OPENING STATEMENT

Ranking Member Eddie Bernice Johnson (D-TX)

House Committee on Science, Space, and Technology
Subcommittee on Energy
Subcommittee on Research and Technology
"Big Data Challenges and Advanced Computing Solutions"
July 12, 2018

I'd like to thank Chairman Weber, Ranking Member Veasey, Chairwoman Comstock, and Ranking Member Lipinski for holding this hearing, and thank you to our witnesses for being here this morning.

As highlighted in our previous Committee hearing on this topic last month, artificial intelligence has potentially powerful applications for a wide range of industries. In the energy sector, these technologies are currently gaining traction by providing efficient and innovative ways to optimize the use, production, and distribution of energy resources.

When many people think of artificial intelligence, they think of science fiction movies and technologies that are far in the future, but in truth, they are already playing a significant role in our lives today. With the rise of what is being called big data, artificial intelligence is playing an even more important role. The amount of data available is quickly becoming far too large to be handled by human workforces in a timely fashion, creating the need for machine driven solutions.

One of the topics we are discussing today is called Machine Learning. Machines are being trained to be able to "learn" from data, and then automatically perform meaningful tasks based on that analysis. There are many potential benefits to machine learning. It will simplify and expedite many processes as well as improve safety across various sectors. And it will allow our workforce to focus on more critical thought-based problems that a computer simply can't do. While STEM education is not a focus of this hearing, the hearing topic does remind us of the critical importance of improving STEM learning and access to quality STEM education at all levels. The kinds of good-paying jobs that were once a ticket into the middle class with just a high school diploma are going away, and artificial intelligence is one factor in this changing economy.

Attention to the benefits and risks of artificial intelligence can be seen across private industry, government agencies, and in academic research. With the ability to enhance and streamline energy production, utility companies look to these technologies as a way to increase efficiency as well as safety throughout their operations. As we'll hear more about in the testimony we receive this morning, agencies such as the Department of Energy are incorporating machine learning into materials and biomedical research through our universities and national laboratories. Its use offers the promise that it can lead to previously unattainable innovations that will save us time, money, and even lives in the not-too-distant future.

However, as more data comes in, we must also ask where this data is coming from and what the risks may be as we increasingly rely on machine learning. For example, we must consider how the data is distributed, processed, analyzed. And – when the data includes sensitive information relevant to our security or the privacy of our citizens – how it is being protected. Other questions policy makers must ask are who is benefitting from this data, and what concerns should we have about the amount and quality of data being produced. Finally, as I mentioned previously, we must consider the workforce that will be necessary to take advantage of, as well as mitigate the risk of all aspects of big data. These are questions that I'm sure our witnesses today can provide some further insight into. It is our duty within this Committee to not only examine how these technologies will benefit us, but to also contemplate what new challenges will emerge as well.

I look forward to learning more about what we in Congress can do to responsibly support the development and use of these breakthrough technologies. Lastly, before I close, I would like to welcome the visiting interns from the American Institute of Physics who are here with us this morning. I hope you all enjoy this experience, and it inspires you to stay engaged throughout your careers on the many important science policy issues that we'll all need your help in addressing. And with that I yield back.