Bipartisan Policy Center

Strengthening Transparency and Accountability at EPA

—

OPTIONS FOR ENHANCING THE ENVIRONMENTAL PROTECTION AGENCY'S CULTURE FOR SCIENCE, EVIDENCE, AND DATA

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Executive Summary

As the Environmental Protection Agency (EPA) prepares to celebrate its 50th anniversary, public health and environmental conditions in the United States are vastly improved because of the agency's efforts. Preparing for the next 50 years will require renewed innovation, application of program evaluation, and attention to efficiencies that collectively maximize accountability and transparency for the agency's activities.

In November 2019, the Bipartisan Policy Center published the report *Meaningful Transparency at EPA*, which provides an overview of the suite of policies that relate to transparency, open science, and data use at EPA. The report presented a conceptual framework to consider how EPA might advance evidence-based policymaking in the future. It included descriptions of how EPA can apply scientifically- and socially-relevant transparency through information sharing and use over the next 50 years.

This report presents options that represent a range of ideas to strengthen the agency's learning culture and increase public trust in EPA information, among other topics. This is largely accomplished with options for making EPA data accessible and useful to the American public, while also ensuring the best available science is accessible and used for decision-making. The options are organized into four groups:

- **Strengthen EPA's Learning Culture** options embody a continuous improvement ethos throughout the agency.

- **Improve EPA's Data Governance and Management** options ensure EPA-collected information is used to benefit agency decisions.

- **Enhance EPA's Policy Analysis and Evaluation Functions** options provide strategies for rigorously studying policy implementation and making reasonable prospective assumptions for future actions.

- **Bolster Public Trust and Enrich EPA Communication** options promote credibility with the American public that the best available science is considered and used by the agency.

The options in this report are intentionally not presented as recommendations; this is not designed as a consensus report from experts. Instead the options are intended to initiate a dialogue about how EPA may further improve successful implementation of critical environmental laws by creating additional opportunities for accountability and transparency. EPA officials, Congress, and the American public must all identify and support a meaningful strategy

that promotes the best available science to be accessible and used in decision-making processes. This report offers an initial framing for those discussions and considerations.

EPA has a long history of promoting scientific discovery and applying cutting-edge insights to decision-making. However, EPA must continue to implement innovations to ensure the best available science is meaningfully applied to fulfill the agency's mission. These endeavors should be paired with continued efforts to improve transparency and accountability for the American public.

Introduction

The creation of the Environmental Protection Agency in 1970 ushered in tremendous reforms for environmental and public health protections in the United States. The world was a different place when EPA was established. Environmental harms were rampant and directly observable, air quality was poor, water quality was hazardous, and the magnitude of the ecological risks facing the country was largely unknown.

While there is still vast room for improvement, as EPA enters its 50th year, environmental quality in the United States is substantially improved. Much of the change to the country's environment and public health is a testament to the bipartisan dedication from political leaders through the years. These leaders recognized where the country was ill- or under-equipped to address environmental and health harms, then provided the needed authority and resources. These problems were then researched and addressed through the expertise of the civil servants, scientists, and stakeholders, who advised EPA's regulatory efforts over the past half century. Countless successes led to cleaner air and water, fewer hazardous waste spills, and safer emissions from modern industrial facilities.

However, the world in 1970 was unaware of the technological and scientific capabilities that would exist in 2020. Indeed, the internet, smart phones, or even GPS did not exist 50 years ago. Data science, the Python programming language, and widely available free statistical coding software were decades from their inception. The computational toxicology systems used for screening potential endocrine disruptors could not have been fathomed. The requirements for public disclosure of information on emissions and potential harms involved limited open data, not the vast data now available at any time of day or night for the entire country.

While EPA adopted these innovations over the past five decades, has EPA fully applied modern capabilities to maximize transparency and accountability? Has EPA successfully applied innovative approaches, emerging disciplines, and new technologies to ensure the best available science and evidence is used for decision-making? Few government agencies fully capitalized on strategies for enhancing transparency and accountability in the 21st century, including how to seek input from stakeholders and experts relevant to government decisions amid an ever-growing body of evidence and evolving technologies.

As technology advances, transparency efforts in government must necessarily evolve in ways that meet the expectations of the American public and elected

leaders. The report *Meaningful Transparency at EPA* provides an overview of the suite of policies that relate to transparency, open science, and data use at EPA, including how EPA goes about making the information used in agency decision-making available to the American public today.[1] It includes a conceptual framework to consider how various EPA and government-wide policies align with the goals of evidence-based policymaking, specifically within the context of describing to what extent and for what purpose EPA makes information accessible and useful to the American public.

The *Meaningful Transparency at EPA* report offers several themes for EPA to consider in pursuing both scientifically- and socially-relevant transparency through information sharing and use over the next 50 years. The themes include focus on enabling public interpretation of complex information as well as maintaining public trust in EPA information. This report presents options where these themes tend to emerge as ideas that strengthen the agency's learning culture, as well as those that are explicitly focused on public trust and communication. Other themes focus on incentivizing unparalleled transparency and articulating science-policy considerations. The concepts are interwoven throughout the options that seek to make more information about the environment or public health accessible to benefit oversight and accountability.

Even with a conceptual model and themes for next steps, much more work is needed. This work is to adopt the model for modern technologies and contemporaneous expectations in society for using transparent information and processes to promote accountability in decision-making and operations, thereby fostering public trust in government. How should EPA go about making its data accessible and useful to the American public and ensuring that the best available science is accessible and used for decision-making? This report does not seek to directly answer the question as an absolute solution set or recommendations for action. Instead, this report offers discrete options to apply the conceptual model at EPA in 2020 and beyond, while being mindful that technology and science will continue to advance in coming years as the nature of the problems being addressed also evolves. The options are presented in four groups that are in no particular order: strengthening EPA's learning culture, improving data governance and management, enhancing policy analysis and evaluation, and bolstering public trust and communication.

Importantly, the options presented may not be unanimously agreed to by all stakeholders, as they will be affected by political viability, resource constraints, sequential ordering, and even other alternatives not reflected in this report. These options are intended to initiate further dialogue among Congress, EPA, and stakeholders about how the agency can most effectively fulfill its mission in the 21st century.

Finally, the options are intended to amplify existing authorities, including those provided by the Foundations for Evidence-Based Policymaking Act of 2018 (P.L. 115-435) and the Federal Data Strategy for 2019-2029.[2] For these activities, the options present more specific suggestions that apply directly to EPA from government-wide initiatives, including by identifying opportunities to leverage the initiatives for reasonable progress at EPA. Because the options focus on areas for improvement, this report should not be interpreted as suggesting there are not areas where EPA performs well. Indeed, there are many. However, the options highlight unique, timely opportunities for improvement.

Options to Strengthen EPA's Learning Culture

Agency culture is derived from the individuals employed by and collaborating with an organization. While no single option could dictate a culture that focuses on learning and improvement, certain policies and practices can encourage culture change over time to focus on these traits.

With EPA's existing legalistic and regulatory ethos, the concepts of learning and continuous improvement could be perceived to create inadvertent regulatory uncertainty or risks of undermining the analytical basis for an action introducing potential legal responses. The culture today is far from the origins of the agency, which was often tasked with writing complex regulations with tight timelines and incomplete scientific evidence. Some federal laws even encourage and embody continuous improvement in implementation, such as clean air standards designed to force technological advancement and encourage innovation with how standards are achieved and satisfied over time.

As EPA continues to adapt into the 21st century, a changing culture with a new generation of staff focused less on initial regulatory actions, under the suite of federal environmental laws, and more on sustained improvement will likely require targeted enhancements. Nevertheless, a focus on learning may be worth the costs, particularly as a broad strategy for promoting the agency's long-standing position of expertise in the global scientific community and continuing to exercise leadership in this regard.

#1: DEVELOP AND IMPLEMENT A PARTICIPATORY ENTERPRISE LEARNING AGENDA

EPA's existing processes are adept at planning for major policy actions as a procedural matter, including announcing major regulatory revisions in the semi-annual regulatory agenda. EPA has historically focused less on ex ante declarations of knowledge that may affect potential policy actions or programs as a means for spurring new knowledge generation.

EPA does conduct some activities that establish general direction for producing insights relative to future policy actions. The quadrennial strategic plan, for example, sets the expectations for overarching policy priorities and

performance activities. Similarly, the Office of Research and Development's (ORD) Strategic Framework outlines goals and metrics for agency research activities including consideration across the themes of EPA's mission and offices. However, neither necessarily establishes expectations about areas where other federal agencies, state and local governments, academia, nonprofits, or industry could support research and evidence generation to advance future policy decisions. Planning for major environmental policy decisions could be improved by identifying questions relevant to EPA's mission, available data and evidence, and gaps that can be addressed in the future with intentional evidence-building activities.

