

Agenda

American Energy & Manufacturing Competitiveness Partnership

Accelerating Advanced Materials Manufacturing Dialogue

August 17th, 2015

Hosted by:

Dr. M. Katherine Banks

Vice Chancellor and Dean of Engineering
Director, Texas A&M Engineering Experiment Station
Texas A&M University

The Honorable Deborah L. Wince-Smith

President & CEO
Council on Competitiveness

Mr. Regis Conrad

Director, Division of Advanced Energy Systems
U.S. Department of Energy

Location:

**Annenberg Presidential Conference Center at the
George Bush Library**
1002 George Bush Drive W.

<http://apcc.tamu.edu/directions.html>

Parking:

PARKING FOR THE MEETING WILL BE IN LOT 43
(SEE MAP AND INSTRUCTIONS ON THE NEXT PAGE)

Time:

8:00 a.m. – 4:15 p.m.

Contacts:

Chad Evans 703-945-7917; cevans@comepte.org
EVP
Council on Competitiveness

Dedra P. Nevill 979-820-2220
Manager of Donor Relations and Events
Texas A&M Engineering

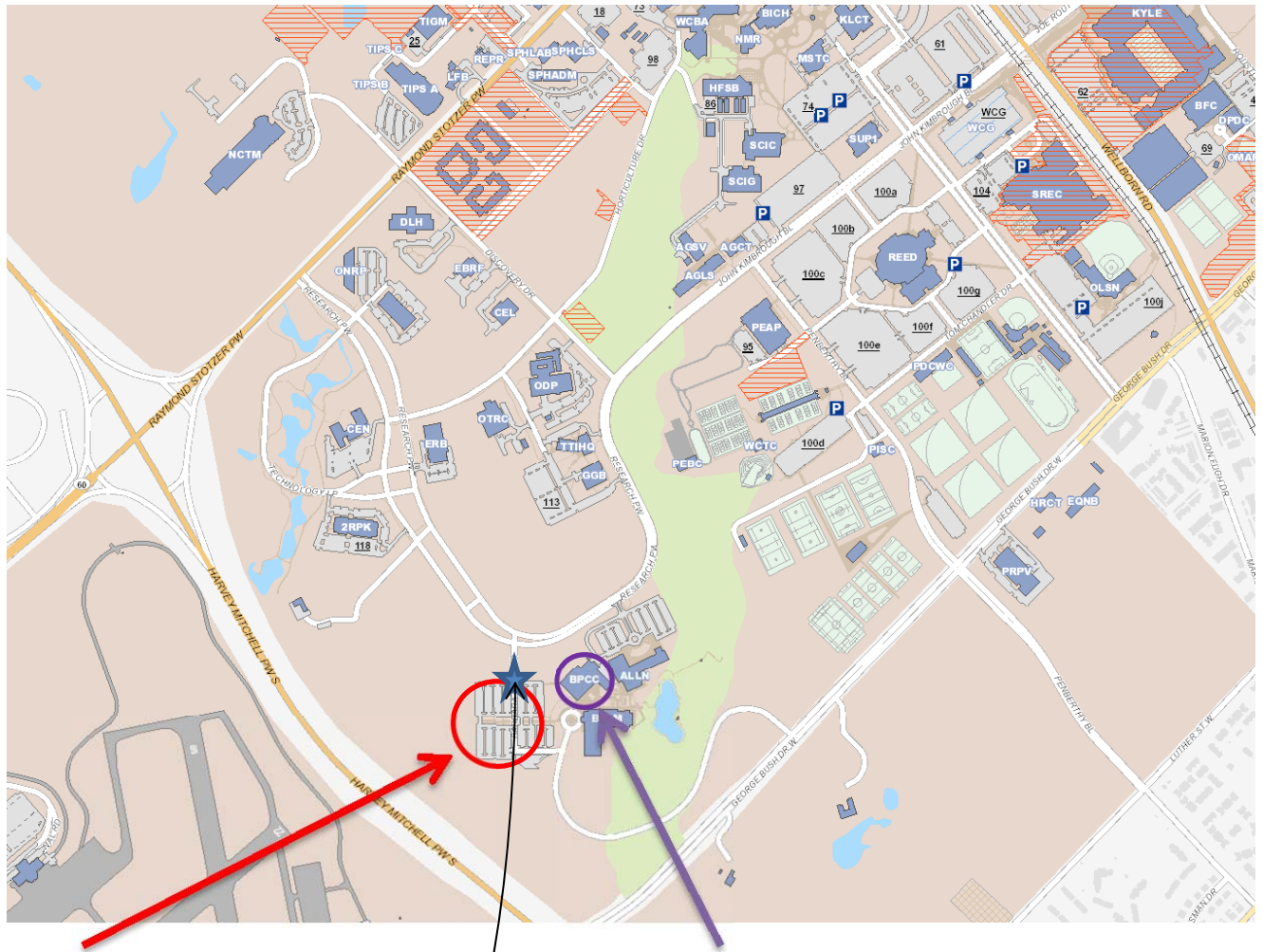
Wi-Fi:

Guest accounts provided upon arrival.

