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Choosing a New Organization for Management and Disposition of Commercial and Defense High-Level Radioactive Materials

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Summary

Introduction

Finding ways to safely store and ultimately dispose of used fuel from commercial and defense reactors as well as high-level nuclear waste from defense and other operations has been on the national policy agenda for decades and remains a matter of considerable debate. At the request of the President, the Secretary of Energy convened the Blue Ribbon Commission on America's Nuclear Future (BRC) in 2010 “to conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle” and to recommend a new strategy.³

The BRC, among its many recommendations, called for the creation of an organization chartered by Congress and structured as a federal government corporation.⁴ The U.S. Department of Energy (DOE) asked RAND to support its effort to respond to the recommendations of the BRC by looking at different organizational models for a new, single-purpose organization to manage and dispose of used fuel and high-level defense and other nuclear waste—a management and disposition organization, hereafter referred to as an MDO.

Looking Back

We first took a retrospective look to ask what the major problems were in nuclear waste management in the past decades and where responsibility for those problems lies. In so doing, we examined five areas: (1) governance and leadership, (2) funding and budget control, (3) the siting process, (4) procurement and personnel rules, and (5) the public trust. What we discovered was that the organizational design of the Office of Civilian Radioactive Waste Management (OCRWM) within DOE contributed less to the problems than the Nuclear Waste Policy Act (NWPA) itself and subsequent congressional and executive branch actions. These actions included most notably the 1987 amendments, which designated Yucca Mountain as the only candidate repository site, over

³ DOE, 2010a.

⁴ BRC, 2012, p. x.

the objections of Nevada, and changes in budgeting that severely restricted the Secretary of Energy's access to the Nuclear Waste Fund (NWF). In the light of OCRWM's history and the actions of Congress and various administrations as a whole, perhaps the most important lesson to be drawn is that organizational form may only have a limited effect on a program's performance; that is, a well-designed organization is a necessary but not sufficient condition for success. As flawed as OCRWM's program implementation may have been at times, it is difficult to imagine that any organization could have successfully executed the program in the absence of both public support in the affected state and sustained funding from Congress, itself an indicator of public support.

Organizational Models

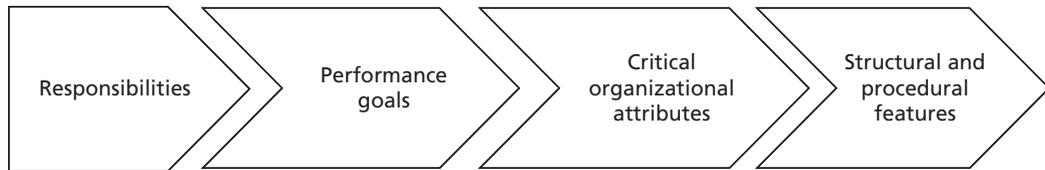
We explored potential organizational models, paying specific attention to federal government corporations (GOVCORPs) but also to federally chartered private corporations (PRIVCORPs) and independent government agencies (IGAs). In Chapter Three, we describe their characteristics—in terms of such things as the charter, direct oversight, the role of the President and the White House, the role of Congress, funding, and personnel management, procurement, and contracting—and how they perform their specific missions. What we found was that the models involve different avenues for blending the features of a private-sector organization (e.g., independence and internal flexibility) and of a government agency (e.g., public trust, political oversight and accountability, and political influence). The key takeaway of this examination lies in the flexibility the U.S. government has in choosing among the different organizational models but also the specific characteristics of each of the models.

Analysis Framework

Although there could be reasons for picking one organizational model over another, we discovered that more analysis was required, with a focus on the critical attributes an organization needs to achieve its performance goals and carry out its responsibilities. Using our analysis framework, we defined the key *responsibilities* of a new MDO that derive from its mission, its organizational *performance goals*, the *critical organizational attributes* needed to meet those performance goals, and the various *structural and procedural features* necessary to perform those critical attributes. See Figure S.1.

