

## DRAFT: 2020 UTSR Project Review Meeting - Virtual

| EST      | Day 1 - Tuesday, November 17, 2020  |                |  |               |
|----------|---|----------------|--|---------------|
| 11:00 AM | Welcome, Introductions, and Meeting Approach: Richard Dennis, Turbine Technology Manager, NETL, DOE |                |  |               |
| 11:15 AM | Advanced Turbines Program Overview: Richard Dennis, Turbine Technology Manager, NETL, DOE           |                |  |               |
| 11:45 AM | Question & Answer   |                |  |               |
| 12:00 PM | Break   |                |  |               |
|          | Moderator:  |                |  |               |
|          | Organization  | Project Number | Title  | Presenter     |
| 12:15 PM | Pennsylvania State University   | FE0025011      | Improving Turbine Efficiencies through Heat Transfer and Aerodynamic Research in the Steady Thermal Aero Research Turbine (START)  | Karen Thole   |
| 1:00 PM  | University of Pittsburgh  | FE0031277      | Integrated Transpiration and Lattice Cooling Systems Developed by Additive Manufacturing with Oxide-Dispersion Strengthened Alloys   | Minking Chyu  |
| 1:45 PM  | University of Texas at Austin   | FE0031760      | Integrated Turbine Component Cooling Designs Facilitated by Additive Manufacturing and Optimization  | David Bogard  |
| 2:30 PM  | Lunch Break   |                |  |               |
|          | Moderator:  |                |  |               |
| 3:45 PM  | Pennsylvania State University   | FE0031280      | Discrete Element Roughness Modeling for Design Optimization of Additively and Conventionally Manufactured Internal Turbine Cooling Passages  | Robert Kunz   |
| 4:30 PM  | Ohio State University   | FE0031278      | Development of High Performance Ni-Base Alloys for Gas Turbine Wheels Using A Co-Precipitation Approach  | Michael Mills |
| 5:15 PM  | University of Pittsburgh  | FE0031774      | An Effective Quality Assurance Method for Additively Manufactured Gas Turbine Metallic Components Via Machine Learning from In-Situ Monitoring, Part-Scale Modeling, and Ex-Situ Characterization Data | Xiayun Zhao   |
| 6:00 PM  | Summary and Closing Remarks   |                |  |               |
| 6:15 PM  | Adjourn   |                |  |               |

| Day 2 - Wednesday, November 18, 2020 |  |                       |  |                        |
|--------------------------------------|--|-----------------------|--|------------------------|
| 11:00 AM                             | Welcome, Introductions, and Meeting Approach   |                       |  |                        |
| 11:15 AM                             | <b>Gas Turbine OEM Panel Discussion:</b> Session Chairs: Richard Dennis and Robert Schrecengost, DOE; Panelists: Michael Fox, Solar Turbines; Scott F. Johnson, GE Gas Power; Carlos Koeneke, MHI; John Marra, Siemens Energy; and Mark Zelesky, Pratt & Whitney |                       |  |                        |
| 1:15 PM                              | Lunch Break  |                       |  |                        |
|                                      | Moderator:   |                       |  |                        |
|                                      | Organization   | Project Number        | Title  | Presenter              |
| 2:30 PM                              | Embry-Riddle Aeronautical University   | FE0031227             | Improving NOx Entitlement with Axial Staging   | Scott Martin           |
| 3:15 PM                              | University of Michigan   | FE0031773 and FE31228 | Pressure Gain, Stability, and Operability of Methane/Syngas Based RDEs Under Steady and Transient Conditions             | Mirko Gamba            |
| 4:00 PM                              | Georgia Tech   | FE0031285             | High-Frequency Transverse Combustion Instabilities in Low-NOx Gas Turbines   | Timothy Lieuwen        |
|                                      | Moderator:   |                       |  |                        |
| 4:45 PM                              | Pennsylvania State University  | FE0031806             | Development and Evaluation of a Novel Fuel Injector Design Method Using Hybrid-Additive Manufacturing                    | Jacqueline O'Connor    |
| 5:30 PM                              | West Virginia University   | FE0031771             | Techno-Economic Optimization of Advanced Energy Plants with Integrated Thermal, Mechanical, and Electro-Chemical Storage | Debangsu Bhattacharyya |
| 6:15 PM                              | Summary and Closing Remarks  |                       |  |                        |
| 6:30 PM                              | Adjourn  |                       |  |                        |

| EST      | Day 3 - Thursday, November 19, 2020  |                |   |                     |
|----------|--|----------------|---|---------------------|
| 11:00 AM | Welcome, Introductions, and Meeting Approach   |                |   |                     |
| 11:15 AM | <b>University Panel Discussion:</b> Session Chair: Patcharin Burke, DOE and Karen Thole, Penn State University; Panelist: Eric Deshong, Penn State PhD student; Carl Frick, University of Wyoming; Jackie O'Connor, Penn State University; Carson Slabaugh, Purdue University; Margaret Woolridge, University of Michigan; and Lesley Wright, Texas A&M University |                |   |                     |
| 1:15 PM  | Lunch Break  |                |   |                     |
|          | Moderator:   |                |   |                     |
|          | Organization   | Project Number | Title   | Presenter           |
| 2:30 PM  | Clemson University   | FE0031281      | Integrated TBC / EBC For SiC Fiber Reinforced SiC Matrix Composites for Next Generation Gas Turbines  | Rajendra Bordia     |
| 3:15 PM  | Pennsylvania State University  | FE0031758      | Development of Additive Manufacturing for Ceramic Matrix Composite Vanes  | Stephen Lynch       |
| 4:00 PM  | Arizona State University   | FE0031759      | A Multiphysics Multiscale Simulation Platform for Damage, Environmental Degradation, and Life Prediction of Ceramic Matrix Composites in Extreme Environments | Aditi Chattopadhyay |
|          | Moderator:   |                |   |                     |
| 4:45 PM  | University of Central Florida  | FE0025260      | Combustion Kinetics Model Development and Fluid Property Experimental Investigation for Improved Design of Supercritical CO2 Power Cycle Components           | Subith Vasu         |
| 5:30 PM  | Georgia Tech   | FE0031772      | Advanced Model Development for Large Eddy Simulation of Oxy-Combustion and Supercritical Carbon Dioxide Power Cycles  | Joseph Oefelein     |
| 6:15 PM  | Summary and Closing Remarks  |                |   |                     |
| 6:45 PM  | Adjourn - End of Meeting   |                |   |                     |