Meeting Location and Parking Garage

Please refer to this website for more detailed maps and EXACT driving instructions:

<http://apcc.tamu.edu/directions.html>



Parking:
Dialogue Attendees Please Park in Lot 43
TAMU will have a student distributing parking permits – he will be located at the entrance nearest Research Parkway.

Meeting Location:
Annenberg Presidential Conference Center
@ the George Bush Library (1002 George Bush Drive W)

8:00 a.m. Registration and Light Breakfast

8:30 a.m. Welcome and Opening Remarks

The Honorable Deborah L. Wince-Smith
President and CEO
Council on Competitiveness

Dr. M. Katherine Banks
Vice Chancellor and Dean of Engineering
Director, Texas A&M Engineering Experiment Station
Texas A&M University

Mr. Regis Conrad
Director, Division of Advanced Energy Systems
U.S. Department of Energy

9:00 a.m. Briefing on the Goals and Objectives of the Clean Energy Manufacturing Initiative (CEMI)

This session will describe the thrusts and new developments in the Department of Energy (DOE) Clean Energy Manufacturing Initiative (CEMI), created in the Office of Energy Efficiency and Renewable Energy (EERE) and joined by the Offices of Fossil Energy (FE) and Nuclear Energy (NE). This overview will highlight the critical role of advanced materials—and in particular, a national initiative around accelerating the manufacturing of such materials—plays in achieving the overarching goals of CEMI.

Mr. Reuben Sarkar
Deputy Assistant Secretary for Transportation
Office of Energy Efficiency and Renewable Energy
Director, CEMI
U.S. Department of Energy

9:15 a.m. Understanding Materials in Extreme Environments at Texas A&M

DOE has a vested interest in understanding the design, development, and deployment of advanced materials—in particular those that exist and operate in extreme environments or under harsh conditions. These materials enable technologies that cross-cut DOE—applications such as novel catalysts for advanced fuel cell technology, extreme tolerance to photon and particle fluxes, advanced reactor and fuel cycle technologies, energy storage for the electric transportation grid, and others. This session will give an overview of how leading research institutions – like Texas A&M and others in the dialogue – are working to accelerate discovery and bring these technologies into the marketplace.

Dr. Dimitris Lagoudas

Senior Associate Dean for Research
Deputy Director, Texas A&M Engineering Experiment Station
Associate Vice Chancellor for Engineering Research
Texas A&M University

9:30 a.m. Identifying Common Challenges

Moderator: **Dr. Mark Johnson**
Director, Advanced Manufacturing Office
U.S. Department of Energy

Kick-Off
Discussants: **Dr. Ajay Malshe**
CTO
Nanomech

Mr. Rustom K. Mody, P.E.
Vice President/Chief Engineer
Baker Hughes

Dr. John Stetson
Senior Fellow
Lockheed Martin

Advanced materials includes a wide range of materials, applications and processes—from nanoscale films and coatings, to advanced alloys and composites, to innovative recycling processes. In spite of this diversity, a number of common challenges exist that—if addressed—could accelerate the development and deployment of a wide range of materials and technologies into the marketplace.

In this opening session, participants will introduce themselves and discuss what—from their perspective—are the most significant challenges to furthering the manufacturing of advanced materials in the U.S.

Questions to consider:

- What does the term “advanced materials” mean to you and your organization?
- How do you see your role in the research, development and deployment of advanced materials and materials-based technologies?
- What challenges do you perceive as being barriers to the manufacturing scale-up and deployment of advanced materials and what are potential solutions?

