

INTERIM JOINT COMMITTEE ON NATURAL RESOURCES AND ENERGY

Minutes of the 1st Meeting of the 2022 Interim

June 9, 2022

Call to Order and Roll Call

The 1st meeting of the Interim Joint Committee on Natural Resources and Energy was held on Thursday, June 9, 2022, 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: Senator Brandon Smith, Co-Chair; Representative Jim Gooch Jr., Co-Chair; Senators Johnnie Turner, Robin L. Webb, and Phillip Wheeler; Representatives John Blanton, Randy Bridges, Tom Burch, Myron Dossett, Ryan Dotson, Patrick Flannery, DJ Johnson, Norma Kirk-McCormick, Suzanne Miles, Melinda Gibbons Prunty, Bill Wesley, and Richard White.

Guests: Dr. Rodney Andrews, Center for Applied Energy Research, University of Kentucky; Kent Chandler, Chairman, Kentucky Public Service Commission; Christine King, Director, Gateway for Accelerated Innovation in Nuclear, Idaho National Laboratory; Bob Deacy, Senior Vice President, Clinch River Nuclear Project, Tennessee Valley Authority (TVA); Joe Shea, Vice President for Advanced Nuclear Technology, TVA; and Dave Jones, Executive Director, United States Nuclear Industry Council.

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

Emerging Trends in Energy Markets

Dr. Rodney Andrews stated the major concerns for energy markets are high-levels of uncertainty in price and supply of petroleum and natural gas. Natural gas futures have hit a 13-year high. According to Citibank, petroleum is overvalued by \$50 per barrel and should be trading around \$70 per barrel.

The factors driving energy supply uncertainty are sanctions on Russian oil production, restrictive production decisions made by the Organization of the Petroleum Exporting Countries (OPEC), and the low rate of drilling by United States oil and natural gas producers.

Retail gasoline and diesel prices have increased in the past year. The prices reflect refining margins at record highs amid low levels of inventory. The United States Energy

Information Administration forecasts retail gasoline prices to average \$4.27 per gallon in the third quarter of 2022. A downward adjustment in price is expected in mid-2023. Retail diesel prices are predicted to have a similar trend. Natural gas prices are increasing due to low inventories, steady demand for natural gas exports, and high demand for natural gas from the electric power sector.

Coal-fired power plant closures are continuing in the United States, which can cause reliability issues since the baseload generation they provide is no longer available. Kentucky remains stable due to its diversity in electric generation. There has been a continued decrease in the cost of solar generation, but no energy storage options are yet available to offset its intermittency problem. There is increased interest in nuclear energy, which would provide carbon-free baseload generation to offset renewables.

In response to Senator Wheeler, Dr. Andrews stated banks are unwilling to finance the construction of new coal-fired power plants due to the cost and risk. The concern is not regarding enacted federal policy, but of potential federal policy.

In response to Representative Gooch, Dr. Andrews stated new refineries are not being built, but existing refineries are being expanded. There is enough refinement capacity in the United States to handle the current demand.

In response to Representative Johnson, Dr. Andrews stated electric vehicles are powered by a generation mix including fossil fuels, nuclear energy, and renewable energy.

In response to Representative Blanton, Dr. Andrews stated battery storage technology for intermittent energy sources is estimated to be feasible in 10 to 15 years.

In response to Representative Gibbons Prunty, Dr. Andrews stated crude oil inventories are low due to the release of crude oil from the United States petroleum reserve into the market to decrease the price. The sanctions on Russian oil have impacted the global market.

Implications of Energy Market Trends on Utility Regulation

Kent Chandler stated the Public Service Commission (PSC) is a three-member independent regulatory agency, which regulates non-municipal utilities in Kentucky. The PSC does not regulate cooperatives served by the Tennessee Valley Authority. Since 1934, the primary statutory directive of utility regulation in Kentucky revolves around fair, just, and reasonable rates and adequate, efficient, and reasonable service.

The energy market trends that impact utility regulation include the fuel adjustment clause, integrated resource planning, certificates of public convenience and necessity, and rate cases.

Regulatory considerations by the PSC include plant retirements, reliability and resource adequacy, costs of emerging technologies, and wholesale markets. The PSC is committed to ensuring utilities have enough generating capacity to meet demand.

There are several generation options that are studied in integrated resource plans. Wind and solar are less reliable in Kentucky due to wind speeds, topography, and less sun in the winter months. Nuclear is an emerging option and advanced technologies could increase its viability. Natural gas is often chosen by generation modeling as the least-cost resource, but there are risks regarding the ability to site infrastructure. There is a lot of interest in battery storage; however, batteries have limited duration and are expensive. Hydrogen power has not yet been proven to be cost-effective or readily available.

The current generation mix in Kentucky is 69 percent coal energy, 23 percent natural gas energy, 7 percent hydroelectric energy, and 0.5 percent renewable energy.

In response to Representative Flannery, Mr. Chandler stated the PSC has a limited role in the deployment of broadband services. The primary role of the PSC regarding broadband is to act as the Federal Communications Commission designee to determine which internet providers should be allocated funds from the Federal Universal Service Fund to assist low-income customers. The General Assembly passed HB 320 in the 2021 Regular Session, which allows electric distribution cooperatives to create affiliated subsidiaries that could provide broadband.

Advanced Nuclear Power Feasibility

Bob Deacy stated the Tennessee Valley Authority (TVA) has a diversified generation mix, and 39 percent of the baseload capacity is nuclear energy. From 2005 to 2020, the TVA has reduced carbon emissions by 63 percent. The TVA is leveraging advanced nuclear to reduce or neutralize carbon while adding generation capacity.

The TVA operates the third largest nuclear reactor fleet in the United States and has approximately 900 active projects totaling \$12 billion in approved funding for construction and refurbishment projects for coal and natural gas plants, hydroelectric dams, and transmission infrastructure. The Clinch River Nuclear Project is the TVA's first advanced nuclear small modular reactor located in Oak Ridge, Tennessee.

Joe Shea stated the TVA has been actively studying advanced nuclear technologies for a decade. The focus was on technologies with the least financial risk, which led to the selection of a variation of an existing light-water reactor.

In response to Senator Smith, Mr. Shea stated the reactors operated by the TVA are natural uranium-powered reactors.

In response to Representative Gibbons-Prunty, Mr. Deacy stated TVA is looking for future sites in Kentucky for a nuclear plant. Mr. Shea stated there is no federal solution for nuclear waste. The existing operating nuclear reactors utilize temporary on-site storage.

In response to Representative Bridges, Mr. Shea stated the first deployment of the AP1000 technology should not impose financial risk to the ratepayers.

In response to Senator Smith, Mr. Deacy stated nuclear is very safe, and Mr. Shea added there are layers of safety with a defensive approach.

In response to Representative Kirk-McCormick, Mr. Shea stated studies have not found a correlation between the operation of a nuclear reactor and health effects.

Christine King stated the Gateway for Accelerated Innovation in Nuclear facilitates private and public partnerships to assist private companies that are sustaining their existing nuclear fleet or designing and commercializing new nuclear technologies.

Dave Jones stated the United States Nuclear Industry Council is a leading advocate for advanced nuclear energy technologies and represents more than 80 companies engaged in nuclear innovation and supply chain development. The acceleration of global deployment of advanced nuclear technology is important to decrease carbon emissions.

There being no further business, the meeting was adjourned.