Option Description

EPA could choose to develop a comprehensive, enterprise-wide learning agenda constructed with strong participatory processes. In 2017, the U.S. Commission on Evidence-Based Policymaking unanimously recommended agencies, including EPA, produce learning agendas.[3] The requirement is also embodied in the Foundations for Evidence-Based Policymaking Act of 2018 as a strategy for encouraging better policy planning and efficiency in data collection and filling informational needs.[4]

As required by the Evidence Act, EPA could take steps to rapidly develop a research and evaluation roadmap, or "learning agenda," that prioritizes sharing public information about the knowledge gaps that exist for implementing and improving EPA policies. Such a document, constructed with staff input and external stakeholder perspectives, can be a valuable resource in prioritizing intramural and extramural resources for improving agency programs, as demonstrated by the Small Business Administration and the Department of Labor, which adopted the approach prior to the statutory requirement.[5] A successful learning agenda could also help EPA staff more efficiently allocate limited resources for evidence building.

Implementation Considerations

As an agency newly developing a learning agenda, EPA is in a prime position to generate a useful, long-term planning document for agency leadership and stakeholders. In addition to providing insights about the requisite policy-relevant questions, data needs, and existing barriers to producing needed evidence, the learning agenda can also directly articulate the areas that EPA needs assistance from partners, external researchers, or other federal agencies.

EPA must guard against inadvertently communicating uncertainty about known environmental or health risks that may affect otherwise clear scientific communication, though the agency should also be forthright about uncertainty when risks are less clear. Implementing the learning agenda, EPA could consider stratifying content and priorities to support public understanding of data gaps, relationships to existing or expected policy issues, relative risks, and strategies the agency intends to employ to develop further evidence.

EPA development of a learning agenda must necessarily assume a participatory process to incorporate multiple interests and needs for the plan. One option would be for individual offices in EPA to produce their own initial plans, compiled with appropriate stakeholder feedback (e.g., consultation with appropriate committees and advisory boards), followed by an agency-wide consolidation of materials for notice and public comment. To do so, EPA will need to also clearly define and be transparent about what "stakeholder" feedback is relevant and useful.

EPA must guard against establishing a compliance-based activity for producing a useful learning agenda, particularly since the Evidence Act requires the learning agenda to be produced as part of traditional strategic planning. Given this requirement, EPA may choose to assign the responsibility to the Office of the Chief Financial Officer for implementation, though such an assignment would likely underrepresent the interests of the agency by coordinating with available agency resources rather than broad opportunities and potential, failing to fulfill the ultimate goal of the document.[6] An alternative might be to assign responsibilities to the evaluation officer (see Option #14) envisioned by the Evidence Commission, who directly reports to the Deputy Administrator, the agency's chief operating officer.

Given EPA's historic tension with program evaluation and need for routine stakeholder engagement in a largely regulatory environment, EPA is well-suited for emerging simulation-based approaches for developing a learning agenda.[7] These techniques result in learning agenda formulation conducted through a workshop with agency leadership and stakeholders, incorporating perspectives in real-time to rapidly identify questions, available data, and resources for learning and improvement on critical agency policy questions.

#2: ESTABLISH AN ENVIRONMENTAL INNOVATION LAB WITH DEMONSTRATION AUTHORITY

EPA promotes the concept of innovation in agency activities, though a careful read of the agency website might suggest more limited attention to the topic with existing agency resources in practice.[8] In contrast, across other federal agencies the intentional investment in innovation occurs through resources devoted to Federally Funded Research and Development Centers (FFRDCs), or government-sponsored innovation centers. For example, the defense and intelligence communities support the Defense Advanced Research Projects Agency (DARPA) and the Intelligence Advanced Research Projects Agency (IARPA). The Department of Energy funds the Advanced Research Projects Agency-Energy (ARPA-E), created to encourage innovations for clean and reliable energy technologies. In part, these centers are charged with translating complex scientific knowledge from basic research into meaningful, applied

projects that benefit society. Many of the supported projects are advanced because economic incentives are lacking for the private sector to directly fund such activities.

Some state and local governments have also developed similar approaches for some policy domains. For example, The Lab @ DC and The Policy Lab at Brown University apply scientific methods for testing policies that may improve key community metrics, often with behavioral economics.

No comparable innovation center currently exists at the federal level for environmental and public health innovations, including to support implementation of existing technology-forcing regulatory standards. While EPA previously operated a small National Center for Environmental Innovation within its Office of Policy, the office no longer exists and, even when it did, provided less than one million dollars in grants for innovations each year.

Within EPA, technological and scientific innovation can be slow to reach adoption in applied programmatic areas. For example, years after the development of computational toxicology approaches, EPA relied on slow and incomplete assay validation through a traditional process that delayed the agency's regulatory capabilities to determine which chemicals in the economy should be designated as endocrine disruptors. Without any change in statutory authorities, the Endocrine Disruptor Screening Program was able to incorporate CompTox into the agency's operations to rapidly accelerate actions in the program. Adopting innovative approaches across the suite of agency activities should be encouraged when appropriate, including when valid, reliable, and ethical.

Option Description

Building on existing collaborations with other federal agencies, EPA could establish a new center as the Environmental Innovation Lab or the Environmental Advanced Research Projects Agency to specifically promote emerging technologies relevant for EPA programs and policies, with appropriate demonstration authority. The organization could be an instigator for funding new innovative pilot projects and demonstration projects across the agency's regulatory authorities, including with the application of a behavioral science to environmental regulation and policy. In coming years, the growth of artificial intelligence applications, advanced data analytics, and machine learning could be spearheaded for environmental policy by such an organization. The center could also work to identify rapid adoption and scaling opportunities for applying citizen science in policy actions, particularly with modeling that takes into account citizen-collected information.

Such an innovation organization would likely need to be paired with demonstration authority for EPA programs and policies, across the array of federal environmental statutes. Agencies like the Social Security Administration

and the Department of Health and Human Services have relevant demonstration and pilot authorities that could serve as models for EPA.

Implementation Issues

Innovation centers have long been viewed as discretionary operations that may face funding cuts if the innovations do not achieve rapid, short-term successes. For example, EPA eliminated the National Center for Environmental Innovation during a re-organization of the policy functions in the 2010s. Bolstering the ORD Center for Environmental Solutions and Emergency Response could be an alternative strategy, or otherwise expanding the role of ORD for achieving similar goals for this option, while mitigating risks to sustained funding and support.[9]

Demonstration project authorities can also be considered politically risky, though the innovations and insights generated can achieve substantial long-term benefits to society, as well as cost savings to government agencies. While several agencies retain indefinite demonstration authority, other agencies, like SSA, have time limitations on the authorization of demonstration projects. In practice, time restrictions can constrain the types of projects conducted, but also offer Congress and the American public opportunities for oversight of the authority.

#3: EXPLORE NEW MODELS FOR INCORPORATING EXPERT AND STAKEHOLDER FEEDBACK

EPA has relied heavily on traditional approaches for gathering feedback from experts and stakeholders about key program and regulatory operations. The *Federal Register* is a means for soliciting formal feedback for administrative actions. Periodic public meetings and forums provide opportunities, when convened, to solicit responses from the public.

Advisory committees, including those created by statute or administrative action, provide opportunities for expert-advisors to convene and discuss core issues facing the agency. The advisory committee model, first established in the 19th century, was institutionalized in the U.S. Government through the Federal Advisory Committee Act (FACA) of 1972.[10] FACA outlines consistent processes and expectations for how advisory committees operate as formal government bodies.

These traditional stakeholder engagement activities are relied upon by most federal agencies, in addition to, in the information age and with the growth of technological applications and forums, social media and digital communication. Supporting an adaptive culture of learning at the EPA requires the agency to remain at the forefront of approaches and techniques for gathering and understanding relevant perspectives and expertise.

Option Description

EPA could task one of its statutory FACA committees to explore models for improving stakeholder and expert feedback and engagement. EPA could also request a special committee consider the approaches on the agency's behalf from the Administrative Conference of the United States, the National Academy of Public Administration, or the National Academies of Sciences, Engineering, and Medicine. Such a committee could itself explore meaningful models and modes for communication and engagement about its research into new approaches.

There are recent precedents to exploring new models for stakeholder engagement. In 2016, the Commission on Evidence-Based Policymaking, for example, used a comprehensive approach to request feedback through public meetings, expert hearings, surveys, and public requests for written feedback. The entirety of the information collected, in addition to staff and appointee research, informed final actions from the commission.[11] In 2018 and 2019, the White House Office of Management and Budget (OMB) engaged stakeholders and experts through public forums (internal to government and public) to gather feedback about the development of a plan, all in addition to submitted written feedback provided through the *Federal Register*, direct email, or GitHub.[12]

Implementation Issues

In a regulatory environment, EPA must be cautious about adherence to requirements of the Administrative Procedure Act, including consideration of formal comments received during regulatory decision-making. However, enabling meaningful transparency about actions and ensuring stakeholders have the opportunity to participate with relevant actions in regulation and other policy activities supports arguments for socially-relevant transparency at EPA. This may require EPA to differentiate between needs for policy consideration, regulatory development, compliance, citizen science, or some other activity.