Next, we matched the structural and performance features with each of the organizational models (PRIVCORP, GOVCORP, and IGA) to determine which of these were present or could be built in to each model. From this analysis, we came to the view that several critical attributes are weaker in or missing from the PRIVCORP

Figure S.1
Framework for Linking Responsibilities, Performance Goals, Attributes, and Features



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model, including public accountability, public interest mission, and linkages to the executive branch and Congress that would ensure the political credibility and influence needed for siting. (Indeed, independence from the President and Congress is a primary rationale for a PRIVCORP.) Although these features could theoretically be written into a PRIVCORP's charter, achieving these would be prohibitively difficult for a U.S. private corporation whose primary loyalty is to its stockholders in earning a profit. However, the critical attributes exist or can be built into the two other organizational models, an IGA and a GOVCORP, given the many different variations in the characteristics that these organizations can take.

Designing a New MDO

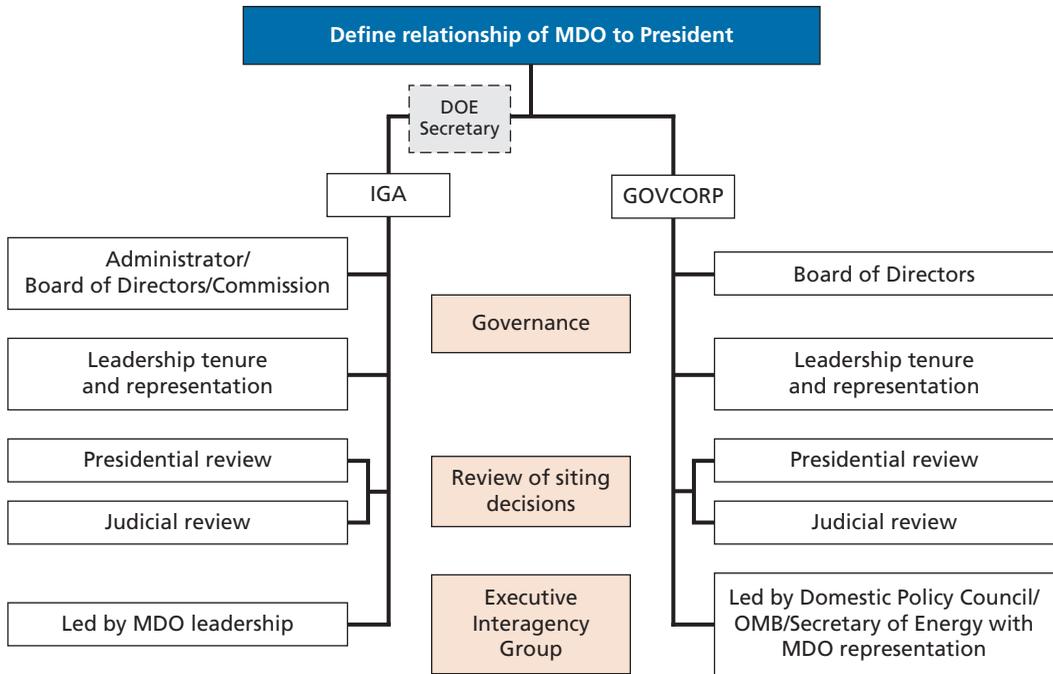
In designing a new MDO, policymakers will need to go through a series of steps that will involve a number of choices, first about the relationship of the MDO to the President, next about Congress's role, third about the source of the MDO's funding, and then the role of stakeholders and other MDO organizational features. We begin with the President and Congress because their roles are critical in setting the tone and shaping the relationship among the MDO, stakeholders, and the public.

Step 1: The President's Role

The critical choice for policymakers is how the MDO should relate to the President, i.e., whether it should be a direct relationship, as in an IGA, or a relationship that is largely independent of the President, as in a GOVCORP. See Figure S.2.

- **Direct relationship:** Reporting directly to the President, as with an IGA, ensures that the public interest is taken into account in all the operations of the MDO. The influence residing with the President would be available to achieve the siting of the storage and disposal facilities, and the executive branch would be able to influence MDO operations in ways to make certain that the siting tasks are being accomplished; the storage, transport, and disposal of used fuel and nuclear waste

Figure S.2
The MDO’s Relationship to the President



NOTE: OMB = Office of Management and Budget.

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are being carried out safely; and situations do not arise in which a government bailout would be needed.

- **Independent relationship:** Greater independence from the President, as is typically the case in a GOVCORP, insulates the activities of the MDO from the turnover of administrations, provides the authority necessary to make decisions on siting without political interference, and allows flexibility in siting negotiations, operations (including contracting and procurement), and personnel policy.

