

Committee on Science, Space, and Technology
Subcommittee on Research and Technology

Opening Statement

Chairwoman Haley M. Stevens

Engineering Our Way to a Sustainable Bioeconomy

March 12, 2019

Good morning and welcome to the Research and Technology Subcommittee's first hearing of the 116th Congress. A warm welcome as well to our distinguished group of witnesses. We have a great panel this morning and I am looking forward to hearing your testimony. As a Michigan native, it is a great pleasure to welcome Dr. Eric Hegg, who joins us today from Michigan State University.

As Members of this Committee, we have the opportunity to learn about critical new and emerging technologies with the capacity to benefit society in a number of ways, and to consider how the Federal government can best support the responsible development of these technologies. This morning, the Committee will discuss new and developing biotechnologies enabled by engineering biology research, and their potential applications in sustainable agriculture, advanced manufacturing, and bioenergy.

Engineering biology, a term which is used interchangeably with synthetic biology, is a multidisciplinary field at the intersection of biological, physical, chemical, and information sciences and engineering that allows researchers to re-engineer and develop new biological systems. While human gene editing is a hot topic of discussion in the public sphere, most of the engineering biology research being done today— even the human health research - is on microorganisms and plants. Engineering biology, in addition to enabling whole new industries, may yield significant environmental and health benefits because of its potential to reduce our dependence on fossil fuels, improve food security and agricultural land use, make manufacturing processes much cleaner, combat antibiotic resistance, and even clean up legacy toxic waste sites.

Today we will hear from the experts in academia and industry about the nature of engineering biology research, the current size of the commercial market and the potential for growth, how the U.S. stacks up against our foreign competitors, and the state of the U.S. biotechnology workforce. We will also hear from scholars on the ethical and security implications of engineering biology. It is essential that as we look to grow the U.S. investment in engineering biology R&D, we integrate the oversight framework necessary to protect the public and the environment, and to guard against national security risks. In this Committee, it is easy to get excited about the potential for new technologies. But we need only to look at the unintended consequences of past technologies to understand that we must also take a serious look at the risks.

Given both the tremendous economic potential and the potential risks of engineering biology R&D, it is essential that the U.S. maintain leadership in this area of research and technological development. I am concerned that we do not currently have any kind of national strategy. In the meantime, other countries, including China, are well ahead of us in establishing engineering biology as a national priority and providing the necessary funding to realize their goals.

In this hearing, we will specifically consider the merits of the *Engineering Biology Research and Development Act*, introduced last Congress by the Chairwoman of the Full Committee, Ms. Johnson. The bill would provide a framework for a strategic and coordinated Federal program in engineering biology R&D. It's long overdue that we take this legislation up in Committee. I'm sure today's hearing will give us some good feedback on how to improve the legislation so it helps ensure U.S. leadership in engineering biology R&D. I look forward to the expert testimony and to the discussion.

And with that, I yield back.