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Opening Remarks
by
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Location: Snow King Hotel, Jackson Hole, Wyoming 83001 USA

Good Morning.

I am Bob Marlay, with the U.S. Department of Energy. My counterpart in China, Counselor LIU Zhiming, of the Ministry of Science and Technology (MOST), and I are the co-Directors of the U.S.-China Clean Energy Research Center, of which the Advanced Coal Technology Consortium is a part.

On behalf of the Department of Energy, I would like to thank our meeting sponsors, hosts and organizers for bringing us together for this important meeting. In particular, I would like to thank:

- Our US-Consortium Lead Institution, West Virginia University, Morgantown, West Virginia;
- Our China-Consortium Lead Institution, Huazhong University of Science and Technology (HUST), in Wuhan, China;
- Our meeting organizer and host, the University of Wyoming, and especially, Dr. Mark Northam, Director of the School of Energy Resources, and his Deputy, Rob Hurless; and
- Our leading technical partner in China, the Clean Energy Research Institute of China's Huaneng Energy Group.

I also want to thank Mayor Barron for welcoming us to Jackson. The location is here is spectacular. There is much to see here, even if the national parks are temporarily closed. Thank you, Mayor Barron.

I would also like to thank our two CERC Consortia leaders, Professor Zheng Chuguang, of Huazhong University; and Dr. Jerry Fletcher, of West Virginia University; and our key technical program leaders, Dr. XU Shisen, Clean Energy Research Center; and Dr. Julio Friedmann, of Lawrence Livermore National Lab.

Of course, I would also like to acknowledge the many distinguished guests, scientists, engineers, industry partners, invited speakers and participants who have taken valuable time away from busy schedules to prepare for and travel to this meeting, some from very far away.

In particular, I would like to express my gratitude and respect to all of you in the CERC coal research community for your creativity, hard work, willingness to work together and collaboratively across long distances, two cultures, and different languages to make CERC-ACTC a technical success.

U.S.-China Clean Energy Research Center

It has now been nearly two years since I was with you at our opening meeting in Wuhan. Since then, much has happened at high levels in both of our countries.

In the United States, the President was elected for a second 4-year term; he has since installed a new Cabinet. So, too, in China, you have a new President, Xi Jinping, and a new slate of Ministers.

These changes have strengthened high-level support for US-China cooperation on clean energy. Both Presidents have met twice [Picture] -- once in February 2012; and again just recently at the US-China summit in California in June 2013.

In a series of high-level announcements this year, both leaders indicated that cooperation between our two countries will remain a high priority.



There is a clear emphasis in these announcements on the continued importance of cooperation on clean energy and climate change.

Let me give a few examples.

- In April 2013, the U.S. and China issued a Joint Statement on Climate Change, in which cooperation on clean energy is a major theme.
- In June 2013, President Obama outlined new Climate Action Plan for the United States. This Plan has an ambitious international component. The U.S.-China Clean Energy Research Center is called out by name in this Plan.
- In July 2013, top-officials of both governments met in Washington, DC, to continue the bilateral Strategic and Economic Dialogue, in which clean energy features prominently in the climate change track.
- In this picture of that meeting, we see U.S. Secretary of State John Kerry, with Secretary of the Treasury Jack Lew, Secretary of Energy Ernie Moniz, and Special Envoy for Climate Change Todd Stern. [Picture at State] They are meeting with Chinese counterparts and discussing joint initiatives to advance clean energy and climate change goals.



- In May 2013, the U.S. Department of Energy installed a new Secretary, Professor Ernie Moniz from MIT.
- In July 2013, Secretary Moniz met with Minister Wan Gang. [Picture of Moniz and Wan Gang].



In their meeting, [Meeting Picture] Secretary Moniz made a number of points that I would like to share:



Secretary Moniz:

- Indicated that continued US-China cooperation on clean energy and climate was a Presidential priority for the United States.
- He said that if the U.S. and China were to stand together as leaders in this arena, much of the world would take notice, and other countries would be inclined to participate more actively.
- He had been briefed on CERC by outgoing Secretary of Energy Steven Chu and Under Secretary David Sandalow. He expressed his positive recognition that CERC was an excellent cooperative R&D platform with good progress to date.
- He indicated his strong support for the future of CERC and his desire to make it work even better. He wants to see it evolve and yield significant results.
- He accepted Minister Wan's invitation to come to China for a CERC Steering Committee meeting, which may take place in May next year.

[Advance to Final Slide, CERC Logo]



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CERC LOGO



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Why CERC?

So, one might ask, why would such a bilateral “experiment” in clean energy cooperation on innovation rise to such a high level of diplomatic interest?

It is because our two countries share common and important strategic interests.

A few well known facts, I think, bear repeating:

- The United States and China are the world’s two largest economies;
- We are the world’s largest producers and consumers of energy;
- We depend heavily on coal for electricity production.
- We account for 40 percent of global emissions of greenhouse gases;
- We place high priority on improving energy efficiency;
- We are expanding and modernizing equipment, fleets, power plants and infrastructure, much of which has yet to be built and can be significantly influenced by advances in technology;
- Both countries see scientific discovery and innovation as a means to inspire and spur economic growth and improve the quality of life of its citizens; and
- Both countries have vast intellectual capacities for solving BIG problems.
- Both countries are investing at large scale in technologies provide a clear pathway for safer, more efficient and more affordable ways to use coal in a CO2-constrained environment.