In the case of an IGA, policymakers would have the choice of whether the MDO would report to the President directly or through the Secretary of Energy, as is the case today with Bonneville Power Administration (BPA). This would be different from the past when OCRWM was an office inside DOE. Reporting through the Secretary of Energy would be a way for MDO activities to continue to be closely integrated with other DOE-related activities. The case for having the MDO report directly to the President rests largely on the need to make a break from past problems associated with DOE’s management of used fuel and defense high-level nuclear waste.

Having chosen either an IGA or a GOVCORP, policymakers will have some flexibility to build into the organization features to enhance its prospects of achieving its

performance goals and lessen some of the potential disadvantages associated with the organizational form chosen. They would do this by making decisions with respect to each of the boxes in Figure S.2.

Independent Government Agency

If an IGA is preferred, policymakers would first need to choose its supervisory structure, i.e., whether the agency would be led by a governing board (e.g., the Federal Reserve), a commission (e.g., Nuclear Regulatory Commission [NRC]), or a single administrator (e.g., BPA, National Aeronautics and Space Administration [NASA]). While maintaining accountability, steps could then be taken to shape the governance of an IGA to achieve some degree of political insulation, e.g., by mandating a balance among political affiliations for a multimember board or commission. To further build political insulation and organizational stability, policymakers could preclude presidential review of the MDO's major decisions. The IGA administrator or board/commission chairman could also be designated to lead an interagency group to ensure the political credibility and influence necessary to carry out the MDO's responsibilities, particularly in siting.

Government Corporation

To increase the accountability of the leadership in a GOVCORP, policymakers could require in the legislative charter that the President nominate the members of the MDO's board of directors and mandate that their terms be relatively short and subject to periodic renewal. In addition to defining what experience and expertise they wished to have on the board, policymakers could designate a member of the executive branch to serve on the board. As a GOVCORP is designed to be insulated from presidential involvement, policymakers could make provision for some presidential role and review of the MDO's major decisions.

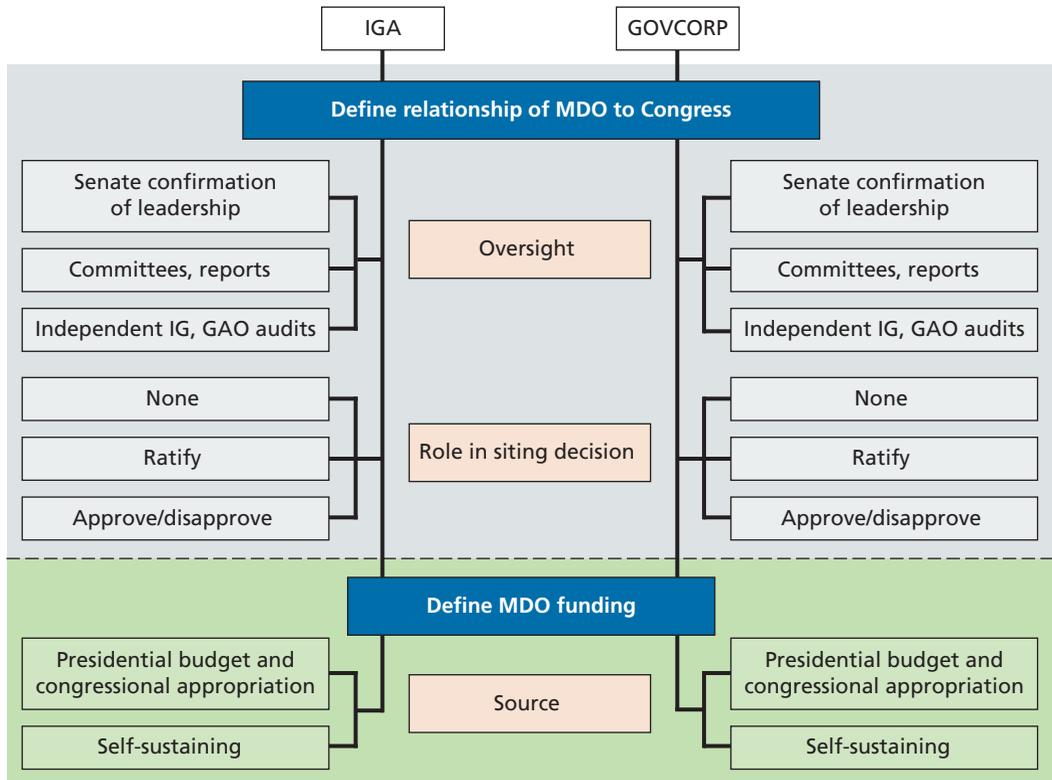
To tap into the resources of the federal government for providing the incentives that will be necessary to achieve the siting of the facilities and to gain influence over the activities of the executive branch agencies, including the regulators, policymakers could set up, under the Domestic Policy Council, Office of Management and Budget, or the Secretary of Energy, an ad hoc group with representation from executive departments, the regulatory agencies, and the GOVCORP leadership.