Other agencies may also benefit from exploration of new approaches and means to gather input. One practical challenge in broadening the scope of strategies used for feedback and expertise will be analyzing the relevant information, a continued challenge as the availability of information and the volume of data increases. This, too, suggests an emergent and immediate need to improve such mechanisms to prepare the agency for future engagement and policy-development strategies. At the same time, the agency could explore techniques to better differentiate mass mail campaigns from substantive suggestions using artificial intelligence and machine learning.

#4: SUPPORT SCIENCE AND DATA LITERACY WITH TARGETED SKILLS TRAINING

As the type and amount of information available to the scientific community, in addition to the emergence of new methods and approaches, continue to increase in coming years, EPA staff capabilities to interpret, manage, and use this information must be continually updated and refined. Applications of artificial intelligence, sophisticated computational algorithms, and new statistical methods to derive analytics and concurrently protect data from re-identification present complex approaches that are essential skills for a 21st-century organization. EPA's role in using sensitive information collected from businesses or about individuals, households, and other subpopulations suggests a need for continuous training and education among the EPA workforce. The emergence of citizen science and consumer-collected data may further support this growing need.

Option Description

To promote the agency's capability to make decisions with advanced analytics and cutting edge science, EPA must support the application of scientific approaches and data literacy with training opportunities for all staff, particularly senior executives. Such a training could include strategies for appropriately recognizing and categorizing data based on the quality needed for regulatory, evaluation, or monitoring purposes.

Training provided by EPA, the U.S. Office of Personnel Management, or outside sources, could better inform EPA managers and decision-makers about their role in applying information meaningfully and appropriately for evidence-based policymaking, as well as in gauging the credibility, reliability, and validity of such information. Such training should be routine, recurring, and broadly applied across the EPA workforce.

EPA senior executives could be explicitly trained in data management and evaluation responsibilities, in addition to the agency's scientific integrity policy.

As the risks for re-identifying data rapidly evolve, EPA will face continued and new threats to maintaining confidential business information and protecting personally identifiable information. EPA staff must continue to receive formal and informal training to manage the risks associated with data re-identification. Moreover, as scientific methods and approaches evolve, EPA should encourage sustained educational opportunities for EPA staff managing contracts and conducting analyses to stay current on the best and most relevant scientific approaches and models.

Implementation Issues

All personnel training activities have resource implications, particularly if external training is pursued. However, the relatively low cost of such training for advancing the skills needed in the EPA workforce is well worth the investment.

#5: REMOVE LIMITS ON SHARING SCIENTIFIC AND PROFESSIONAL PERSPECTIVES

EPA's scientific integrity policy outlines expectations that employees accurately represent complex scientific information used in agency decision-making processes.[13] The policy itself, and widely accepted practice in the scientific community, encourages communication about dissent, disagreement, and other views on technical matters to promote intellectual curiosity and learning. Some have charged that EPA's current culture inhibits sharing of professional, scientific opinions about scientific or technical matters, including at professional conferences and in peer-reviewed literature.[14] Others have identified potential problematic instances at the agency for decades.[15]

Option Description

EPA could issue a statement from the Administrator eliminating practical or unintended limits on sharing of scientific or technical knowledge directly with the American public, when such sharing is consistent with professional ethics and expectations. Further, EPA could integrate such guidance into the EPA Scientific Integrity Policy, training for senior executives, and onboarding for new political appointees and policy officials. In parallel with such a policy, EPA could establish a whistleblower policy for the agency Inspector General or the U.S. Government Accountability Office to ensure individuals in scientific occupations at the agency are not inhibited in fulfilling the spirit of scientific integrity to advance science and discovery.

Implementation Issues

An ability to describe scientific and technical information publicly and more broadly for EPA staff would likely need to be paired with careful constraints on policy opinions, including those that may create confusion for the American public about the policies and practices of the agency. A careful distinction between science perspectives and policy perspectives in communication is imperative (see Option #23).

Appropriate administrative penalties could be devised for officials who are not authorized to publicly opine on deliberative policy matters that use science, including those that interpret technical information from multiple disciplines and sources while also weighing policy preferences for uncertainty, credibility, reliability, and validity.

#6: INCORPORATE EVIDENCE-BASED POLICYMAKING EXPECTATIONS IN PERFORMANCE REVIEWS

Institutionalizing the concepts of evidence-based policymaking in practice, as well as open science and open data expectations, requires more than statutory or regulatory direction. The U.S. Commission on Evidence-Based Policymaking recognized that leadership and individual expectations were relevant for sustained, long-term capacity to advance these types of initiatives.[16] Yet the Federal government and EPA today could improve systematic, comprehensive approaches to establish expectations for enabling transparency and accountability at the agency for senior political and career officials.

Option Description

EPA could incorporate expectations for learning and data use in annual performance reviews for senior employees, particularly members of the Senior Executive Service, including requirements for annual reporting on how such goals were successfully achieved. In addition, the Office of Personnel Management could further explore how to better incorporate these concepts into the Executive Core Qualifications used by agencies in preparing and selecting SES candidates for agency leadership roles.

Implementation Issues

This option would likely only be successful at supporting an evolution of agency culture for employees motivated by strong performance, perhaps including those eligible for compensation or promotion based on the reviews. Also, personnel reviews are not always taken seriously by managers or employees for a variety of reasons, which could limit the viability of the option in practice. However, with a new generation of employees entering the EPA acclimated to technological capabilities and approaches, such expectations may be more rapidly adopted.

Options to Improve EPA Data Governance and Management

With rapidly changing technology and requirements for data analytics, in the 21st century government agencies will need to modernize infrastructure to more strategically use data to enable transparency and accountability. Applying cutting-edge technologies requires that agencies govern and manage information, while also applying appropriate privacy and confidentiality protections.

Organizational capacity for strong data governance includes key attributes such as leadership, resources, coordination, and policies. At the same time, not all data are created equal and some information may need additional protections or to be available for free, public access. Determining the appropriate level of sensitivity to information and how transparent EPA can be in making that information available will be a core policy question for years to come.

Options in this group reflect ideas to enhance EPA's capability to use data as a strategic asset, beginning with organizational and procedural planning for data assets. The options enable EPA to be more transparent for both scientifically and socially-relevant purposes, enabling the American public and other federal agencies to use EPA data with more clarity and ease, while also likely having higher-quality information.

#7: ESTABLISH AND EMPOWER AN OFFICE OF THE CHIEF DATA OFFICER

Virtually every office of the EPA collects information relevant to decisions and operations. Managing and governing that trove of data is increasingly complex as the volume and complexity of information grows, as is ensuring that appropriate privacy protections are in place and that open data are encouraged when possible.

The U.S. Commission on Evidence-Based Policymaking recognized the emerging challenges and unanimously recommended a senior official be tapped to engage in data policy activities at agencies, including EPA. The Evidence Act similarly requires agencies to establish a chief data officer. The Evidence Act requires federal agencies to appoint a chief data officer as an individual charged with implementing responsibilities related to data governance, management, and use. The Evidence Act also directs that chief data officers should have qualifications that include familiarity with confidentiality and privacy protections. However,

simply naming an official and filling the role is unlikely to fulfill long-term coordination goals for the agency that will enable improved data quality, more comprehensive approaches for data access, and, ultimately, higher-quality information on which to base decisions.

Historically, EPA's chief information officer was housed within a unique Office of Environmental Information, which in 2019 was merged with other administrative functions to the Office of Mission Support. Until mid-2019, EPA had no established, dedicated leadership role for data governance. Today, while EPA has named a chief data officer in compliance with the new law, prioritizing implementation requires more attention from agency senior officials. Envisioned as a C-suite level position by the champions of the Evidence Act, new chief data officers have the difficult task of coordinating agency-wide data policies and practices, chairing a data governance board, and supporting open data initiatives.

Option Description

EPA could better prioritize implementation of the chief data officer role by providing necessary stature, resources, and staff to support effective implementation. Such prioritization should ideally be signaled by the Administrator through internal guidance and direction about the central role for data governance, open data, and open science expectations (in conjunction with the Data Governance Board in Option #8).

Taking steps to elevate the role to a sufficiently senior career position, such as ensuring the official is designated as a member of the SES and viewed as comparable to the chief information officer stature, signals the importance of the position to other agency leaders and enables balanced discussions and negotiations with senior leaders in the agency.[17] Such an elevation would put the position on par with other C-suite level positions in the agency.