Witness, for example, U.S. and Chinese investments in IGCC, Post-Combustion Capture, Oxy-Fuel, Enhanced Oil Recovery, CO2 Storage, and Algae Production, to name a few. These are well documented elsewhere [show China book on CCUS; DOE brief on FE projects]. In total, these projects represent hundreds of mbillions of dollars in R&D investment. CERC can, and should, leverage these platforms, like we did with Shidongkou.

In light of the seriousness of the climate change imperative, strengthened by the IPCC’s release last Friday of its 5th Assessment Report, some may question support for advanced coal technology. But coal and other fossil fuels provide 80 percent of our energy, and 70 percent of our electricity. As President Obama has said, noting his “all-of-the-above” energy strategy, these forms of energy will be a major part of our energy mix for decades to come.

Likewise, our R&D strategies must acknowledge -- and seek to accommodate -- the realities behind these facts, including the extremely varied regional fuel mixes, on one important condition:

- ✓ the technology and generation options they support must *explicitly* address the need for dramatic reductions in carbon emission from fossil fuel use.

Clearly, the R&D topics you are all working on – and planning at this meeting -- is BIG. Advancing technology for a clean and low-emission coal future presents large and strategic opportunities for leveraged impact for both countries.

So, Why Not Work Together?

The key idea of CERC is to address our joint challenges better, faster and cheaper by finding ways to work together productively and learn from each other.

We now have 3 CERCs – Clean Vehicles; Buildings Energy Efficiency; this one on Advanced Coal Technology.

From the outset, both countries pledged together to raise a total of \$50 million for each technical track over 5 years. I am pleased to report that that we are on track to meet this pledge.

Across all 3 CERCs:

- We have 88 projects, of which more than two-thirds are joint;
- We are supporting more 1,100 researchers; and
- We have more than 110 partners.

We believe that we are building a “new model” for enhanced S&T cooperation between our two countries and creating an attractive platform for collaborative research and business investment.

Early Signs of Success:

We are already seeing some early signs of success.

- We are tackling difficult problems and seeing technical success in all 3 CERCs;
- Research and business relationships continue to expand and deepen;
- Researchers have access to and are taking advantage of unique experimental platforms and data in the other's country;
- Industrial partners are engaged and guiding R&D planning;
- Our research is buttressed by private cash and in-kind contributions;
- New private partners seek to join CERC;
- Other countries are taking notice and observing our progress.

The elements of CERC that, I believe, are attracting interest are:

- Support and engagement by the two governments at the highest levels – in Washington and Beijing;
- Ambitious technical projects are focused on important problems;
- We have built strong teams of distinguished and creative scientists and technical leaders;
- Emphasis is on “collaboration” (joint work), not just “collegial” work;
- Strong, but flexible, framework for protecting intellectual property (IP);
- Endorsements of IP frameworks by the two governments, which enables oversight and encouragement of compliance; and
- A guaranteed right to exploit IP in the other country's territory, which can potentially facilitate access to expanded markets for new technologies.

What Do Others Think of CERC?

In 2012, there were 4 evaluations of CERC, including one commissioned by MOST, and carried out by China's National Council of Science and Technology Evaluation in China. Some findings are -- and these are not my words -- I quote:

- CERC is a “milestone initiative”, that is “pragmatic” and “win-win”;
- It enables and new kind of relationship, built on mutual trust, understanding, and friendship;
- It provides for protection of background IP, agreement on rights, and provides means for resolution of disputes;
- CERC has a governance structure that facilitates collaborative work; and
- The “technology management plans”, with government endorsements, are “groundbreaking”.

Expectations

We are now at the mid-point in a 5-year research program. We have 2 days at this meeting to take stock of progress to date, make course corrections as needed, and plan for next 2 years.

With all of you gathered here in one place, let us address the following questions:

- How can we improve our working relationships?
- How can we strengthen our research portfolio and make it more joint?
- How can we encourage the creation of commercially valuable IP with impact?
- How can we deepen the engagement of our industrial partners?
- How can we speed deployment of technology into the market?

Progress so far is very good. We just released a report on CERC's 2nd year of work. It is posted on our CERC website. There are many things showcased there that you will be proud to see. See: <http://www.us-china-cerc.org>.

Closing

I would like to close by emphasizing that:

- This bilateral initiative is important to the top-leadership of both countries;
- Both countries are supporting it with top talent and serious money;
- Over 5-years, the US-side will invest more than \$25 million (counting business and partner contributions);
- In accord with our joint agreement, China is doing the same.
- Anyone who is aware of the scarcity of resources these days should rightfully expect meaningful and impactful outcomes from an investment of \$50 million.

Secretary Moniz asks me repeatedly, "What outcomes do you have from CERC? Are they significant and impactful?" Thanks to your work to date, I already have some good answers. I would like to have more. At the end of the next 2 years, with your help, I am confident, that I will have more.

I look forward to learning about your work, your progress, and your future plans. May you have a productive meeting. Thank you for your time and attention.