



VIEW*S* & VISIONS

A publication of Bowles Rice LLP

Winter 2017



Energy Collaboration for Innovation

Dr. Brian Anderson, Director
West Virginia University Energy Institute

Dr. Brian J. Anderson is the director of the West Virginia University Energy Institute and the GE Plastics Materials Engineering Professor in chemical engineering at WVU.

Anderson received his bachelor's degree in chemical engineering from West Virginia University and his master's degree and Ph.D. in chemical engineering from the Massachusetts Institute of Technology.

In 2012, he was awarded the Presidential Early Career Award for Scientists and Engineers, the highest honor bestowed by the United States government on science and engineering professionals in the early stages of their independent research careers. Anderson is a 2014 Kavli National Academy of Science Frontiers of Science Fellow, and a NETL-RUA Faculty Fellow at the National Energy Technology Laboratory. He is the recipient of the Secretary Honor Achievement Award from the Department of Energy for his role in the Flow Rate Technical Group, a team that worked in response to the Deepwater Horizon oil spill.

Anderson is the co-author of the MIT report, "The Future of Geothermal Energy: Impact of Enhanced Geothermal Systems (EGS) on the United States in the 21st Century." He serves on the technical advisory board of AltaRock Energy, and is a co-founder of the National Geothermal Academy.

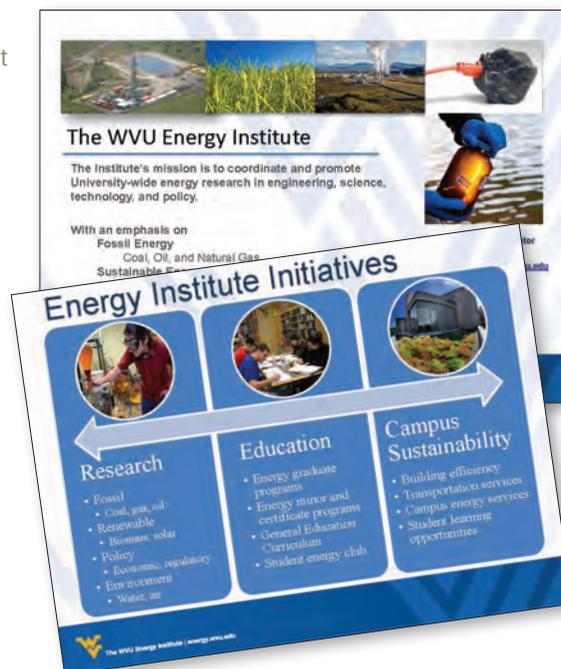
In September 2014, West Virginia University launched the WVU Energy Institute. We have been on a two-year journey since then to build upon the historical strengths of the university's energy research, and to leverage the collective expertise of the 164 Energy Institute Faculty affiliates to create positive impact across the state of West Virginia, our surrounding region, the nation and the world.

The mission of the Energy Institute is to promote, coordinate and drive forward WVU excellence in discovery and innovation within the energy sectors. With particular emphases on fossil energy, sustainable energy, energy policy and environmental stewardship, we aim to drive economic development for the people of West Virginia. Gordon Gee, the president of WVU, has challenged us to consider the reinvention of

the role of the land grant university in the 21st century. So, we're forging a new role trying to create partnerships in the triangle of industry, government and academia.

We serve WVU's community as a catalytic hub for energy research and innovation, continually creating, nurturing and expanding research opportunities, industry partnerships, policy influence and curricular pathways in alignment with industry, state government and federal government needs, innovations and opportunities in the energy sector.

We bring researchers together through regional, national and international partnerships. In the two years since the Energy Institute was founded, we have launched a regional university coalition called the Tri-State University Energy Alliance with Carnegie Mellon University, the University of Pittsburgh and Case Western Reserve University. We also lead the U.S. – China Clean Energy Research Center – Advanced Coal Technology Consortium, serving the U.S. Department of Energy as a conduit for collaborative research in advanced coal technology between industry partners, national laboratories and academic researchers in the United States and China. We also recently signed a Memorandum of Understanding between WVU and the Shenhua Group, the largest coal company in China, if not the world. Additionally, the Energy Institute is in a partnership with the ITAIPU Binacional (Paraguay and Brazil) Hydroelectric Power Station, the largest power generator in the world (surpassing the Three Gorges Dam in December 2016). ITAIPU is one of the seven wonders of the modern world and is working



Slides from Dr. Brian Anderson's presentation at the 2015 Tri-State Shale Summit



Then-West Virginia Governor Earl Ray Tomblin and Lieutenant Governor Mary Taylor of Ohio signing the regional agreement document during the 2015 Tri-State Shale Summit • Photo Credit: Office of the Governor

ideas for creating pathways to a cleaner energy future.

The forum featured keynote talks by former U.S. Energy Secretary Dr. Ernest Moniz, U.S. Senator Joe Manchin and Congressman David McKinley, as well as a discussion by state representatives on the Tri-State Governor's Energy Agreement between West Virginia, Pennsylvania and Ohio. These talks featured the mechanisms by which the region has begun to coalesce into natural partnerships and consortia to try to tackle some of the most challenging issues in the energy sector across the region.

A panel specifically focused on regional challenges and opportunities highlighted the need for innovation within the economies of the Mid-Atlantic region that have historically been based heavily on fossil energy resources. It is through partnerships and collaboration that innovations across the energy innovation ecosystem will be uncovered. ▽

with us on educational and research programs.

The region is also home to a diverse array of government and private research facilities and academic institutions, making it an epicenter of, and a driving force for, energy research.

As one can tell, partnerships are important to us. It is how we envision moving beyond the laboratory and creating impact in our state and region. Following the October 13, 2015, signing of the agreement between the governors of West Virginia, Pennsylvania and Ohio, the Energy Institute has been working closely with the key partners, VisionShared, TeamNEO, the Allegheny Conference and the Claude Worthington Benedum Foundation on transportation and infrastructure needs for the region. We brought together the geologic surveys in the three states to access the potential locations for a natural gas liquid storage

and trading hub. We're approaching this as an honest broker, to examine locations in absence of state borders.

Charting a path for the future energy portfolio of our nation is a big endeavor. However, if we begin identifying natural groupings of states in various regions, the problem becomes slightly more tractable. Therefore, on September 12, 2016, the WVU Energy Institute hosted the Mid-Atlantic Region Energy Innovation Forum. The Mid-Atlantic region, consisting of eight states (West Virginia, Virginia, Ohio, Pennsylvania, Kentucky, Maryland, Delaware, New Jersey), plus Washington, D.C., is blessed with abundant resources including coal, natural gas, wind and nuclear generation, and it is vital that these resources remain a part of the clean energy dialogue as our nation moves toward a new energy future. The region is also home to a diverse array of government and private research facilities and academic institutions, making it an epicenter of, and a driving force for, energy research. The goal of the forum was to discuss the energy innovation ecosystem in the Mid-Atlantic region and share