In addition, EPA's prioritization could be clearly signaled by ensuring the chief data officer is recognized as its own unit and function in the agency, to specifically provide guidance and leadership on data quality and management issues that support mission delivery. Requesting targeted resources for this purpose from the Office of Management and Budget and congressional appropriators would demonstrate the priority to agency staff and stakeholders. In addition, the agency could reallocate some staffing from related roles and responsibilities to support initial development and growth of the chief data officer unit.

Implementation Issues

Establishing a new function in any agency is a complex endeavor and the chief data officer is no exception. While supported by legal requirements and expectations from the Federal Data Strategy to establish the chief data officer

role, the detailed parameters for how to most effectively accomplish this in each agency do not exist.[18] Initial efforts to establish a chief data officer, particularly with sparse resources, require entrepreneurial activities and reliance on shared knowledge across the agency and other federal agencies about how to most effectively institutionalize the role. In addition, the chief data officer is charged with modifying long-standing practices, including responsibilities historically assigned to the chief information officer for certain information-collection activities, which will create some operational tensions for well-funded and well-established units tasked with working as partners.

Within EPA's budgetary processes, consideration should be given to prioritizing a "program project" for the chief data officer in the agency budget request, explicitly denoting resource availability and staffing for the function. To date, little information exists to suggest how much agencies are allocating to support the role or, within EPA, how this funding is allocated across the agency.[19]

In addition, to support the EPA chief data officer, the agency's individual offices could explore establishing and recognizing chief data officers for each National Program Management area of the agency.

#8: ESTABLISH AND PRIORITIZE AN AGENCY-WIDE DATA GOVERNANCE BOARD

Because data collected by EPA systems cover a wide range of public health, economic, and scientific disciplines, as well as a variety of complex systems and technical requirements, ensuring that new data policies in the agency are applied as intended requires careful research and engagement with technical experts across the agency. The Evidence Act requires chief data officers to coordinate certain aspects of data governance (see Option #7) and the Federal Data Strategy requires agencies to establish a data governance body to ensure policies are appropriately coordinated. This data governance body is expected to both establish and enforce policies for data quality and access.

Option Description

EPA could establish an agency-wide Data Governance Board as a formally chartered and recognized organizational construct at EPA, led by the chief data officer and comprised of data experts from individual offices and units across EPA's offices and regions.

An EPA Data Governance Board should include relevant data leaders at EPA, including the chief data officer (see Option #7), the evaluation officer, and the statistical official established by the Evidence Act, as well as the senior

agency official for privacy, chief information officer, and chief information security officer.[20] EPA may also choose to include representatives from relevant stakeholder groups as special government employees, given the role state and local governments and regulated entities play for EPA data.

Implementation Issues

Much of the data EPA manages is collected by states with delegated authorities or submitted directly by regulated entities. In the future, this may also include information submitted by citizens and researchers to support scientific conclusions in peer-reviewed publications. These various stakeholders suggest the need for a Data Governance Board to establish participatory processes to include feedback from data owners and submitters, relevant for how EPA manages data.

Part of the Federal Data Strategy includes a playbook for establishing data governance, highlighting key activities such as identifying data assets, developing data management policies, assessing data quality and usefulness, and communicating about improving data governance over time. At the outset, EPA would likely need to prioritize data governance initiatives and any new procedures to align with core aspects of the agency strategic plan and learning agenda (see Option #1). Initial priorities could reasonably also include work to apply data standards consistently across the agency (see Option #10) and develop an agency-wide data inventory that is publicly accessible (see Option #11).

Prioritizing the work of the Data Governance Board would likely require support from senior career staff and political appointees alike, which would highlight the value of better managing information to support the agency's mission. If successful, the Data Governance Board offers a platform for meaningful dialogue about opportunities to improve data quality and access to information over time, while also prioritizing how assets are transformed into public, open data when possible.

#9: ESTABLISH AND SUFFICIENTLY RESOURCE A LEGALLY-RECOGNIZED STATISTICAL UNIT

Discussion in 2018 and 2019 about how EPA can responsibly manage confidential records and data with personally identifiable information was largely prompted by a proposed EPA regulatory action. In response to a notice of proposed rulemaking, EPA received thousands of comments and suggestions. The discourse highlighted that EPA currently lacks a comprehensive authority or practice for managing such information using the best practices applied in other federal agencies.

Option Description

EPA could establish a formal statistical unit recognized under the Confidential Information Protection and Statistical Efficiency Act of 2018 (CIPSEA) for additional legal protections and authorities for confidential data assets. Under the Evidence Act's Title 3, EPA is eligible to apply to the Office of Management and Budget (OMB) for a unit to be designated for the authorities in CIPSEA. In contrast to the historical discussions about creating a major federal environmental statistical agency, a designated unit for the CIPSEA authorities gains access to certain data capabilities for "statistical activities" in exchange for abiding by pledges of confidentiality, operating unique data systems that protect the most sensitive information, and enforcing the criminal and civil penalties associated with violations. If EPA had a CIPSEA unit, the agency could use confidential records to produce summary statistics for decision-making or publishing either public or restricted-use datasets that remove confidential business information or personally identifiable information.

The CIPSEA authorities are granted to the 13 major principal statistical agencies, but also to dozens of other units across government. EPA does not currently use this authority. In practice, this also means that EPA's ability to use data from the National Center for Health Statistics, Census Bureau, and other CIPSEA agencies is constrained. Under the Evidence Act and CIPSEA, agencies with this authority can also more readily share data, in a privacy-protective and transparent framework. This could yield substantial benefits for EPA and for researchers seeking to better understand how to improve agency regulations and policies.

EPA could request designation of CIPSEA authority from OMB and charge the designated "statistical official" under the Evidence Act with using the capabilities to vastly improve EPA data protections and enable stronger data insights for approved projects that engage in "statistical activities." Doing so is also consistent with the recommendations and vision of the U.S. Commission on Evidence-Based Policymaking.[21]

Implementation Issues

Creating a CIPSEA unit, even building on existing EPA capabilities, can be a costly and highly technical organizational endeavor. Because the unit must maintain IT systems that are firewalled from the rest of the agency, along with other legal requirements for protecting data collected under a pledge of confidentiality, the processes for managing information within this environment can be burdensome. However, with stronger privacy practices come certain capabilities beyond those currently available that may substantially benefit EPA analyses.

EPA could use the CIPSEA unit model to also demonstrate how confidential records for EPA-funded research can be retained, managed, or archived, consistent with approvals under the Privacy Act and Institutional Review Boards. Such an approach could incorporate "tiered access" models to provide

access to restricted data for qualified researchers for approved projects, similar to the Federal Statistical Research Data Centers model in use at the Census Bureau and National Center for Health Statistics.

A CIPSEA unit at EPA could begin with a relatively small amount of resources, but may prove promising in the broader context of how EPA collects information relevant to decision-making. For example, data collected by this unit must legally be protected from political interference, meaning that the agency could realize increased public trust in the information it produces under this legal framework already used by other federal agencies.

Because a CIPSEA unit would be a new organizational unit at EPA, new resources or reallocations from existing agency operations would likely be required to successfully and fully implement the requirements of the CIPSEA designation.

#10: STRENGTHEN EXISTING DATA STANDARDS AND RAPIDLY APPLY NEW LEGAL REQUIREMENTS

EPA's historically robust attention to applying data standards for environmental information the agency collects has been the linchpin to successful open data initiatives in the past.[22] Data standards enable programs, states, and even national governments to rely on information collected by an array of entities and individuals. As technologies rapidly evolve and new data governance priorities are articulated by the agency, data standards will necessarily need to adapt. For example, enactment of the Grant Reporting Efficiency and Agreements Transparency (GREAT) Act of 2019 applies new requirements for recipients of funds from EPA and other federal agencies that will require ongoing dialogue and revision to agency-implemented data standards.[23]

Option Description

Working through a chief data officer (see Option #7) and a Data Governance Board (see Option #8), EPA could begin to strengthen and expand the application of data standards at the agency. Consistent with OMB guidance,[24] and existing EPA practice to apply existing standards when possible,[25] EPA could proactively identify areas for future standard development and engagement with stakeholders to ensure strong data quality for agency decision-making. While EPA has 25 approved data standards and recognizes other national and international standards from sources like the International Organization for Standardization, National Information Exchange Model, and Digital Accountability and Transparency Act, there are some notable gaps, such as applying non-proprietary legal entity identifiers that are internationally recognized.[26]

Implementation Issues

EPA's chief information officer historically conducted oversight for the application of data standards at EPA. With the passage of the Evidence Act and the establishment of new data leadership roles at the agency, additional attention must be given to prioritizing how these standards are produced and applied over time. A continued focus on adopting existing international, national, and industry standards would be ideal to limit burden on regulated entities, grantees, and state and local governments.

