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**Remarking regarding the Council on
Competitiveness' report on water and
manufacturing by Dr. Carmel Ruffolo**

KELLY O'BRIEN: As Dave Ryan indicated, there is a change in the program. I hate to be the bearer of bad news, but unfortunately, Deborah Wince-Smith is not able to be here today. We will still have Jim Schultz, and I'm very thankful to have him and I'm looking forward to what he has to say.

But for those of you that are not familiar with Deborah Wince-Smith or the Council on Competitiveness, it's a leadership organization that advances U.S. competitiveness in the United States. I was very fortunate to meet Deborah probably a good 10-plus years ago and worked closely with the Council while I was in Washington, D.C.

As part of the recent work of the Council, its publishing sector reports under a program that it calls EMCP: Energy Manufacturing Competitiveness Partnership. Within that program it has recently published a report on

water management spearheaded by A.O. Smith, of course the company of our Alliance chairman, Paul Jones, and Marquette University.

Dr. Carmel Ruffolo, who is one of the founders of the Alliance and part of the delegation that went to Paris to present to the OECD back in 2011, is very familiar with that report. She is just going to take a few minutes to give a quick highlight on the things that Deborah would have said, and then we'll have lunch. So very quickly, a round of applause for Dr. Carmel Ruffolo.

CARMEL RUFFOLO: Well, hello everyone, and it's great to be here. And Kelly, congratulations on a great summit. It really is wonderful that we're continuing the great work of the Alliance. Yes, I was one of the founders. I think Sam is here as well, and Greg. It didn't seem too long ago that we were in Paris working, of course. So I want to apologize again on behalf of Deborah Wince-Smith. Unfortunately, she was not able to be here.

So the Council on Competitiveness, as most of you know, is a very important organization for us in this country. This year they're celebrating their 30th anniversary. So they have been around for a while and have seen a few things.

Marquette University is a proud member of the Council.

This year Marquette has been up to a lot of things. They are very busy, including celebrating a hundred years of basketball. Isn't that something, a hundred years? I don't know how many other universities can actually say that. So that's our 100th year of playing basketball, and our football team hasn't lost in 60 years.

As I said, we're very proud members of the Council on Competitiveness, and many of our industry partners around us are also members of the Council. As Kelly mentioned, one of the initiatives that the Council has undertaken this year, really started late last year, has been the Energy Manufacturing Competitiveness Partnership, the EMCP.

The EMCP is actually a collaboration of industry, university, national labs and other leaders to find ways to strengthen our understanding of the energy manufacturing nexus and to look at next steps to further the U.S. competitiveness in manufacturing globally. This study will be critical in terms of looking at next policy recommendations and technology recommendations in the area of energy and manufacturing.

When it is all said and done, the EMCP report will be given to the next Congress -- we all know who that is now -- and obviously up to the White House administration to hopefully help them plan for the next few years on energy

and manufacturing.

The EMCP work has actually been broken down into sectors. Kelly mentioned our sector, which was the water and manufacturing sector. Our self, Marquette University and A. O. Smith led that. There is also the advanced material sector that has also been completed, and Worcester Polytech led that. There is also the advanced biosciences. Lawrence Berkeley National Lab is leading that.

We also are looking at agriculture and consumer water, so a lot of what you've heard of today. Scotts Miracle Gro and Monsanto are actually looking at leading that, and Marquette is also involved.

Where we have the automotive and aerospace sector, Boeing is leading that charge. The energy sector is being led by Penn State, and UCLA is looking at biopharma. So you can see that there is a significant amount of work that's being done for the EMCP.

We are very proud to say that our report, the Water & Manufacturing, Phase I, first report out. We were very happy to do that for the Council. The focus of our work has been to pull in companies and to look at how we can strategically manage water across the whole manufacturing supply chain; to look at ways that we can improve efficiency, and then also look at talent and what's the

next talent pipeline that we need to bring in to be able to do that. Then, of course, also looking at the investment pool.

We also touched -- and I've got to say because my friend, Allen, is here, we looked at the energy-water nexus and how that also relates to manufacturing. We did this in February. We thought we were going to get about 20-odd people, maybe. We invited industry in particular to really get their thoughts on this energy and manufacturing, and looking at the business of water. We had to shut it down, I think, after we got close to 60 people coming. It was an overwhelming response to want to be part of this report.

I have to say that most of the people in the room were industry, so building on Marquette's real ability to convene and also to have our industry partners. We had Kohler, Rexnord, Rockwell, IBM, and so forth. We also had our university partners. UWM was also there, David Garman was great, Arizona State, Texas A&M and Michigan. We also had the national labs that were part of this.

So it was a very robust report. We are very proud to have got it out the door being the first one. We have eight recommendations. These are the recommendations that are in the report. But what we did after that was go back to the companies that were there and said, "Okay, these are

the recommendations. What are you doing?" So this is now going to be interactive.

Early next year, Marquette and A.O. Smith will again be working with the Council to reconvene the group that came in February to keep this going. What we really want this to be is a living document, and we're probably going to do that for the rest of the groups that I talked about.

Real quick, the first recommendation is stewardship and management of the water, and looking at laws and regulations that surround the use in manufacturing. And how do we look at the natural processes to help with that stewardship and management. Of course, Marquette has the law school, which is actually looking at water policy and UWM is also involved in that.

Looking at integrating natural infrastructure including things like rain barrels and so forth into water management approaches to improve efficiency and water quality. We are also recommending to encourage the development and deployment of technologies and microbiological barriers that increase overall water supply and diversifying resources and improving quality and efficiency such as desalinization, nutrient recovery and wastewater re-use. There was a lot on wastewater re-use.

Looking at technology, the uptake of sensors and

monitoring equipment. The aggregation of big data and how do we use big data to accomplish some of these across the sectors. I'm going to be biased here, but this is one of the ones I really like. The development of water test beds around the nation so that we can really look at how do we address this major infrastructure problem. Because, as you've all heard, we're not going to be able to replace everything. So how do we use these test beds to try out new technologies and to look at different types of upgrades that won't mean that we have to replace everything?

Model water consumption and availability and high performance computing. So again, looking at the big data. Looking at the gaps in supply, the demand and the reduction in overall waste costs, and managing the water and energy systems. Encourage government and private sector stakeholders to really enhance public awareness. We were talking about that just before. And then also address the skills gap which is also happening in this area.

So that's it for me. Thank you very much, Kelly, for allowing me to do that. I know Deborah really appreciates it. Again, I'm sorry that she's not here. As a founder of the Alliance, thank you very much for being here. Thank you.

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