

COLUMBIA UNIVERSITY  
IN THE CITY OF NEW YORK

DEPARTMENT OF APPLIED PHYSICS AND APPLIED MATHEMATICS

October 8, 2014

Mr. Maksim Grinchenko, Chair  
“Green” Panel – Science for Policy Seminar  
Department of Applied Physics and Applied Mathematics  
Columbia University

Dear Mr. Grinchenko:

First, let me thank you for accepting the task of chairing the “Green” Panel during our Science for Policy Seminar. This is an important time for our nation, and major policy decisions require thoughtful, informed advice regarding the science and technology regarding the future.

On June 2, 2014, the U.S. Environmental Protection Agency (EPA), under President Obama’s Climate Action Plan, proposed a plan to cut carbon pollution from power plants. Climate scientists show that climate change is already posing risks to our health and our economy. The Clean Power Plan seeks an affordable, reliable energy system, while cutting carbon dioxide pollution and reducing climate change for future generations.

The proposed EPA rules will impact the use of coal to generate electricity and this may impact the U.S. economy. The U.S. Energy Information Agency (EIA) reports that nearly all of the coal consumed in the U.S. is used to generate electricity and electricity from coal is less expensive than electricity generated from natural gas, oil, or nuclear sources. While coal provides about 40% of the energy required for electricity in the U.S., coal also produces 77% of the carbon dioxide emissions. Because the U.S. has sufficient coal resources for more than 250 years of production, the U.S. would benefit from policies that promote technologies that reduce or eliminate carbon dioxide emissions while maintaining efficient and cost-effective use of coal for electricity.

Considering the importance of coal use for U.S. electricity production, I ask your panel to assess the priorities among the potential new technologies that reduce carbon dioxide emissions from coal-fired power plants and to meet the new EPA targets while continuing to benefit from our nation’s large coal resources.

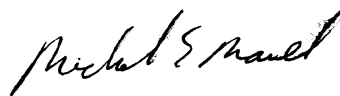
You are to assess research already underway to address emissions of carbon dioxide from coal combustion and also consider potential new research programs. Carbon capture separates CO<sub>2</sub> from emissions sources and recovers it in a concentrated stream. The CO<sub>2</sub> can then be

sequestered, which puts CO<sub>2</sub> into storage, possibly underground, in such a way that it will remain there permanently.

Your panel should make use of prior studies and ongoing programs. In particular, the U.S. Department of Energy conducts clean coal research aimed to improve efficiency, capture and store carbon dioxide, and develop new coal-based power systems such as coal gasification, pre-combustion, and high-temperature materials. In 2011, the DOE National Energy Technology Laboratory prepared a roadmap, *Carbon Sequestration Program: Technology Program Plan* (DOE/NETL-2011/1464), and, in 2013, the U.S. DOE released its assessment of the Clean Coal Technology Program, *Major Demonstration Programs: Program Update 2013* (DOE/FE-0565). Your panel should comment on these reports and also on the potential for a positive impact on the national economy, environment, and health.

Your report and policy recommendation will be immediately useful and required for decisions before the January 2015 deadline. I therefore request that you submit your Panel's report to me by December 1, 2014.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael E. Mauel". The signature is fluid and cursive, with the first name "Michael" and last name "Mauel" clearly distinguishable.

Michael E. Mauel  
Professor of Applied Physics

cc: "Green" Panel Members:  
Sergio Becerra  
Anton Baleato Lizancos  
Jonathan Fletcher  
Lucas Zeppetello