Step 2: Congress's Role

Policymakers will also need to address the relationship of the MDO to Congress and focus on oversight and the congressional role in decisions on siting. These will be independent of which organizational model is chosen. See Figure S.3.

Policymakers will need to decide whether the Senate will have a role in confirming the leadership of the MDO: the board of directors, commission, or agency administrator. If there is a role in confirmation, the Senate will need to put in place processes to avoid delays that could leave the MDO without the leadership it needs.

Figure S.3
The MDO’s Relationship to the Congress and Funding Source



NOTE: IG = inspector general.

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Policymakers will also need to make decisions as to which committees will exercise oversight over the operations and decisions of the MDO and through what types of testimonies and reports (on, for example, strategic plans, management and financial operations). To gain insight into the conduct of MDO activities, Congress could create an independent IG who is required to submit annual public reports and require audits by the GAO.

Finally, policymakers will need to decide whether Congress will be given any specific role in the various decisions that will be called for in the siting processes, i.e., the locations of the facilities and the agreements negotiated with states, tribes, and local communities. One possibility is for Congress to ratify these MDO decisions (e.g., as the Senate ratifies a treaty in an “up-down” vote); another possibility is that Congress approve or disapprove these decisions (e.g., as is done with the recommendations of the Base Closing and Realignment Commission to close military facilities).

History has shown that, under the terms and conditions of the NWPA, Congress fully involved itself in site selection, funding, and regulatory decisions and, in so

doing, undermined public trust and confidence in the processes. Although Congress does have an important and constructive role to play in the future, there is an inherent tension between a consent-based siting approach and giving Congress the authority to veto agreements made between the MDO and consenting states, tribes, and local communities.

Step 3: MDO Funding

Perhaps the most important issue that policymakers will face is what will be the source of the MDO's funding, i.e., whether it will receive annual congressional appropriations or be able to fund its expenditures from operating revenues or other resources (i.e., "self-sustaining"). See Figure S.3. The decision on how the MDO is funded is independent of whether the organization is a GOVCORP or an IGA. The Tennessee Valley Authority (TVA) (a GOVCORP) has a dedicated funding stream; the NRC (an IGA) has a dedicated funding stream but is subject to an annual appropriation, and Amtrak (a GOVCORP) has both dedicated funding streams and annual appropriations. NASA (an IGA) receives annual appropriations.

In the case of annual appropriations, the Senate and House will be required to authorize and appropriate the funds, and the MDO will need to submit its budget through OMB and provide the supporting budget justification and documentation to the various congressional oversight committees. Even if funds are made available on a self-sustaining basis through a dedicated funding source, OMB and the Congress could still exercise oversight by requiring the MDO to submit quarterly and annual financial and management reports.