#11: PUBLISH AND UPDATE AN AGENCY-WIDE DATA INVENTORY AND OPEN DATA PLAN

Some existing processes are designed to promote notice and public comment on the information collected and managed by EPA. The Paperwork Reduction Act, for example, requires the agency to publish Information Collection Requests that assess the relative burden imposed on the American public for identical collections provided to 10 or more recipients. EPA also maintains a comprehensive public database of open data resources.[27] However, little information is available publicly about the breadth of government-collected data for both open and non-public data, as well as definitions of the information in those datasets (i.e. metadata).

Option Description

In compliance with the Evidence Act and the Federal Data Strategy 2020 Action Plan requirements, EPA could develop an agency-wide data inventory that includes both public and non-public data assets, to provide better information to the American public about the information managed by the agency. The information available in data inventories should be made available in an easily-accessible format, separate from formal *Federal Register* notices. In addition, the inventory should denote whether or how access can be requested for sensitive, non-public information. Specifically, EPA could volunteer in 2020 to pilot test an application being developed by the Department of Education as a shared service to compile data inventories by relying partially on information provided in Information Collection Requests.[28]

In parallel with the work on the data inventory, EPA should consider how to improve available data assets as open data, including information that is currently not released, but would otherwise be releasable under the Freedom of Information Act (FOIA). This also applies to summary statistics or non-sensitive, de-identified datasets with valuable information about the environment or public health that could support evidence-building activities relevant to the EPA mission.

Implementation Issues

EPA and other federal agencies have been compiling data inventories since 2013 when initially required by OMB. With the new legal requirement in the Evidence Act to develop and routinely update inventories and open data plans, existing processes can be adjusted to efficiently update and incorporate the existing EPA inventory. However, EPA must carefully weigh and prioritize how it communicates to the American public the accessibility of information, including with the presence of confidential business information and personally identifiable information on EPA systems. At the same time, the agency can better develop mechanisms to enable some access to restricted data through a tiered access system (see Option #13) as part of a comprehensive data governance policy (see Option #8) or a statistical unit (see Option #9).

#12: CONDUCT RISK ASSESSMENTS FOR PUBLIC DATA DISCLOSURES

As EPA promotes more open data and considers potential disclosure of statistics or public use datasets from information that may have identifiers removed, the agency must be conscious of inadvertent risks of re-identification. In 2017, the Commission on Evidence-Based Policymaking explained how these risks evolve over time and suggested that agencies should take greater precautions to manage potential risks.[29] Similarly, the Evidence Act requires risk assessment from statistical offices engaged in disclosing information to the public. Yet, EPA acknowledged in 2019 that it had not published guidance for the agency on how to responsibly and appropriately de-identify relevant data through a statement to the Science Advisory Board.[30]

Option Description

The EPA could engage in formal risk assessments for public use datasets, and other administrative records made available to the public, extending further than the requirements of the Evidence Act. A broader interpretation of re-identification risk could fulfill Practice #35 in the Federal Data Strategy and more rapidly build agency systems and protocols for successfully integrating risk assessment practices across the agency for data releases. EPA should also pursue development of guidance for agency officials on how to appropriately de-identify data to remove personally identifiable information or confidential business information.

Implementation Issues

In the context of the EPA, disclosures are given unique consideration because of certain requirements in federal laws, like the Emergency Planning and Community Right-to-Know Act of 1986, which require disclosure of some information about business practices, for example. EPA is also well-versed

in approaches for conducting formal public health and environmental risk assessments, which suggests the EPA culture might be highly receptive to applying the concept of risk to data assets. Moreover, EPA's general expertise in *ecological* risk assessments could be reasonably applied to bolster techniques and methods for conducting useful *data* risk assessments.

The ability to conduct risk assessments for data need not be as costly or time intensive as public health assessments required for certain permit or registration decisions under environmental statutes. Instead, risk assessments for data could be a simple step initiated by the chief data officer (see Option #7) or privacy officer just prior to publication or disclosure of an open data resource or public-use data asset.

#13: ESTABLISH OR IDENTIFY A PARTNERSHIP FOR A SECURE DATA ENCLAVE

Tiered access is an approach to altering the level of access to information based on sensitivity and granularity needed for a given analysis or purpose. For some operational EPA data used for enforcement or programmatic purposes, fully identifiable information is needed to make a decision or to take action at an individual site. For a research or decision-making purpose, the identifiable information may not be necessary. However, if an individual or entity could be re-identified based on an analysis and that outcome is undesirable, other steps can be taken to further restrict access to the underlying information.

Applying a tiered access model is conceptually straightforward and achieves practical benefits for restricting access to sensitive data to manage risks and protect privacy (see Option #12). However, EPA does not currently have sufficient mechanisms in place to offer a full suite of tiered access options as described by the Commission on Evidence-Based Policymaking or applied in other federal agencies.

Option Description

EPA could establish a secure data enclave to host confidential or sensitive records, while still allowing for some restricted access to conduct reanalysis, replication, or extensions of relevant research. Other federal agencies currently host such data enclaves, such as the Federal Statistical Research Data Centers, which place constraints on individuals who can access data for approved projects. Prior to a researcher extracting data from the center, the output is reviewed to ensure confidential records are not inadvertently released at an individual level or through summary output.

In practice, a secure data enclave could enable data linkages for individual records or business information that may even be collected by other agencies or entities. This opportunity is especially relevant for generating summary insights about a policy or regulation because the individual-level records are needed but the goal is to produce a summary statistic or general conclusion. Such an enclave could be a resource for enabling the agency to extend prior analyses to better understand long-term outcomes or as a resource for non-EPA researchers to link data confidentially to existing agency assets to further advance or validate scientific findings.

Implementation Implications

Typically the government's existing data enclaves rely on legal authorities to protect confidential records, which EPA does not currently have designation to operate (see Option #9) even though the agency manages some limited confidential information through other authorities. Should EPA decide to partner with the existing Federal Statistical Research Data Centers (e.g., as the National Center for Health Statistics does), EPA would need to either receive a CIPSEA approval or rely on another designated entity to operate the enclave.

Data enclaves were also suggested in the EPA "Strengthening Transparency in Regulatory Science" proposed regulation as a potential option for combining EPA-collected and extramural research data relevant to EPA decisions. The EPA Administrator requested feedback from the agency's Science Advisory Board about the concept and in a September 2019 report provided inconclusive advice about the role of a data enclave at EPA.[31] This suggests that achieving political and operational support for advancing a data enclave at EPA may be difficult in the contemporaneous environment. Care must be taken to delineate expectations for government-collected or -funded data being required in such an enclave versus an expectation that all potentially relevant data may be voluntarily provided, subject to informed consent and privacy expectations of data subjects.

Options to Enhance EPA's Policy Analysis and Evaluation Functions

In addition to enabling operational decisions, data collected and managed by EPA support direct policy actions and decision-making through proposed regulations and other administrative actions. This increasingly requires EPA to have strong analytical infrastructure to perform or support policy analysis and program evaluation. Throughout EPA's history, the agency built capacity to monitor trends in core environmental and public health outcomes of interest. However, there have been intermittent strengths and limitations to the agency's analytical and evaluation functions.

Evaluative capacity, for example, ultimately contributes to the agency's ability to articulate causal outcomes and impacts attributed to policies and practices. The evaluation function has not been one that EPA has fully operationalized and sustained over time. In fact, at two different points in the agency's history, EPA eliminated its central evaluation unit. From 2016 to 2020, much of the previous resources allocated for evaluation of agency programs were shifted to focus on process improvements and efficiency gains, rather than formal evaluative activities.

One aspect of accountability for the agency is being able to justify to the American public and oversight officials that the agency accomplishes its mission by achieving specified goals, regardless of whether the programs are regulatory or discretionary in design. Without a robust evaluation capacity, EPA will struggle in perpetuity to determine whether and to what extent improvements in environmental and public health indicators are attributed to agency policies. Defending policy choices as well as determining which actions to take next – whether to make a regulation more stringent or less– is dependent on awareness about what happened in the past.

Options in this group reflect strategies to strengthen EPA's existing policy-analysis capabilities, largely by focusing on options for enhancing the agency's evaluative function. These options collectively support transparency about programs and policies by sharing insights gathered and produced to determine what works, when, and where for environmental policy.

#14: ESTABLISH AN INDEPENDENT AND CENTRALIZED AGENCY EVALUATION UNIT

In the late 2010s, EPA eliminated its central evaluation unit, the Evaluation Support Division in the Office of Policy. Despite growing bipartisan calls for program evaluation across government—including the Commission on Evidence-Based Policymaking recommendations,[32] the requirement in the Evidence Act,[33] and guidance from OMB to designate an agency-wide evaluation officer[34]—EPA has not met specified deadlines or expectations for expanding evaluation activities.[35] In the absence of a formalized evaluation function at EPA, insufficient information is gathered by policymakers and stakeholders to meaningfully improve the *policy* on which agency actions are based.

