

BEFORE THE
UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON ENERGY AND POWER
TESTIMONY OF JOHN N. VOYLES, JR.
VICE PRESIDENT, TRANSMISSION AND GENERATION SERVICES
LG&E AND KU ENERGY LLC
ON
“The American Energy Initiative”
H. R. 6172
September 20, 2012



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Summary for Testimony of John N. Voyles, Jr.
On behalf of
LG&E and KU Energy LLC

Representing LG&E and KU Energy LLC, a wholly owned subsidiary of PPL Corporation (PPL), the following is a summary of comments the Company has regarding H.R. 6172 as provided at the hearing on September 20, 2012 and the company's major concerns with the United States Environmental Protection Agency's proposed Greenhouse Gas New Source Performance Standards released for public comment on Friday, April 13, 2012:

- The Company supports the principles embodied in H.R. 6172;
- The Company is investing in research and development of carbon capture and storage (CCS) technology and does not believe it is ready for deployment at a scale necessary for electric utility units;
- Significant energy and efficiency penalties exist with the current CCS technologies, the impact of which must be taken under consideration for application to new or existing electric utility units;
- Carbon storage implications, both technical and legal, are yet to be fully understood and debated to ensure it will be deployable on a commercial scale;

Good morning Chairman Whitfield and Subcommittee Members

Thank you for the opportunity to appear before you today to present comments regarding the proposed House of Representatives Bill 6172 that would prohibit imposition of standards for carbon dioxide (CO₂) emissions from existing or new fossil fueled electric generating units until carbon capture and storage (CCS) is found to be technologically and economically feasible.

My name is John N. Voyles, Jr. I am Vice President, Transmission & Generation Services for LG&E and KU Energy LLC. LG&E and KU Energy is a wholly owned subsidiary of PPL Corporation (PPL) and operate Louisville Gas and Electric Company and Kentucky Utilities Company; both vertically integrated, regulated utilities that serve of 1.3 million customers in 90 Kentucky counties and 5 counties in Virginia.

Today, the companies operate electric generating stations with a capacity of approximately 8,100 MW. Of this capacity, 74% is coal-fired, 25% is gas-fired peaking units and the remaining 1% is hydroelectric units. Approximately 96% of our coal-fired capacity is equipped with controls for sulfur dioxide and 67% of the capacity has SCR for nitrogen dioxide control. After assessing the impact of the most recent regulations promulgated by the EPA, specifically the revised National Ambient Air Quality Standards (for SO₂ and NO₂) and the Mercury and Air Toxics Standards (MATS) rule, the companies developed compliance plans, which were presented to and approved by the Kentucky Public Service Commission in December 2011 and May 2012. Those plans include installing additional environmental controls at 4 stations,

retiring 800 MW of coal-fired capacity and constructing a new 640 MW gas-fired combined cycle unit. These investments are expected to cost up to an estimated \$3 billion and projected to raise electric rates by up to 14% and 18% for KU and LG&E customers respectively by 2016.

My company has not been standing idly by on the sidelines waiting for carbon dioxide (CO₂) policy or regulatory developments. Since 2006, we have invested millions of dollars in research and development aimed at finding technically and economically viable carbon management solutions for electric generating units. We were the founding member of the Carbon Management Research Group (CMRG) at the University of Kentucky's Center for Applied Energy Research (CAER) and a member of the Western Kentucky Carbon Storage Foundation. The CMRG membership has grown to include three (3) other electric generators that operate in Kentucky and the Electric Power Research Institute (EPRI). We have made our E. W. Brown coal-fired plant site available to the CMRG as the test location for a carbon capture slip stream project which received a \$14.5 million supporting grant from the DOE in 2011. Additionally, we fund research on carbon capture technology supported by two other DOE grants; one with the University of Texas and one with the 3H Company.

As a member of EPRI, we continue to fund collaborative research for carbon management and stay abreast of technological developments. Through these efforts we track several pilot projects in North America and across the globe. We are aware of no full scale application of carbon capture and storage (CCS) in continuous operation on a fossil-fueled electric generating unit. There are several technical and policy hurdles for CCS that remain unresolved which I will highlight briefly today:

First, the energy penalty to add CCS technology to a coal-fired electric generating unit is prohibitively high. Many of the current pilot projects estimate the parasitic load and cycle efficiency penalties to be at least 25 or 30% of a generating station output. For a company like mine, those penalties would mean if CCS technology were retrofitted to an existing 2,000 MW coal-fired station producing power for our customers today, the output from the plant would be reduced by 500 MW at a minimum. That loss of production capability would have to be replaced by some source of energy supply, creating additional costs for the consumers and perhaps other emissions to the environment.

However, an even bigger challenge is the application of CO₂ storage technology. While some carbon dioxide is successfully being utilized in enhanced oil or methane recovery operations and other pilots have successfully injected small quantities of CO₂ into deep saline aquifers, the volume of storage necessary to facilitate such operations on a continuous basis for the life of an electric generating station has yet to be established. Very serious questions remain regarding the implications such injection processes have on mineral and property rights, the monitoring of the CO₂ plume across property lines or state boundaries and the verification systems necessary to ensure long term monitoring is taken into account. We believe these questions loom much larger than the simple view that CO₂ can be captured and injected underground and might be done more cost effectively, with less energy penalties at some undetermined point in the future.

Until such time as CCS technology is commercially available to be deployed at full scale in a technical and economical manner, we are concerned that any standard of performance

proposed for CO₂ emissions from existing or new electric generating units will effectively eliminate coal-fired generation from the nation's energy portfolio.

On July 16, 2012, we provided testimony to this Subcommittee on the U. S. EPA's proposed Greenhouse Gas New Source Performance Standards. In those comments, we explained the importance of having separate standards for new and existing plants by fuel type and the concern that EPA's proposal for new plants could not even be met by new gas-fired plants. Those comments assumed that EPA is required by law to develop greenhouse gas standards. A clearly better course would be for Congress to pass legislation relieving EPA of the obligation to develop greenhouse gas standards until carbon capture and storage becomes an economically and technologically viable option.

Thank you for the opportunity to comment on H.R. 6172.