

Testimony of Matthew M. Kropf, PhD

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To

United States House of Representatives Committee on Natural Resources

Energy and Mineral Resources

Oversight Hearing on

"American Energy Jobs: Opportunities for Education"

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Introduction:

Presiding Chairman Mr. Thompson and distinguished members of the subcommittee: good morning and thank you for the opportunity to speak on this important matter at the oversight hearing today.

My name is Dr. Matthew Kropf and I am the Director of the Harry Halloran Jr. and American Refining Group's Energy Institute at the University of Pittsburgh Bradford where I teach and direct both the Associate's degree program in Petroleum Technology and the new Baccalaureate degree program in Energy Science and Technology as Assistant Professor.

Bradford Pennsylvania is situated in the heart of the oil field where the United State's first energy boom occurred; and where the modern commercial oil and gas industry was born. Just ten years after the first successful well in 1871, the Bradford oil field was supplying 77% of the world's crude oil supply. Today it is still home to the longest continuously operated oil refinery in the United States and a vibrant community of independent oil and gas producers, many of which have operated for generations. The University of Pittsburgh Bradford campus itself exists primarily due to the efforts and contributions of individuals and corporations involved in the regional energy industry. In this way, the campus itself serves as a shining example of how an American Energy boom creates opportunities for education.

Taking advantage of Educational Opportunities:

The current American Energy boom is again being led by Oil and Gas production, this time resulting from technological advances in drilling and completions. The single factor responsible for enabling the current energy boom is: *Education*. This is the same factor that will determine whether the United States becomes a global leader in alternative energy and energy efficiency technologies. What's more, this single factor – *Education* - will ultimately determine the impact of our energy policy on the planet for generations to come.

As this committee is already aware, there is a significant need for skilled oil and gas workers to replace an aging workforce. In response, the University of Pittsburgh at Bradford reinstated and updated our petroleum technology associates' degree program. We have updated the curriculum to include courses pertinent to today's energy field, namely advanced drilling and completions technologies and geology of sedimentary shale basins. As a result, our program has grown and our graduates are taking key positions in the oil and gas industry. (In fact, many of our top students will accept offers with salaries commensurate with or exceeding that of a college professor).

As director of the energy institute, I was also responsible for developing a new curriculum for a four year energy degree program that petroleum technology majors could continue in, but that could also accommodate careers in the fields of alternative energy and energy efficiency. It was in the process of developing this broad, multi-disciplinary curriculum that I recognized two critical educational opportunities.

The first critical educational opportunity is: basic energy competency at the college level (not just for those entering the energy field). There is an inherent need to teach about the complex interplay between energy resources, economics, and environmental outcomes in order to create a rational and informed public capable of understanding energy policy. To take advantage of this opportunity, I created a general education elective course entitled "Intro to Energy Science and Technology". In addition to this course, the new major's core curriculum also requires coursework in economics, political science, and environmental studies.

The second critical education opportunity aligns with a well-known deficiency in our country's educational system; namely the teaching of Science, Technology, Engineering, and Mathematics (or STEM). Energy production (whether drilling gas wells or installing solar panels) is a multi-disciplinary endeavor. It is STEM skills that drive innovations in energy production and efficiency; and it is STEM education that will be the only means of achieving and maintaining energy independence for future generations. The common thread I found spanning the breadth of energy fields today is the integration of sensors and computers for automated monitoring and processing. Accordingly, I have developed multi-disciplinary curriculum emphasize the use of sensors and automation for energy applications.

Conclusion:

In conclusion, the current US energy boom has created significant educational opportunities in both the short and long term. In the short term, we can help replace an aging workforce with workers proficient in the application modern technologies. In the long term, we can create a STEM educated workforce capable of wielding advanced technologies to create the innovations necessary to arrive at energy security.