Option Description

EPA should establish an independent, central evaluation unit and designate a senior official as the agency chief evaluation officer. This senior official should immediately establish procedures and capabilities for evaluation at EPA, including retrospective evaluation capabilities at the agency (see Option #17). Establishing an independent unit that operates transparently, particularly given the history of EPA's termination of the evaluation activities, is a strategy for ensuring the conclusions of the evaluations are unimpeded by political influence. This is the case even while receiving information about priorities for evaluation from political leaders.

Designating a senior official, ideally a senior career executive as a C-suite level position, ensures the chief evaluation officer is positioned institutionally to be on par with other organizational leaders and program managers. The evaluation officer is statutorily also obligated to implement the agency learning agenda (Option #1) and annual evaluation plans, which further suggests the need to ensure a sufficiently senior-level career appointee is tapped for the position.

Implementation Issues

The Evidence Act requires EPA to designate an evaluation officer, to develop evaluation policies, and to publicly disclose evaluation plans each year. These activities focus on encouraging basic capacity and transparency to engage in program evaluations to study the impacts of agency regulations and policies. While in the past, EPA created then eliminated a central evaluation office, the Evidence Act requires this function to be recognized and persist.[36] Given EPA's history on the issue, sustaining the function over time may be a challenge.

Because of EPA's historic de-prioritization of evaluation, the need to recognize the evaluation official as a senior executive would be paramount to the success of the role envisioned by Congress. The individual must also be situated with sufficient resources to engage in evaluation activities, through contracts, grants, and intramural expertise.

EPA could also identify strategies to better support evaluation of agency regulations and policies by identifying a small amount of grant funding for targeted research and evaluation outside government (in conjunction with Options #16 and #17). A small amount of money was allocated by EPA for years through the Evaluation Support Division to support cross-agency program evaluation for non-regulatory activities, typically small in scale but valuable for building the agency capacity to engage in evaluation activities.

Part of this strategy should include EPA publishing agency-wide evaluation standards that adhere to professional practices for transparency and independence.[37] Operationalizing these concepts would mean that evaluations at EPA are listed when initiated with outcomes pre-specified, as well as made publicly available once completed.

Identifying resources for EPA to fund evaluation could rely on the re-establishment of a set-aside authority provided for years to EPA, with flexibility to allocate a set percentage of agency spending to program evaluation.[38] Other strategies could include an Evidence Incentive Fund (Option #19), use of the agency Working Capital Fund, or direct appropriations.[39]

#15: FACILITATE AN AGENCY-WIDE EVALUATION COMMUNITY OF PRACTICE

As EPA institutionalizes the evaluation function required by the Evidence Act, the agency can capitalize on decentralized evaluation experience now housed within multiple offices of the agency. Intra-agency coordination across National Program Management areas can be time consuming and burdensome without formal infrastructure to share ideas, knowledge, and best practices for implementing evaluation policies and strategies.

Option Description

EPA could launch an evaluation community of practice to capitalize on expertise across headquarters and regional offices led by a chief evaluation officer (Option #14). Realistically implementing the evaluation requirements of the Evidence Act will require broad resource capabilities and expertise at the EPA, and no single office should be expected to solely implement all aspects of an evaluation function. By recognizing that experts exist across the agency to

support enhanced policy analysis and program evaluation responsibilities, EPA can more fully meet the vision of the Evidence Commission and the intent of the Evidence Act.

Implementation Issues

Historically EPA operated various informal gatherings of evaluators and currently maintains a working group to consider strategies for implementing the Evidence Act. Formalizing these operational mechanisms to ensure they are routinized, recognized, and accessible to EPA staff with relevant expertise can ensure sufficient intra-agency collaboration and continuation over time. Communities of practice can be low-resource, high-benefit activities that support the agency evaluation plan and learning agenda implementation.

EPA could also consider strategies for partnering with the American Evaluation Association, which has a topical interest group on environmental evaluation, or other relevant professional associations to offer expertise.[40] In addition, in the past, EPA sponsored small conferences for environmental evaluation in Washington, D.C. and spearheaded the launch of the international Environmental Evaluators Network.[41] Continuation of these endeavors would likely be productive for disseminating knowledge of and increasing support for evaluation throughout EPA's offices and regions.

#16: SUPPORT INTERNATIONAL ENVIRONMENTAL SYSTEMATIC-REVIEW PROCESSES

While EPA has been a global leader in the scientific enterprise over the past 50 years, for understanding policy implementation, EPA's efforts have fallen behind international practice for synthesizing evidence. International efforts to produce systematic reviews that interpret and systematically translate a body of evidence on public policy strategies are central to the models of the Collaboration for Environmental Evidence, The Cochrane Collaboration, and The Campbell Collaboration, which can be applied to interpret available evidence.

Option Description

EPA should financially and institutionally support international efforts to develop and publish systematic reviews on relevant environmental and public health issues. Systematic reviews compile a range of evidence using a variety of relevant methods to better understand the implications of policy solutions. The application of systematic reviews may be preferable to literature reviews and single-study decisions, because of the array of information with systematic methods for interpretation is available for decision-makers to consider.

Implementation Issues

EPA does not have an extensive history of engaging in systematic review activities. Resources would likely need to be allocated for this purpose as part of an evaluation unit (Option #14) or through available grant mechanisms. Resources could also be made available through an Evidence Incentive Fund (Option #19), funding set aside, or direct appropriations.

#17: DEVELOP POLICIES TO PROMOTE ROUTINE EVALUATION AND RETROSPECTIVE REVIEW OF REGULATORY ACTIONS

Retrospective evaluation of regulations offers substantial potential for improving the accuracy of future projections of costs, benefits, and impacts.[42] A strong retrospective evaluation function should be able to study the impacts of revisions to major regulations. In 2008 when EPA revised the National Ambient Air Quality Standard for lead by an order of magnitude, it was premised on potential gains in IQ across 10 counties in the U.S.[43] The underlying rationale was this substantial benefit would vastly outweigh the added regulatory costs. However, due to a lack of an impact evaluation more than a decade later, it is unknown both what the real added costs were and whether that stated goal was attained. Retrospective impact evaluation could help determine whether EPA's assumptions in that regulatory effort, and others, were valid and applicable to other projects of the future. If not, future regulations can be calibrated for higher or lower costs and benefits.

EPA has never established a robust retrospective evaluation plan. This means EPA lacks a set of regulatory review requirements to support validation of ex ante assumptions or to ascertain whether anticipated outcomes were ultimately achieved.

Option Description

EPA could revise the Action Development Process (ADP) guidance for agency regulations to specifically include evaluation and data collection requirements for economically significant regulations. The ADP could outline expectations that future regulations (modifications or new proposals) include appropriate plans for evaluation. Building processes into all applicable EPA regulatory actions to require data collection and evaluation of major regulations would establish expectations that EPA is consistently striving to implement reasoned policy and determine whether the desired outcomes are realized. While EPA implements a suite of performance measures, regulatory actions are rarely subject to stringent evaluation requirements that are present in other parts of

the federal government. Without a regulatory evaluation mechanism, EPA's capabilities to rapidly respond to regulatory actions that may be under- or mis-implemented fall short.

Implementation Issues

One issue that has historically affected EPA's ability to conduct robust evaluation is the inability to conduct meaningful natural experiments as national-scale regulations are deployed across states that may have even more stringent requirements than mandated by the federal government. EPA could request, or in many cases use discretionary administrative authority, to phase-in requirements establishing some natural variation for implementation to enable comparisons for studying whether the intended and assumed effects of a regulatory action manifest in the real world. This supports the capability to attribute the impacts of EPA rules to the policy change rather than other mediating factors.

Applying the requirement for OMB-designated economically significant rules establishes an expectation that high-priority regulatory actions would be the priority for major new impact evaluations, rather than prioritizing small actions because they may be simpler or more politically desirable to evaluate.

Some EPA programs already have existing requirements for routine evaluation as part of the authorizing statutes. For example, the Resource Conservation and Recovery Act requires that every three years the program office evaluate each of its regulations; the requirement has not been implemented.[44] This could be due to a number of factors, including a different conception of the term "evaluation" when the law was written than is understood today.

Under the existing administrative authority, EPA could build into new regulations expectations for evaluation based on implementation benchmarks or time. Such requirements must be linked to outcomes, not just outputs. Requirements would also be needed to delineate reasonable timeframes and expectations for data quality.

To make such a requirement realistic, EPA would need to plan for new data collections to assess the impacts and outcomes of regulations at the time regulations are promulgated. Preparing for new data collections would likely require new strategies to accelerate and improve obligations under the Paperwork Reduction Act. Pairing new regulations with new information collection requests could be a simple method for syncing needed data with evaluation expectations. Implementation of this option would require coordination of a chief evaluation officer (Option #14), chief data officer (Option #7), Data Governance Board (Option #8), and likely require new agency resources, which could be provided through an Evidence Incentive Fund (Option #19).

