

DEFINING THE PURPOSE OF THE OFFICE OF SCIENCE AND TECHNOLOGY (OST) THROUGH PERFORMANCE MEASURES

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ABSTRACT

Congress and the Department of Energy (DOE) expect that our investment in the Office of Science and Technology (OST) -- a centralized environmental technology development program within the Office of Environmental Management (EM) -- will result in a suite of useful technologies that are deployed within the EM complex and accrue benefits to the taxpayers. Performance measures should be used to drive our expectations for OST and the technology user organizations within the EM program. OST performance measures should track OST's success developing technologies that meet EM's technology needs, EM's success deploying OST's technologies, and the accrued benefits of those deployments; namely, cost savings. A successful performance-based system for OST should require buy-in from OST and EM technology user organizations (EM-30, EM-40, and EM-60) and should include: 1) a set of performance measures that are useful to the Department, Congress, and other stakeholders, 2) a reliable baseline of data to track these performance measures, 3) a standard definition of terms and methods for tracking performance measures and 4) accountability for outcome success or failure.

BACKGROUND

In November 1996, the House Committee on Commerce initiated an oversight review of the OST. It was apparent at that time that the EM program was finding little use for OST's efforts. The Committee asked DOE three fundamental questions: 1) What technologies have been funded by OST; 2) Which of these have been deployed at DOE sites, and 3) What cost savings have occurred as a result of those deployments? Remarkably, DOE was unable to provide responsive answers to the Committee's questions because this basic programmatic performance information was not tracked by OST. In light of these initial findings, the Subcommittee on Oversight and Investigations held a hearing on May 7, 1997 which documented OST's poor internal management and EM's inability to integrate OST's technologies into EM's cleanup efforts. The Subcommittee applied OST's own technology development guidelines in evaluating the status of the OST program: "No research organization, whether government or private, can realize the benefit of its efforts unless they are transformed into useable products and successfully brought to market. Likewise, federal investments in R&D are a waste of taxpayers' money, unless the resulting technologies are implemented."

DISCUSSION

Congress has invested in OST's environmental technology development program with the expectation that useful technologies would be developed and deployed to clean up DOE's defense wastes. According to Sec. 3154 of the 1989 Defense Authorization Act (Public Law 101-189), Congress directed the Department to develop technologies "useful for (1) the reduction of environmental hazards and contamination resulting from defense waste, and (2) environmental

restoration of inactive defense waste disposal sites.” Thus, it is clear that both the Department and Congress expect measurable performance outcomes from OST’s technology development efforts. First, to meet these objectives, OST must produce technologies that are indeed useful within the EM complex. To measure OST’s performance, DOE can track OST’s success developing useful technologies that fit the technology needs identified within the EM complex as well as OST’s success transferring these technologies to the technology users within EM. Second, it is expected that EM will actually use OST’s useful technologies. EM’s performance can be measured by the number of technologies deployed, the number of technology deployment instances, and the actual benefits EM accumulates as a result of their use--cost savings, risk reduction, or faster clean ups. Two reports describe potential savings from available innovative technologies in the range of \$20 billion (Army Corps of Engineers) and \$12-27 billion (DOE’s Path to Closure Plan).

A successful performance-based system for OST and EM will require buy-in from OST and each technology user organization within EM. A successful development-to-deployment effort necessitates vertical and horizontal integration between headquarter program offices, field sites, and the contractors actually performing the work. First, DOE must choose performance measures that have real meaning for each stakeholder and meet the legislative intent for this program. Congress, through appropriation acts and report language, authorization acts and report language, and oversight hearings, has consistently emphasized technology deployments and cost savings as principal measures of success for the OST program. Measuring technology deployments and the realized benefits of these deployments should be fundamental performance measures for the OST program.

Second, OST and EM must develop a reliable baseline of data to track agreed-to performance measures. A performance-based system is useless if reliable data is unavailable to support it. Until the House Commerce Committee began its review, OST had not maintained basic information including the number of technologies it had funded or where these technologies had been deployed within EM. During the past two years, management changes and more focused attention at OST have produced the technology management system (TMS) that was created to track this and other basic information. However, a recent GAO report titled “Further Actions Needed to Increase the Use of Innovative Cleanup Technologies” (GAO/RCED-98-249) described the reliability of the data fed into and coming out of the TMS as “inaccurate” and “overstated.” Reports on technology deployments and deployment instances from the TMS have an error rate of 27% and 38% respectively. The GAO suggested that verification methods for the TMS should be developed and applied on a routine basis.

Third, a standard definition of terms and methods for tracking performance is essential. Standard definitions, in addition to data collection and verification, are necessary to ensure data quality in a performance-based system for OST. According to the GAO’s report, the Deputy Assistant Secretary for OST has issued a memo that formally defines “deployment” to be used

for performance measurement, however “written procedures for data verification have not yet been developed.” Other performance measures, such as cost savings, will also require standard accounting and data verification methods. According to OST’s Semi-Annual Report to Congress (April 1998), standard methods for collecting and analyzing cost savings data from the use of OST technologies are under development at the Federal Energy Technology Center. This standardized system, when completed, should make cost savings a more reliable performance measure.

Fourth, there should be accountability for performance outcomes in a functioning performance-based system. This will likely be the most difficult adjustment for DOE. Who is accountable -- the headquarter manager, the field site manager, the regulator, or the contractor? Upper management attention and accountability is necessary to ensure that EM successfully ushers a technology from development through to deployment. Performance expectations in EM’s senior management contracts could be used to require technology deployments. Field site managers responsible for technology deployments at DOE waste sites should also be held directly accountable. The Department can also incentivize contractors to deploy technologies within annual performance based incentive contracts. Whatever the method, accountability must be defined up front and rigorously applied.

CONCLUSION

After eight years and over \$3 billion spent, EM must now demonstrate that the taxpayer’s past and ongoing investment in OST have and will result in technologies deployed and cost savings realized. A performance-based system designed to meet these outcomes will require an integrated effort between OST and EM technology user organizations at headquarters and at DOE field sites. EM should also track the deployment and cost savings realized from technologies developed outside of the OST program. A reliable database of information and a standard definition of terms are essential for a successful performance-based system. Accountability from field sites, headquarter managers, and field site contractors should be defined and applied.