PERSPECTIVES

SCIENCE AND REGULATION

Congress's attacks on science-based rules

Proposed laws based on false premises could undermine science for the public interest

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There is a growing and troubling assault on using credible scientific knowledge in U.S. government regulation that will put science and democracy at risk if unchecked. We present five examples, and the false premises on which they are based, of current attempts in the U.S. Congress in the supposed pursuit of transparency and accountability but at the expense of the role of science in policy-making.

Over the past century, the federal government has striven to protect public health, safety, and the environment. Many statutory mandates require administrative agencies to craft regulations informed by credible, legitimate, and salient scientific assessments (*1*, *2*) that prescribe actions and obligations of government entities, private sector enterprises, and individuals to protect the public interest. The federal laws that create these science-based mandates—such as the Clean Air Act, the Occupational Safety and Health Act, and the Consumer Product Safety Act—are perceived as inconvenient and expensive by some corporate actors. Consequently, congressional leaders are pressured to render these long-standing and well-regarded laws ineffective by undermining their scientific foundations (*3*).

POLICY

This should raise alarm among all scientists. Each year, thousands of experts from academia, industry, and government serve on agency advisory panels and boards, peer-review panels, and National Academies' study committees. Many more conduct research relevant to important public policy decisions. The regulations that result from these scientific inputs have led to profound improvements in air and water quality, protections for workers and the public, and environmental safeguards (*3*).

Regrettably, five major bills have recently advanced in the U.S. Congress that would transform the scientific advisory process. Four passed the House of Representatives

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Five major bills have recently advanced in the U.S. Congress that would severely limit the scientific advisory process.

last year but failed to advance in the Senate. Four of the five bills were reintroduced and three passed the House this year; with the fourth likely to pass soon. All have Senate sponsors. Although effective advocacy by scientists has helped stymie their progress thus far, any of these bills could be attached to must-pass legislation, and some presidential candidates are already embracing them as necessary reforms.

The bills employ insidious, albeit creative, approaches to weaken the ability of science to inform federal rule-making. One approach is to shift regulatory decisions from career employees in federal agencies working with experts to politicians in Congress vulnerable to special-interest influence. The Regulations from the Executive in Need of Scrutiny (REINS) Act, which backers say will make regulatory agencies more accountable and reduce undue burdens on businesses, requires joint congressional approval within 70 legislative days for any new or updated major rule with an annual economic impact of $100 million or more. If either chamber fails to act, the agency cannot move forward with the rule until the next Congress convenes and jointly approves the rule. The act suggests no criteria for Congress in evaluating a rule. Agencies, on the other hand, must adhere to specific statutory requirements—including basing decisions on science in many cases—and must defend their decisions in court. Given the current gridlock on Capitol Hill, few regulatory protections would survive both houses of Congress. Rather than increasing accountability—which of course is a worthwhile goal—the proposed mechanism for approval would, in effect, prevent science-based rules from ever being implemented.

A second approach is to tie up federal agencies in additional and redundant bureaucracy, even as their budgets decrease. This will make efficient rule-making even more difficult if not impossible. The Regulatory Accountability Act, with a stated goal of reducing costs to business, passed the House in February, and imposes more than 70 new requirements on development, analysis, and public engagement processes that agencies must follow in updating or creating new rules (*4*). This includes additional formal administrative hearings that would give regulated industry and others the opportunity to directly challenge and cross-examine the agency on the science underlying its cost-benefit analysis. The act makes the least costly approach the default option for new public health and safety regulations even if it is less protective, a change from current laws which typically prioritize public health protection over cost. The act also gives the White House Office of Management and Budget the power to override independent scientific advice on the costs, benefits, and risks of proposed regulations, enabling implementation of regulations that might not reflect the best available science as required by statute.

Or take the Sound Science Act. Introduced in the House last year and likely to resurface in the current Congress, the legislation is ostensibly designed to improve the scientific basis for regulations. The bill requires agencies to hold additional public comment periods specifically on all scientific findings throughout the process and each time a new finding is considered. Furthermore, agencies must give "greatest weight to information that is based on experimental, empirical, quantifiable, and reproducible data." But, as scientists know well, and as AAAS (American Association for the Advancement of Science, which publishes *Science*) has noted (*5*), some good science cannot be easily subjected to reproducible experiments. Should modeling studies be excluded? Is qualitative information not to be considered? The decision about how to weigh different types of information should be a scientific decision, not a political mandate. Although, in many cases, such weighting may be appropriate, this decision should be left to technical experts who understand how to interpret the data. Otherwise, decisions might not be based on the best understanding of the scientific evidence.