#18: ESTABLISH ADVISORY BODY FOR EVIDENCE-BUILDING ACTIVITIES

The Evidence Act established a government-wide Advisory Committee on Data for Evidence Building specifically to provide advice on how to promote evidence-based policymaking activities and engage in certain data-sharing activities across government. The broad charge of the committee will likely benefit EPA, but not focus on particular EPA issues.

EPA itself operates nearly 20 advisory committees, including the EPA Science Advisory Board that is charged with providing advice about scientific and technical matters. However, the dearth of existing program evaluation at the agency, as well as other mechanisms to support ongoing evidence-building activities, is a gap in agency operations to be addressed.

Option Description

EPA could establish an advisory body that is specifically tapped with supporting the work of the chief data officer (Option #7), chief evaluation officer (Option #14), and statistical unit (Option #9). Such an advisory body could be established as a unique advisory committee or a subcommittee of the statutorily established Science Advisory Board. The advisory group could be charged with making recommendations about implementing a strong role for the chief data officer, the evaluation officer, and the statistical official at EPA. The advisory committee can also serve as a resource for external perspectives on developing a learning agenda, establishing an evaluation policy, prioritizing open data and data-sharing activities, and other matters related to evidence-based policymaking.

Implementation Issues

The Executive Branch has been taking steps to scale back the number of advisory committees to encourage increased efficiency in government operations.[45] New committees are typically established when there is a pressing need or demand. However, the requirement in the Evidence Act to establish a new government-wide committee suggests Congress recognized an existing gap, and similar structures may also be relevant at the agency level. Establishing such a committee separate from the existing Science Advisory Board (or as a subcommittee) might avoid overly burdening members of that advisory group with additional, unexpected responsibilities. Such an advisory committee could likely be established at a relatively low cost.

#19: ESTABLISH AN EVIDENCE INCENTIVE FUND

EPA's budget is largely appropriated by Congress as discretionary funding, meaning the agency operates mostly on annual funds that are subject to change each year during the appropriations process. In contrast, many data management, evaluation, and other evidence-building activities occur over multiple years. Recognizing the existing budgetary constraints and the simultaneous need for targeted resources to support identified options in this paper suggests alternative mechanisms may be needed to support adequate resources for evidence-based policymaking.

The Commission on Evidence-Based Policymaking highlighted the need for adequate resources to support relevant data and evidence initiatives in the federal government. While the Evidence Commission did not articulate a particular amount of funding needed, it did suggest potential mechanisms to support resourcing, including setting aside a share of appropriated funds and creating targeted budget accounts that could enable resources for specific projects without defunding other agency priorities.[46]

Option Description

EPA could request authority from the Congress, including a proposal in the annual budget request from the White House, to establish an Evidence Incentive Fund, as proposed by the Evidence Commission. An Evidence Incentive Fund is a mechanism for allowing agencies to carry residual budget amounts into a subsequent fiscal year when used for evidence-building activities identified in a learning agenda (see Option #1).[47] Such a fund could incentivize the agency to adopt options in this report that enable accountability and oversight of EPA programs.

Implementation Issues

An Evidence Incentive Fund at EPA would allow the agency to supplement existing resources with new funds, but without seeking increases in the agency budget levels. The mechanism would capitalize on EPA not spending all of its annual appropriated funding and Congress could choose to limit the amount of money that could be allocated for this purpose.[48]

An Evidence Incentive Fund should also be considered a short-term funding solution. The mechanism would likely generate sporadic, rather than sustained, resources to enable long-term implementation of data and evidence needs at EPA.

Options to Bolster Public Trust and Enrich Communication

Public trust in EPA information is central to the success of the agency mission, the perceived credibility of agency actions based on that information, and also the ability of the scientific community to reliably interact for future policy improvements. At the same time, much of the American public is not versed in organic chemistry, econometrics, or the array of approaches applied to consider how EPA should—or does—reach policy decisions under the standards for decision-making in environmental law. Devising strategies that enhance the capabilities of the agency to ensure the American public receives clear communication about regulatory actions, public health, and risk are key to maintaining public trust in the country's environmental and public health infrastructure. This also includes providing for the American public's confidence that the underlying information on which decisions were based was valid, reliable, and relevant.

Options in this group specifically seek to outline strategies for ensuring processes and systems at the EPA protect or establish guardrails against nefarious or unintended political interference, while also encouraging the EPA to apply good-faith efforts to make the best decisions possible given available evidence and information.

#20: ISSUE AGENCY-SPECIFIC STATEMENT ON PUBLIC TRUST IN DATA

The federal statistical system has long operated under the auspices of a policy called Statistical Policy Directive No. 1, which outlines expectations for public trust in government data and statistics. The Evidence Commission perceived the concept to be so critical to evidence-based policymaking, its members unanimously recommended the policy be codified.[49] The Evidence Act does just that, requiring OMB to issue a regulation outlining how federal agencies maximize public trust in information.[50]

If the American public does not perceive information that the government is producing to be valid and reliable, questions will always persist about the credibility of actions using that information as part of a justification. Therefore, ensuring agency processes, protocols, and actions embody the spirit of enabling

public trust in data should be a paramount consideration, including at EPA. As *dis*-information campaigns become increasingly prevalent, and lower cost to implement, government agencies like EPA must be willing and able to take necessary steps to ensure accurate information is available and disseminated through appropriate formal agency channels.

Option Description

The Evidence Act requires OMB to issue government-wide guidance, but EPA could extend such a statement as part of its Science Integrity Policy, to similarly apply a stronger internal guidance framework for maintaining public trust. Specifically, EPA could choose to apply requirements about protecting data and public trust in statistics, science, and evidence to all information processed by the agency in a manner that vastly extends and expands the scope of the current Science Integrity Policy. One approach could be to delineate the context and purpose for which specific data quality expectations are satisfied, relevant for the context the data will be used in.

Implementation Issues

No apparent statutory requirement exists for such guidance and EPA staff or policy officials might interpret agency-specific statements as conflicting with any formal guidance issued by OMB. In addition, while government-wide enforcement mechanisms exist for the policy, EPA would likely need to establish its own enforcement and reporting mechanisms, which could impose additional costs on the agency.

#21: UPDATE AND PUBLISH ENHANCED GUIDELINES FOR THE USE OF VALID AND RELIABLE EVIDENCE IN AGENCY DECISIONS

EPA's "Strengthening Transparency in Regulatory Science" proposed regulation in 2018 suggested that EPA would establish parameters on what scientific evidence could be considered in agency decisions, based on specific criteria. EPA is already obliged to follow the Information Quality Act and corresponding guidance from OMB in determining certain aspects of the types of information considered in agency decisions. This government-wide guidance is further outlined in EPA's policy on the Information Quality Act.[51] However, little comprehensive information is available about the scope and scale of evidence available for consideration in formal agency actions. Even the process of conducting literature reviews and including studies in the regulatory docket has been identified as needing improvements and more transparency.[52]

Option Description

EPA could develop stronger guidelines for the use of valid and reliable evidence in key agency decisions. EPA has a long history of delineating analytical processes for regulatory actions through guidance documents. For example, the *Risk Assessment Guidelines* offer a consistent framework for developing assessments used in agency regulatory actions and the *Guidelines for Preparing Economic Analyses* offer a framework for developing agency benefit-cost analyses.

EPA could develop approaches to considering and weighing the credibility of evidence through a formal set of guidelines. Other federal agencies have adopted "tiers" of evidence to denote distinctions between observational and causal studies. Guidelines offer the benefit of creating a generic framework under which the agency and researchers can operate to support future regulatory actions, while also providing a transparent process for consideration of the evidence in policy actions. The development of such guidelines for scientific evidence used in key agency decisions—building on EPA's existing Information Quality Act guidance—could help establish known parameters about accessible standards, quality, and credibility.

Implementation Issue

Any attempt to articulate bounding conditions for acceptable science or evidence will likely be met with controversy and objection, and potential litigation. Throughout EPA's history, industry and advocacy organizations alike have appealed to the courts to determine what information is reasonable to consider in agency decision-making, with the courts often applying a legal standard or a scientific standard, which may differ from a practical one. Thus, development of any standards would need to achieve broad consensus and extensive stakeholder consultation prior to finalization.

#22: IMPROVE EFFORTS TO RELAY COMPLEX SCIENTIFIC INFORMATION TO THE AMERICAN PUBLIC

As the complexity and volume of scientific knowledge increases, the general ability of the American public to understand and accept detailed scientific information will be challenged. This is further complicated by increased efforts from adversaries to conduct misinformation or dis-information campaigns through political or social processes. Yet, ensuring the American public has access to easily understandable explanations and translations of complex policy-relevant information about individuals, families, households, and entities, enables individuals to assess benefits and potential impacts on themselves and communities.

