state alone, two million pounds of carbon fiber scraps are being sent to landfills each year. If this can be recycled, it has a potential market value of $50 million.

“So I am pleased that the Advanced Manufacturing Office, along with the Institute for Advanced Composites Manufacturing Innovation at Oakridge, will be represented by Dr. Craig Blue, who is working with innovators at the Port of Port Angeles, Washington, so I look forward to hearing about this particular area of expertise.

“The Port of Port Angeles is retooling its facilities and its workforce—to meet the demands of emerging markets and to create good-paying jobs.

“I also want to say – I know that we are talking about FAA bill on the floor, and it has a reauthorization of the FAA’s Advanced Materials Center of Excellence at the University of Washington. I’m sure we’ll hear a little bit about this today – the aerospace industry is also now leading the way in 3-D printing, which the chairman mentioned.

“I am glad we will hear today from Dr. Leo from the Boeing Company about what investments industry is making for the future of manufacturing. Boeing was an early adopter of 3-D printing technology. Today, Boeing has more than 20,000, 3-D printed parts in use on 10 different aircraft models.

“3-D Printing also has the potential to change replacement aircraft parts. I know it is not just Boeing, but there are many other companies that are using these new applications. One

example is Planetary Resources in Redmond, Washington, a space exploration company using 3-D printing to reduce the number of parts on their spacecraft, making them lighter and more efficient.

“There are all kinds of examples here today of how new technology and investments are helping us change manufacturing in some of sectors I mentioned – obviously big in our state is the aerospace sector. But there are other industries like shipbuilding that are about advanced manufacturing, and I hope we can talk about how these resources and investments today will help keep those sectors of the U.S. economy very competitive.

“Lastly, I just want to mention that my colleague Sen. Collins and I introduced a federal tax credit to incentivize more companies to start apprenticeship programs. Part of meeting this workforce issue is also incenting more apprentice programs in the United States.

“So, I look forward to hearing from the witnesses about these new technologies how we keep competitive edge in manufacturing today – such a vital sector of our economy. And I appreciate everyone’s leadership on this issue.

“Thank you.”

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