AEMC Partnership Dialogue
Monday August 17th, 2015 (8:00 a.m. – 4:15 p.m.)
Agenda

10:30 a.m. Coffee Break

10:45 a.m. Aligning Resources and Capabilities with Needs

Moderator: **Mr. Chad Evans**
Executive Vice President
Council on Competitiveness

Kick-Off

Discussants: **Dr. Costas Georghiades**
Associate Dean for Research, College of Engineering
Associate Agency Director, Texas A&M Engineering Experiment Station
Texas A&M University

Dr. Ginger Rothrock
Director, Advanced Materials and System Integration
RTI International

Three barriers have been identified as impediments to the scale-up and deployment of new materials—access to capital at critical points in technology development, access to shared infrastructure, and high technical risk. These issues are particularly relevant to extreme environment materials, where non-equilibrium conditions can lead to greater uncertainties and new behaviors. In this session participants will develop specific recommendations that could—if implemented—facilitate quicker development and market diffusion of new materials.

Questions to consider:

- As new materials are developed, where is access to capital most constrained? What would facilitate more private sector investment at these critical points? What other financing mechanisms should be considered?
- What would shared infrastructure capable of benefiting a broad class of materials look like? What is needed to be able to address challenges specifically related to the manufacturing of new materials?
- What other approaches—beyond financing tools—can help to derisk investments in the scale-up of new materials?

12:00 p.m. Working Lunch and Tour of the George H.W. Bush Presidential Library

1:30 p.m. Shortening the RD&D Cycle: The Role of Predictive Modeling

Moderator: **Dr. Cynthia Powell**
Director, Office of Research
NETL

Kick-Off
Discussant: **Dr. Alan Needleman**
TEES Distinguished Research Professor
Texas A&M University

Many researchers and companies are accustomed to designing, developing, and deploying materials based on experiments and experience. Incorporating virtual materials design (VMD) and testing into this process has the potential to accelerate this cycle by informing the search for new classes of materials with specific behaviors that will perform under extreme conditions. In this session participants will share their perspective on the potential of predictive modeling and what can be done to spur its wider adoption.

Questions to consider:

- How do you view the potential of VMD in your own line of work? What barriers (awareness, access, usefulness) have you observed in its application?
- What can be done to spur wider adoption and use of VMD in the testing and design cycle? What is DOE's role in this?
- What existing resources could be leveraged to drive greater use of VMD in the private sector? What specific steps need to be taken to realize this?

2:15 p.m. Mitigating Risk: The Role of Materials Certification and Qualification

Confidence in the property of a novel material—how it will perform under a range of temperatures and pressures, across hundreds of thousands of cycles, in a radiative environment—is essential to its market uptake. Facilitating this process, anticipating these concerns earlier in the scale-up process, and providing this capability to small firms could dramatically accelerate the manufacturing of new classes of materials. This session will explore actionable recommendations to provide greater certification and qualification capabilities across the advanced materials sector.

Moderator: **Mr. Regis Conrad**
Director, Division of Advanced Energy Systems
U.S. Department of Energy

AEMC Partnership Dialogue
Monday August 17th, 2015 (8:00 a.m. – 4:15 p.m.)
Agenda

Kick-Off

Discussant: **Mr. Tim Graves**
Director of Operations, Technical Events and Content Sector
ASME

2:45 p.m. Coffee Break

3:00 p.m. Accelerating Advanced Materials Manufacturing Next Steps

Moderator: **The Honorable Deborah L. Wince-Smith**
President & CEO
Council on Competitiveness

Kick-Off

Discussants: **Dr. Scott Fish**
Senior Research Scientist
Executive Director of the Advanced Manufacturing Center
University of Texas in Austin

Mr. James Phillips
Chairman and CEO
Nanomech

Accelerating the manufacturing of new materials—and extreme environment materials in particular—requires overcoming a range of technical and non-technical barriers. Based on conversation throughout the day, this session will explore different structures for a public-private partnership (PPP) or national initiative that would drive the manufacturing of extreme environment materials in the United States.

Questions to consider:

- What are the key elements of a PPP or national initiative that would address key challenges facing manufacturing of extreme environment materials?
- What gaps—financing, policy, technology or otherwise—could be immediately addressed through such an effort?
- What are the necessary next steps in developing a roadmap and milestones? What are the markers of success for a national initiative?
- How can we ensure a PPP or national initiative engages and benefits all sizes of companies and types of organizations?

AEMC Partnership Dialogue
Monday August 17th, 2015 (8:00 a.m. – 4:15 p.m.)
Agenda

4:00 p.m. The Path Forward

The Honorable Deborah L. Wince-Smith
President and CEO
Council on Competitiveness

Dr. M. Katherine Banks
Vice Chancellor and Dean of Engineering
Director, Texas A&M Engineering Experiment Station
Texas A&M University

Mr. Regis Conrad
Director, Division of Advanced Energy Systems
U.S. Department of Energy

4:15 p.m. Conclusion and Reception