

What now for science?

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Faced with the uncertainty of what the 2016 U.S. presidential election means for science, we may find some reassurance in understanding that the health of the nation’s scientific enterprise depends on much more than the attitudes of the particular person who is president. We must not forget that members of Congress and other national, state, local, and international officials also make policy and collectively constitute a considerable force that is in many ways more influential than the president alone. There is now important work to do ensuring that all citizenry, including the president, understand the powerful benefits of science and that decisions made with scientific input are more likely to succeed.

As the nation readies for a transition in leadership, an immediate question for most scientists is federal funding for government science agencies in the coming years. Here, there is actually less uncertainty. Congress, for several years, has been on a “sequestration” path that, without

a substantial turnover in Congress's majorities (as there was not), will reduce the fraction of the budget for discretionary funding, which includes science funding. The election thus preserves a trend whose reversal might have been hoped for, but was always unlikely.

A truer uncertainty is the role of science advice in the new administration. President-elect Trump's wish to drive economic progress and thereby improve people's lives cannot come about without advancing science, technology, innovation, and an education system that prepares a capable workforce. He would be wise to appoint a science adviser who is a respected scientist or engineer. The adviser should be fully integrated into the most senior decision-making processes not just on topics with an obvious science connection such as infectious-disease response, but on many matters with science and technology embedded, including diplomacy, cybersecurity, agriculture, advanced manufacturing, and resilient infrastructure.








Beyond research funding and science advice, there is much more that determines the health of the scientific enterprise. Will the U.S. join other nations in collaborative research in which there is full access to data and free exchange of researchers? Will scientists be appointed throughout the agencies? Will government scientists be able to speak freely about their research? In regulatory agencies, will accepted scientific findings be given precedence over political influence? Will financial and tax policies reward science-based activities in the private and public sectors?

Most important, will the next administration be evidence-based? Over recent decades, a disturbing trend in the U.S. government has been for ideological assertions to crowd out evidence. This trend accelerated with this year's campaign in which candidate Trump made statements that were unsubstantiated or contradicted by accepted scientific facts. Will there be members in the new administration who are familiar with the practices and findings of scientific investigation?

What are scientists to do? Certainly at the American Association for the Advancement of Science (AAAS), following a tradition nearly 170 years old, we will advocate forcefully that science be fully and positively integrated into public policy making. Science need not be politically partisan. Given that the economic and technological benefits of research are appealing to citizens across the political spectrum, science can bridge differences. The openness and directness of scientists' communication can be unwelcome to politicians, but the scientific community must present its best understanding of relevant evidence clearly, directly, and without condescension. We must make clear that an official cannot wish away what is known about climate change, gun violence, opioid addiction, fisheries depletion, or any other public issue illuminated by research.

This election is said to have been about rejecting the political establishment. We cannot let that mean rejecting established facts. We hope that President Trump will be more grounded in specific facts than was candidate Trump and pay more attention to the process of careful, open vetting of hypotheses and claims.

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