

HARESH MALKANI

CHIEF TECHNOLOGY OFFICER

CESMII – THE SMART MANUFACTURING INSTITUTE

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- Ph.D. Mechanical Engineering
- ~30 years at Alcoa/Arconic R&D Center
 - Career focus: Sensing, control, modeling, simulation and analytics
 - Led Smart Manufacturing and Automation Initiative for discrete and hybrid manufacturing
- CTO @CESMII since March 2018
 - Strategies for enabling technologies in sensing, control, modeling, analytics
 - Development of an open, collaborative platform for Smart Manufacturing

- DOE sponsored Manufacturing USA Institute
- Start date: January 2017
- Improve Energy Efficiency through Sensing, Control, Modeling, Analytics & Platform Technologies
- \$140M+ total funding for 5 years
- HQ @LA, Three regional centers around US
- 102 members – manufacturers, academia, system integrators, technology vendors, consortiums, national labs
- SM technologies + SM Platform + Workforce Development/Training focus

IMPORTANT WORK ALREADY UNDERWAY THAT WILL ENABLE THE SUITE OF ADVANCED MANUFACTURING APPROACHES FOR THE FUTURE OF CLEAN COAL AND CCUS TECHNOLOGIES

- 10 ROADMAP PROJECTS COVERING CROSS CUTTING TECHNOLOGIES IN SENSING, CONTROL, MODELING, ANALYTICS BEING KICKED OFF IN MAY 2019: POTENTIAL APPLICATIONS TO CCCCT
- FIRST VERSION OF SM PLATFORM TO BE MADE AVAILABLE IN 3Q2019: ENABLE BROAD USE OF SM TOOLS AND INFRASTRUCTURE FOR CCCC APPLICATIONS

SEED IDEAS FOR DISCUSSION TODAY, HOW DOE CAN BETTER USE THE SUITE OF ADVANCED MANUFACTURING APPROACHES IN FUTURE CLEAN COAL AND CCUS EFFORTS

- ADVANCED SENSING TO **MONITOR** OPERATIONS
- ANALYTICS TO DEVELOP **INSIGHTS**
- MODELING & SIMULATION TO **OPTIMIZE** OPERATIONS
- REALTIME CONTROL TO ENSURE OPERATIONAL **STABILITY**