Option Description

EPA could improve efforts to relay complex scientific information to the American public by establishing enhanced communications and public affairs activities at the agency. This could be accomplished through development of new interactive tools, provision of additional open data (consistent with the Evidence Act and the OPEN Government Data Act) for private sector vendors or nonprofit organizations to develop relevant resources, or improving presentation of EPA's *Report on the Environment.* EPA might also choose to develop new mechanisms for announcing and explaining the potential effects of regulatory actions through means other than the *Federal Register* (see Option #8). Past bipartisan recommendations from experts suggested modifying the existing *Federal Register* notices to describe scientific questions and policy questions in proposed rules.[53] This could include articulating what scientific knowledge would be helpful on determining a policy approach or in communicating risk, which could inform the agency learning agenda (Option #1).

Implementation Issues

Without specific, actionable suggestions, public affairs officials at EPA may be unwilling or unable to expand beyond existing efforts to disseminate information on agency actions through traditional vehicles like the *Federal Register*, press releases, and limited stakeholder meetings. Revamping existing communications processes could be paired with options to enable EPA professionals to more freely discuss scientific information (see Option #5) or, by developing increasingly salient mechanisms, to relay information and strategies for continuous improvement (e.g., see Option #2). Increased education, training, and support for communications with the American public could also encourage strategies for improvement.

#23: STRENGTHEN GUIDELINES FOR ENSURING EPA STAFF DISTINGUISH BETWEEN POLICY AND SCIENTIFIC JUDGMENT

The relationship between science and policy judgment in interpreting scientific information for decisions can be tenuous.[54] Virtually all scientific information has some level of uncertainty when extrapolated to contexts or situations beyond what was initially studied. While political or policy officials should not dictate scientific conclusions, policymaking should be reasonably informed by a body of scientific evidence. Yet this distinction between science and policy can be difficult to navigate through regulatory or administrative action.

Option Description

EPA could establish guidelines for EPA to distinguish between scientific and policy judgments, as suggested in a 2009 Bipartisan Policy Center report.[55] Developing improved articulation of science and policy statements can help the American public and the scientific community alike understand where judgments about matters of policy, ethics, economics, behaviors, or uncertainty affected a decision.

Implementation Issues

Multiple approaches could be considered for operationalizing this option, including improved notices in the *Federal Register* that make policy-science distinctions or strategies to provide additional information about decisions on EPA's website. While these approaches ensure science-policy distinctions are reported publicly, EPA would need to pair them with a system for reporting violations or misapplications, as well as an appeals body to support public accountability, should allegations of inappropriate action materialize.

#24: PUBLISH STANDARD PRACTICES FOR OPERATIONAL TRANSPARENCY IN ADVISORY COMMITTEES

Expertise in emerging and complex scientific and technical issues are imperative to support decision-making. Expert advisors and processes to reflect strategies for interjecting best/promising practices into decision-making help strengthen the policies implemented at EPA. Experts can also offer advice on gaps, limitations, and deficiencies in existing regulations that may need to be strengthened, modified, or scaled back. For EPA to obtain objective expert advice that is credible for agency decision-making, all aspects of the processes used to determine which experts are selected to provide advice should be as transparent as possible.

Option Description

EPA could reinforce advisory committee membership and operational transparency. EPA maintains more than 20 federal advisory committees that offer external expertise and advice to EPA decision-makers. Strengthening the existing advisory committees requires social transparency in the operations of the committees and selection of members. EPA could take additional steps to promote public notification and access to information about member nominations and selection, as well as conflicts of interest and potential biases.[56] In addition, EPA could ensure advisory committee meetings are available for remote participation and announced in accessible venues, in addition to the required *Federal Register* notifications.

EPA could also publish selection criteria for members of committees subject to the Federal Advisory Committee Act (FACA) and review the processes

for removal of members to avoid undue political interference. Finally, in consideration of how FACA committees are terminated, a process could be created that links the senior career-level experts designated by the Evidence Act for evaluation, statistics, and data, to the agency scientific expertise, in order to validate or certify the loss of the advisory process does not create an excessive burden or gap in agency external expertise.

Implementation Issues

Modest updates to existing practices that reinforce transparency could likely occur at a low cost and with relatively low burden, if applied prospectively.

#25: ESTABLISH BEST PRACTICES FOR SCIENTIFIC INTEGRITY AND DATA SHARING

EPA employees operating across multiple federal laws and taxed with the complexities of interpreting and applying an array of scientific information may need additional assistance in identifying low-burden, efficient strategies for enhancing scientific integrity and encouraging responsible data-sharing activities. The Federal Data Strategy includes some expectations that government-wide resources will be made available for certain aspects of data management, including for data sharing. Other resources have been identified in the past that support implementation of agency Scientific Integrity Policies across government, though additional support could be made available.

Option Description

EPA could establish best practices for scientific integrity and data sharing for environmental and public health, in collaboration with the Office of Science and Technology Policy and the Council on Environmental Quality. Because of the interdisciplinary nature of EPA's mission, coordinating bodies, such as the Council on Environmental Quality and the Office of Science and Technology Policy, could partner with EPA to issue renewed guidance about the implementation of scientific integrity policies that enable, promote, and encourage open science and open data initiatives at EPA and other federal scientific agencies. This could include renewed attention to effective scientific integrity policies and guidance that ensures effective implementation of those policies.

Implementation Issues

Efforts to enhance or modify EPA's existing Scientific Integrity Policy may be met with objections in the contemporaneous environment, or misconstrued as negative or anti-science. While such critiques or misinterpretation are always a possibility, responsible actions to strengthen the policy or its implementation should not be disregarded or de-prioritized.

Implementing the Options

While not all of the options presented in this report may at first glance appear to be related directly to the concept of transparency, each connects with accountability and oversight for fulfilling the agency mission with the application of evidence-based policymaking. The options take a systems perspective, which means multiple options would likely need to be combined to achieve lasting and meaningful progress; no single option would be a panacea.

None of this is to say that EPA does not engage in evidence-based policymaking today. Indeed, the agency has a long track record of successfully implementing decisions using the best scientific information available. But moving forward, applying insights about behaviors and strategies that adopt implementation science, data science, and evaluation science into the historical concept of "science" at the agency will improve decision-making and fulfillment of the agency mission. Aspects of improving how the agency accesses and uses information will undoubtedly have long-term benefits for facilitating gains in public health and environmental quality for decades to come.

How can EPA reasonably implement any of these options in a period of constrained resources? The reality is that none of the options described are cost free. None of the options are cost prohibitive either. Allocating resources to prioritize transparency and support effective operations to protect public trust in the agency must be a commitment for senior leaders in Congress, the White House, and EPA to achieve success.

Moving into 2021 and beyond, EPA staff and leadership can begin to adopt and incorporate some options within current practices using existing resources, perhaps even reallocating from within when appropriate. They may also seek strategies to improve or further leverage partnerships with states and public-private partnerships.

All that said, some of the options discussed here extend from prior bipartisan recommendations or shed light on a strategy to implement new legal requirements specifically at EPA. The Evidence Act and the Federal Data Strategy, for example, were not accompanied by new resources for agencies, because the requirements are activities that are expected to be fundamental to the effective management of a government agency.

Finally, the options described in this report should largely be considered mutually exclusive, in that one option may be implemented even while others are pending, modified, or set aside. The options are also intended to be

mutually reinforcing, noted throughout the discussion when identifying how different options might connect to each other in practice. This also recognizes that some options may be more feasible in the short-term or more easily implemented. Indeed, prioritizing these ideas for the 21st century requires rapid and immediate action, without delay. Each option will have its own implementation challenges and associated benefits.

EPA has a long history of promoting scientific discovery and applying cutting-edge insights to decision-making. EPA must continue to implement innovations to ensure the best available science is meaningfully applied to fulfill the agency's mission. A reasonable path is to identify and fill leadership capabilities, enable core support and capacity, then to identify and implement subsequent action items. This may even suggest a potential order for implementing options.

Collectively, if implemented, the options in this report could drastically improve transparency and accountability at EPA to benefit the American public. It's time for Congress, agency leadership, and stakeholders to engage in a real dialogue about how to ensure EPA is successful for the next 50 years. The options presented here are a starting point.

Endnotes

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Appendix

In August 2019 and November 2019, the Bipartisan Policy Center hosted private roundtable discussions focused on transparency at EPA. Participants represented a broad cross-section of stakeholders involved in EPA processes and involved with those affected by EPA decisions, including former EPA employees, former government oversight officials, citizen representatives, transparency experts, data access and use experts, privacy experts, and environmental, business, and research equities. BPC staff engaged in additional dialogues with key stakeholders to ensure robust representation from interested communities.

Participants and stakeholders provided insights about existing EPA efforts to promote open science, data integrity, and open data at the agency, which directly informed *Meaningful Transparency at EPA* as well as generating ideas for options included in this report. To promote frank and honest dialogue, roundtables were conducted under Chatham House rules, meaning individuals and organizations contributing insights and suggestions are not disclosed.

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