A third approach is to limit the information that regulators can use. The Secret Science Reform Act, passed by the House in February 2015, mandates that the Environmental Protection Agency (EPA) may only put forward a regulation if all of the data, models, methods, and other information in the science studies used in its development are publicly available, accessible, and reproducible. Supposedly, the data are required so that the "public" can analyze the data for themselves, although, in practice, it is likely that special interest groups will hire scientists to reanalyze the data to cast doubt on results that are not to their liking in order to delay the regulatory process. Although

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scrutiny of the science used in rule-making is important, this act would drain time and resources from rule-making processes that already include expert peer review, the release of summarized data, and ample opportunities for public and stakeholder input.

Although greater access to data can be a laudable goal, confidential health records, confidential business information, or protected intellectual property should not be disclosed. And although the bill carefully states that it does not require the release of confidential information, the EPA is prohibited from moving forward with a regulation unless all data are public. So although EPA is charged with protecting public health, say with regard to ozone or mercury emissions from power plants, it may not utilize any studies that analyze confidential public health data as a basis for action. This restriction applies to any actions the agency might take from rule-making to guidance, standard-setting, or scientific assessment of toxic substances. In other words, the EPA may not act on the basis of data it is legally restricted from releasing; therefore, it may not act.

A fourth approach is to change the composition and operation of the science advisory process itself. The EPA Science Advisory Board Reform Act, passed by the House this year, would set a quota for state, local, and tribal government officials and clarify that industry experts with ties to a regulated industry are not barred from advisory board membership, while barring independent scientists from serving if they have received an EPA grant within the last 3 years (and preventing their acceptance of an EPA grant for 3 years after they serve). Concurrently, the legislation makes it difficult for board members to discuss their scientific views that are not already published. Procedurally, the board is required to solicit and respond in writing to public comments on the state of the science and may not place time limits on that process. In reporting back to the EPA, the board must ensure that the views of the public are reflected and encourage dissenting members to report their views. Taken together, these changes give political and legal operatives greater influence over the advisory board while marginalizing independent scientists, as well as greater opportunity for frivolous and resource-consuming challenges to the board's findings.

Procedurally and monetarily, any of these proposals, if enacted, will delay and complicate an already complex regulatory process. The Congressional Budget Office estimated that the Secret Science Reform Act alone could cost EPA $250 million annually at a time when its mandate has increased and its budget has been cut (*6*).

The bills described above are based on three false premises. The first premise is that regulations put forward by federal agencies reflect agency and executive branch "overreach." In reality, the rule-making process provides many opportunities to check such overreach, including by the judiciary.

The second premise is that corporations need more opportunity to influence the scientific information used in rule-making. But many industries already support technically proficient scientists and skilled advocates in every step of the process to argue their perspectives (*7*). By comparison, community groups and many civil society organizations can never match corporate resources for influencing government.

The third premise is that regulations only impose costs on industry, and public benefits are negligible. Yet just 10 rules proposed in the last 5 years are estimated to result in saving more than 10,000 lives and preventing 300,000 cases of disease, illness, or injury annually (*8*). Nine of the 10 rules—including actions on protecting workers from silica exposure, controlling mercury pollution, and preventing salmonella contamination in eggs—are estimated to have monetized social benefits that substantially exceeded monetized compliance costs even though many benefits cannot be monetized (*9*). Further, it is important to recognize that risk-mitigation costs not borne by industry will not evaporate but will become a public burden.

"The bills use insidious... approaches to weaken the ability of science to inform federal rule-making."

Attacks on the science advisory process as the foundation of regulatory action have a profound, chilling effect on the willingness of scientists to contribute to the process of advancing critical health, safety, and environmental protections. Restrictions on expert participation, requirements for multiple rounds of public comments, and procedural hurdles will subject the advisory process to greater industry and political influence and discourage independent scientists from participating in advisory activities. Many scientists are honored to serve the public as independent experts to inform the policy process, and most do so without compensation. As barriers for participation rise, their willingness to engage will plummet. The end result may be that mostly experts paid by special interests will serve.

The scientific community needs to push back. Elected officials respond to constituents, and there are scientists in every congressional district. With leadership from professional societies and scientific organizations, scientists across the country should tell their members of Congress how much they value the opportunity to engage in informing policy and how important it is that these attacks on the process are defeated.

The present system is far from perfect, but there are better solutions to ensure that science advice remains reflective of the evidence and resistant to special interest manipulation. To that end, with leadership from professional societies, science-based organizations, and academic institutions, better pathways must be created for independent scientists to share their expertise. This includes providing greater training for early career scientists on the advisory process and creating career-based incentives and time for them to participate. It also includes institutionalizing professional recognition for work and activity that informs policy-making. Public service should be a central component of what it means to be a scientist.

Further, public trust in science increases when we all have access to the same base of evidence. To that end, we must improve and fully implement conflict of interest and disclosure standards and strengthen peer review while increasing the public accessibility of scientific information. The stakes are high, as our collective well-being and the strength of our democracy depend on our success. ■

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