



U.S. DEPARTMENT OF  
**ENERGY**



## Crosscutting Research and Advanced Energy Systems Project Review Meeting Artificial Intelligence & Machine Learning Virtual Session Agenda

All times designated in Eastern Daylight Time

**Thursday, May 13, 2021**

### Plenary Session

- 8:45 AM      Opening Remarks and Welcome**  
Dave Lyons, Transformative Power Generation and Sydni Credle, Crosscutting Research Sensors & Controls, National Energy Technology Laboratory
- 9:00 AM      U.S. Department of Energy Perspective**  
Dr. Dimitri Kusnezov, U.S. Department of Energy
- 10:00 AM      Science-Based Artificial Intelligence and Machine Learning Institute (SAMI) (FWP-NETL)**  
Kelly Rose, National Energy Technology Laboratory

### Plant Improvements via Modeling and AI

Moderator: Kylie Underwood

- 10:30 AM      Boiler Modeling for Flexible Operations (FWP-1022461 - Task 6)**  
Chris Guenther, National Energy Technology Laboratory  
*(Sponsored by Transformative Power Generation Program)*
- 11:00 AM      Dynamic Power Plant Modeling for Flexible Operations (FWP-1022461 - Task 3)**  
Steve Zitney, National Energy Technology Laboratory  
*(Sponsored by Transformative Power Generation Program)*
- 11:30 AM      Application of Artificial Intelligence Techniques Enabling Coal- Fired Power Plants the Ability to Achieve Higher Efficiency, Improved Availability, and Increased Reliability of Their Operations (FE0031563)**  
Bill Spiesman, Sparkcognition, Inc.  
*(Sponsored by Transformative Power Generation Program)*
- 12:00 PM      BREAK**



U.S. DEPARTMENT OF  
**ENERGY**



## **Crosscutting Research and Advanced Energy Systems Project Review Meeting Artificial Intelligence & Machine Learning Virtual Session Agenda**

All times designated in Eastern Daylight Time

### **Applications of AI for Enhanced Plant Operations**

Moderator: Barbara Carney

- |                |  |
|----------------|--|
| <b>1:00 PM</b> | <b>Deployment of Dynamic Neural Network Optimization to Minimize Heat Rate During Ramping for Coal (FE0031754)</b><br>Kody Powell, University of Utah<br><i>(Sponsored by Transformative Power Generation Program)</i> |
| <b>1:30 PM</b> | <b>AI Enabled Robots for Automated Nondestructive Evaluation and Repair of Power Plant Boilers (FE0031650)</b><br>Hao Zhang, Colorado School of Mines  |
| <b>2:00 PM</b> | <b>Operational Technology Behavioral Analytics (FE0031640)</b><br>Clifton Black, Southern Company Services, Inc.   |
| <b>2:30 PM</b> | <b>Generation Plant Cost of Operations and Cycling Optimization Model (FE0031751)</b><br>Raju Hasti, Purdue University and Ye Yao, Great River Energy  |
| <b>3:00 PM</b> | <b>Hybrid Analytics Solution to Improve Coal Power Plant Operations (FE0031753)</b><br>Randall Lee Bickford, Expert Microsystems, Inc.   |
| <b>3:30 PM</b> | <b>Improving Coal Fired Plant Performance through Integrated Predictive and Condition-Based Monitoring Tools (FE0031547)</b><br>Shuchita Patwardhan, Microbeam Technologies, Inc.                                      |
| <b>4:00 PM</b> | <b>Metaphortress: A Situational Awareness Platform (SC0018729)</b><br>LeeAnn Maryeski and William Russ, Sonalysts, Inc.  |