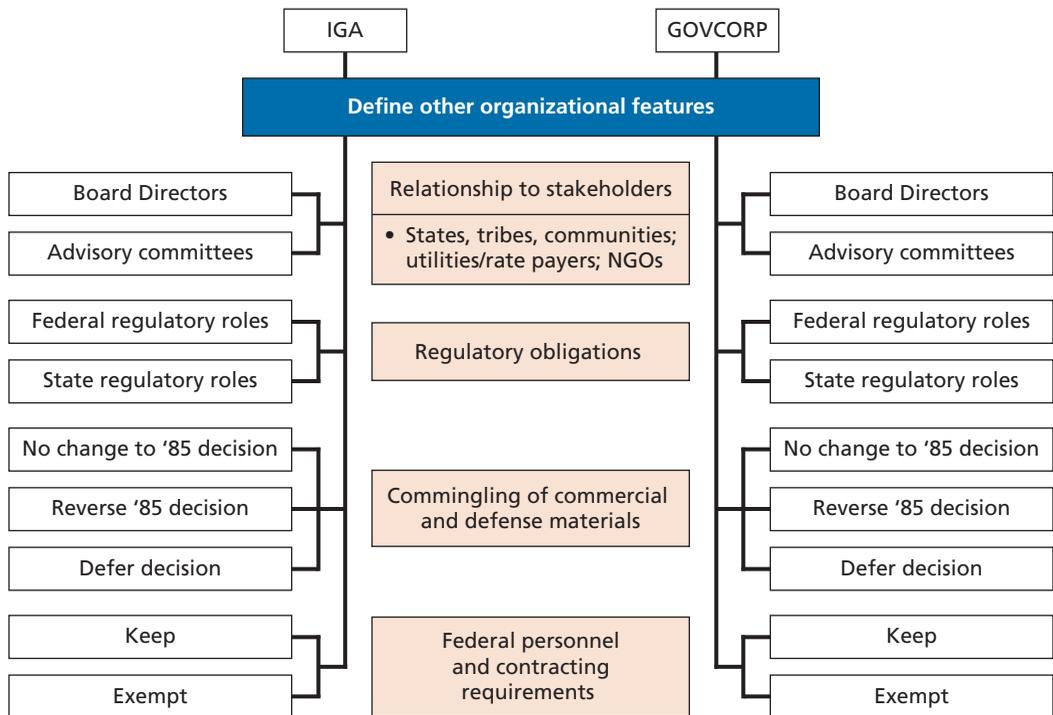
Step 4: Other Organizational Features

Whether an IGA or GOVCORP model is chosen, policymakers will need to define other features of a new MDO and include these in the enabling legislation: one is how the MDO will relate to its stakeholders, another is how it will be treated by federal and state regulatory agencies, a third is what responsibilities it will have for the management and disposition of both commercial and defense materials, and finally whether the MDO will be subject to federal personnel, procurement, and contracting rules. See Figure S.4.

Relationship to Stakeholders

The MDO will have multiple stakeholders (utility companies, states, local communities, tribes, nongovernmental organizations (NGOs) as well as the U.S. Department of Defense [DoD] and DOE), so policymakers will need to decide how these interests will be represented within the MDO itself or through different coordination and consultation mechanisms. One way is to call for their representation on a board of directors or commission. Another way is to set up advisory committees to gain advice and support with participation by some or all of these stakeholders.

Figure S.4
Other Organizational Features of the MDO



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Regulatory Obligations and Liabilities

There are no choices for policymakers to make about federal environmental health and safety regulations, but there is a choice to be made regarding the regulatory role of states with respect to the sited facilities for protection of human health and the environment. Policymakers will also need to address the liability issues associated with the MDO’s assumption of title to used fuel and nuclear waste, given the risks and costs tied to these materials.

Commingling of Commercial and Defense Materials

Policymakers will need to decide whether the MDO will be responsible for the management and disposition of both commercial and defense materials. An analysis of the choices (maintain the 1985 decision of commingled repository, reverse the 1985 decision and separate the repositories, or defer the decision) was outside the scope of this study.⁵ If a decision is made to continue a policy of commingling, organizational

⁵ For the 1985 decision, see Ronald Reagan, letter to Secretary of Energy John S. Herrington, “Disposal of Defense Waste in a Commercial Repository,” Washington, D.C., April 30, 1985.

processes will be needed to manage the two funding streams in a unified manner, and this could be done for either an IGA or GOVCORP.

Federal Personnel, Procurement, and Contracting

An IGA would typically be bound by federal personnel rules and federal procurement and contracting requirements. To be able to attract the technical expertise and management talent as well as gain flexibility in hiring and firing, policymakers could exempt the new MDO from the personnel rules for some or all classes of employees. To provide flexibility for managing multiyear megaprojects, policymakers could provide flexibility to enable funding obligations for multi-year contracts, or could exempt the IGA from the federal procurement and contracting requirements.

Given that the rationale for forming a GOVCORP involves allowing the organization “to run on business-like principles,” they often are exempted from at least some aspects of federal personnel management, procurement, and contracting requirements. Whether formed as an IGA or GOVCORP, policymakers will need to decide in its enabling legislation whether to exempt the MDO from these requirements (see Chapter Three).

