INTERIM JOINT COMMITTEE ON NATURAL RESOURCES AND ENERGY

Minutes of the 5th Meeting of the 2025 Interim

October 16, 2025

Call to Order and Roll Call

The fifth meeting of the Interim Joint Committee on Natural Resources and Energy was held on October 16, 2025, at 1:00 PM in Room 154 of the Capitol Annex. Senator Brandon Smith, Chair, called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Jim Gooch Jr., Co-Chair; Senator Brandon Smith, Co-Chair; Senators Greg Elkins, Rick Girdler, Keturah J. Herron, Scott Madon, Robby Mills, Stephen West, Phillip Wheeler, and Gex Williams; and Representatives Shane Baker, John Blanton, Adam Bowling, Randy Bridges, Beverly Chester-Burton, Patrick Flannery, Chris Fugate, Erika Hancock, DJ Johnson, Bobby McCool, Suzanne Miles, Adam Moore, Tom Smith, Bill Wesley, Mitch Whitaker, Richard White, and Wade Williams.

Guests: Rodney Andrews, Ph.D., Director, Center for Applied Energy Research (CAER), University of Kentucky (UK).

LRC Staff: Stefan Kasacavage, Kayla Carroway, Tanya Monsanto, and Rachel Hartley.

Approval of minutes for the meeting of September 18, 2025

A motion to approve the September 18, 2025, minutes was made by Co-Chair Gooch and seconded by Representative Fugate. The minutes were approved by voice vote.

Nanotechnologies in Energy

Rodney Andrews, Ph.D., Director, CAER, UK, explained the significance of nanotechnology in energy applications, emphasizing the unique properties of materials at the nanoscale, which ranges from 1 to 100 nanometers. Operating at the nanoscale allows for enhanced manipulation of materials, leading to improved efficiency in energy related processes. Nanomaterials can be utilized in various applications, including energy storage, solar energy, and construction materials. Nanotechnology in energy storage can lead to increased capacity, faster charging, and improved durability because of advancements in carbon materials. Dr. Andrews stated the potential of carbon

nanotubes derived from coal could provide Kentucky with a competitive edge in nanotechnology applications.

Dr. Andrews spoke about traditional applications of nanotechnology in fuel processing and chemical refining, where nanomaterials serve as catalysts and coatings. Further advancements include the development of catalysts for renewable diesel and sustainable aviation fuel from waste greases. Dr. Andrews' research explored creating yarns from carbon nanotubes, which can offer high strength and conductivity for energy applications. He also discussed a project where a fabric made from this technology could block sound. Dr. Andrews' research is also exploring the potential of nanotechnologies in thermoelectric devices, which can generate electricity from temperature differences.

Representative McCool highlighted concerns about the United States' reliance on foreign resources, particularly from China, which currently dominates the market of rare earth elements.

In response to Representative Blanton, Dr. Andrews stated electromagnetic shielding capabilities of nanomaterials have the potential to replace traditional copper mesh and would not require frequent replacement.

Co-Chair Gooch expressed concerns regarding the reliance by the United States on foreign sources for rare earth elements and highlighted a project in Webster County, Kentucky that aimed to extract rare earth elements from coal refuse. Dr. Andrews stated the second phase of the Webster County project is currently operational.

In response to Representative Johnson, Dr. Andrews stated all the applications for nanotechnologies that were discussed are already commercially-utilized or close to commercialization.

In response to Senator Williams, Dr. Andrews stated there is potential for carbon nanotubes to replace traditional metals in power transmission, but scaling production from meters to kilometers remains a significant challenge. There are limitations of superconducting materials, which currently require low temperatures, making them impractical for long-distance applications. Dr. Andrews also indicated that carbon-based materials could enhance existing heat dissipation technologies in aerospace applications.

In response to Representative Williams, Dr. Andrews confirmed ongoing projects in Kentucky focused on extracting rare earth elements from coal.

Adjournment

There being no further business, the meeting was adjourned.