

Thermal-Mechanical-Chemical Energy Storage Workshop

Omni® William Penn Hotel
Pittsburgh, Pennsylvania
February 4, 2020

Hosted by:



2nd Thermal-Mechanical-Chemical Electricity Storage Workshop Agenda

7:00 – 7:45	Registration and Breakfast	12:25 – 1:10	Lunch
7:45 – 8:00	Welcome and Introduction – Elliott Group <i>Klaus Brun, Conference Chair</i> <i>Michael Lordi, CEO</i>	1:10 – 2:25	Technology Update – Presentations from Companies/Universities/Institutes <i>David Voss – Solar Turbines</i>
8:00 – 8:30	Keynote Speaker #1 – Government Vision <i>Angelos Kokkinos – DOE, Office of Fossil Energy</i>	2:25 – 2:55	Presentation #3 – Turbomachinery Challenges for Energy Storage <i>Louis Larosiliere – Elliott Group</i>
8:30 – 9:00	Keynote Speaker #2 – Technology Needs and Market Opportunities in a Deeply Decarbonized Economy <i>Neva Espinoza – EPRI</i>	2:55 – 3:25	Presentation #4 – Reversing Turbomachinery: A Central Enabling Technology for Thermal Grid Storage <i>Robert Laughlin – Stanford University</i>
9:00 – 10:00	Department of Energy (DOE) Panel <i>Avi Shultz – DOE, Solar Energy Technologies Office</i> <i>Scott Litzelman – DOE, Advanced Research Projects Agency - Energy</i> <i>Eric Hsieh – DOE, Grid Systems and Components</i> <i>Briggs White, Moderator – NETL</i> <i>Stephen Hendrickson – DOE, Office of Technology Transitions</i>	3:25 – 3:35	Break
10:00 – 10:15	Break	3:35 – 5:00	Industry Panel <i>Renaud Le Pierres, Moderator – Heatric</i> <i>Aaron McClung – SwRI</i> <i>Klaus Brun – Elliott Group</i> <i>Tim Held – Echogen</i> <i>Michael Geyer – Malta Inc.</i> <i>Richard Riley – Highview</i>
10:15 – 10:45	Presentation #1 – Technology Overview <i>Tim Allison – SwRI</i>	5:00 – 5:45	Open Update Forum
10:45 – 11:15	Presentation #2 – Overview of Hydrogen Energy Storage <i>Rich Dennis – DOE</i>	5:45 – 6:00	Open Discussion / Closing <i>Klaus Brun – Elliott Group</i>
11:15 – 12:25	University Panel <i>Mark Anderson, Moderator – University of Wisconsin</i> <i>Charles Forsberg – Massachusetts Institute of Technology</i> <i>Peter Loutzenhiser – Georgia Institute of Technology</i> <i>Eric Severson – University of Wisconsin</i> <i>Rohini Bala Chandran – University of Michigan</i>		



Dr. Klaus Brun - Chair

Klaus Brun is the Director of Research & Development at Elliott Group where he leads a group of over 50 professionals in the development of turbomachinery and related systems for the energy industry. His past experience includes positions in product development, engineering, project management, and executive management at Southwest Research Institute, Solar Turbines, General Electric, and Alstom. He holds ten patents, authored over 350 papers, and published four textbooks on energy systems and turbomachinery. Dr. Brun is a Fellow of the ASME and won an R&D 100 award in 2007 for his Semi-Active Valve invention. He also won the ASME Industrial Gas Turbine Award in 2016 and 11 individual ASME Turbo Expo Best Paper awards. Dr. Brun is the chair of the 2020 Supercritical CO₂ Power Cycles Symposium, past chair of the ASME-IGTI Board of Directors, the ASME Oil & Gas Applications Committee, and ASME sCO₂ Power Cycle Committee. He is also a member of the API 616 Task Force, the ASME PTC-10 task force, the Asia Turbomachinery Symposiums Committee, and the Supercritical CO₂ Symposium Advisory Committee. Dr. Brun is currently the Executive Correspondent of Turbomachinery International Magazine and Associate Editor of the ASME Journal of Gas Turbines for Power.



Richard A. Dennis - Co-Chair

Mr. Richard Dennis is currently the Technology Manager for Advanced Turbines and Supercritical Carbon Dioxide Power Cycle Programs at the U.S. Department of Energy's National Energy Technology Laboratory (NETL). These programs support US university, industry, and U.S. national laboratory research, development and demonstration projects. Rich has a BS and MS in Mechanical Engineering from West Virginia University. Additionally, Richard was the 2018-19 leader of the American Society of Mechanical Engineers (ASME) Gas Turbine Segment (GTS).



Dr. Tim Allison - Co-Chair

Tim Allison is the Machinery Department Director at Southwest Research Institute where he leads an organization that focuses on R&D for the energy industry. His research experience includes analysis, fabrication, and testing of turbomachinery and systems for advanced power or oil & gas applications including high-pressure turbomachinery, centrifugal compressors, expanders, gas turbines, reciprocating compressors, and test rigs for bearings, seals, blade dynamics, and aerodynamic performance. Dr. Allison holds two patents, has authored two book chapters, and has published over 70 articles on various turbomachinery topics. He received the best tutorial/paper awards from the ASME Oil & Gas and Supercritical CO₂ Power Cycle Committees in 2010, 2014, 2015, and 2018. He is a past chairman of the ASME Oil & Gas Applications Committee, a member of the Supercritical CO₂ Symposium and Thermal-Chemical-Mechanical Energy Storage Workshop Advisory Committees, and an Associate Editor for the ASME Journal of Engineering for Gas Turbines & Power.

Thank you to the TMCES Workshop Organizing Committee

<i>Klaus Brun, Chair</i>	Elliott Group	<i>Vijaykumar Rajgopal</i>	DOE
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TMCES Workshop

Thanks for being here. Let's
have a productive day!

Klaus Brun, Ph.D.

Director R&D

Elliott Group

kbrun@elliott-turbo.com

210 262 2213