Considerations Related to Choice of Organizational Form

Government Responsibility for Catastrophic Risk

In making a decision on the organizational form of a new MDO, policymakers will need to consider what role the U.S. government would play in situations in which major financial problems or other serious dangers arise. In an IGA, there would be no question that the government would have ultimate responsibility for any future risks (or catastrophic liability) that might arise in connection with managing used fuel and high-level waste. In contrast, a GOVCORP would not be backed by the full faith and credit of the U.S. government (unless Congress decided to make it so), and, at least in principle, the government would not necessarily be obligated to step in and bail out a GOVCORP (unless Congress specifies otherwise). Nevertheless, given the nature of the mission of managing used fuel, and the inherent and long-term risks that attach to this task, it is difficult to imagine that a difference would exist in practice: If a catastrophic risk event affecting large numbers of people and the environment were to occur, the U.S. government would be placed under tremendous pressure to take responsibility and to intervene to manage the risk.⁶

Evolution of the MDO as Its Roles Change Over Time

Given the varied responsibilities of the MDO and the time to accomplish its multiple tasks, policymakers will also need to consider whether an MDO should be created as a single fixed organization to carry out all its responsibilities over a long period of time or

⁶ See the response of the U.S. government to the BP oil spill (National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, 2011).

whether the MDO should be designed with characteristics that would change to meet the demands of different phases of its mission.

The argument for a fixed organization is that anticipated evolution of its organizational design could undermine the ability of the MDO to develop its own culture and management skills for carrying out its highly complex and multifaceted activities over the long term. Moreover, many of the MDO activities will need to be pursued simultaneously. On the other hand, the organizational culture and skills for achieving the siting of the consolidated storage and permanent disposal sites through a consent-based process will be very different from those required to successfully pursue a license application, construct multiple facilities, and then operate and close those facilities. When the organization is predominantly in its siting phase, it will require a skilled staff of negotiators, technical advisors, risk communicators, and individuals adept at public outreach. When the organization is predominantly in the phases of preparing a license application and planning construction, it will require individuals with sophisticated technical and project management skills teamed with strong public communicators.

One approach would be to choose a GOVCORP because of its inherent flexibility to hire and fire people easily, to change its own internal structure, and make decisions about when and how to contract out various tasks and functions. Another approach is to design the MDO to evolve by design, starting with an IGA, which embodies what will be needed to achieve consent-based siting: a close relationship to the President, public accountability, access to the resources of the federal government, and the ability to enter into long-term agreements. Depending on how they are led and managed, either a GOVCORP or IGA has the potential to achieve public trust.

Under either an IGA or GOVCORP, Congress could include a provision in the enabling legislation for periodic evaluations of organizational effectiveness, which could then provide the analytical basis for determining whether refinements or structural changes are warranted in the future. This is something akin to an adaptive management approach, embedded in the program now operating in Canada and Sweden, among others.⁷ If the view is that the MDO may need to evolve in its organizational design, policymakers would need to address this in the enabling legislation. A transition could be provided within the structure of the enabling organization, or new legislation could be mandated.

Making the Choices

The success of any future MDO will be driven by many factors and unforeseen circumstances. The organizational form is only one of these factors: it is a necessary but not sufficient condition for success. Beyond the organization itself, the evolution of

⁷ Lee, 2003.

national priorities and changes in the political environment will have a profound effect on the success of any MDO in meeting the performance goals articulated by the BRC and outlined here. There is almost certainly more than one way to design a successful MDO. Still, it is likely the case that the more critical attributes are built into the organization, the better will be the chances of success.

What is needed is for policymakers to decide on these questions in a step-wise fashion, taking three key questions in turn:

1. What influence should the President have on the activities of the MDO to ensure the public interest and future success in the siting of the facilities while allowing the MDO the flexibility to carry out its responsibilities?
2. How insulated from and independent of congressional oversight should the MDO be while ensuring public accountability?
3. How should the MDO be structured (through board membership, advisory committees, or other mechanisms to involve stakeholders and the public) to increase the likelihood of instilling public trust and attracting interest, engagement, and commitment of states, tribes, and local communities in the siting of the facilities?

In answering these questions, policymakers will be striking a balance between the competing values of accountability and flexibility called for in the design of the new MDO.