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United States Government Accountability Office
Washington, DC 20548

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Congressional Committees

Subject: Department of Defense's Assessment Addresses Congressional Concerns but Lacks Detail on High Energy Laser Transition Plans

In the National Defense Authorization Act for Fiscal Year 2000,¹ Congress directed the Department of Defense (DOD) to develop a laser master plan to include identification of potential weapon applications, critical technologies, a development path for those critical technologies, and the funding required to carry out the master plan. In response to this legislation, the High Energy Laser (HEL) Executive Review Panel was formed and issued the HEL Master Plan on March 24, 2000. The Master Plan recommended establishing a management structure for HEL technologies, including a HEL Joint Technology Office (JTO) to execute development and day-to-day management of a joint program to revitalize HEL technologies. The plan also recommended establishment of a HEL Technology Council—composed of senior science and technology executives from the military services and agencies — to provide oversight and approval authority for JTO's programs. As a result of the Master Plan, JTO was formed in June 2000. JTO collaborates with the military services and defense agencies in order to develop and execute an investment strategy for HEL science and technology (S&T) development.

In the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001,² Congress directed the Secretary of Defense to implement the management and organizational structure specified in the Master Plan. The legislation also required the Secretary of Defense to designate a senior civilian official to head the HEL Technology Council as well as carry out responsibilities for HEL programs by establishing priorities, coordinating the services' and defense agencies' efforts, identifying promising high-priority technologies for funding, and preparing a detailed technology plan to develop and mature those technologies. DOD's Deputy Undersecretary of Defense for Science and Technology was designated that official.

In the conference report that accompanied the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005,³ the conferees expressed concern that the JTO may not be accelerating progress in HEL technology and providing incentives to the services to invest in such technologies. Accordingly, they required the Secretary of Defense to submit a report to Congress on the implementation of the fiscal year 2001 legislation and directed that the report specifically address (1) the effectiveness of

¹Pub. L. No. 106-65, sec. 251, Oct. 5, 1999.

²Pub. L. No. 106-398 (Appendix - H.R. 5408), sec. 242 and 243, Oct. 30, 2000.

³H.R. Conf. Rep. No. 108-767 at p. 520, Oct. 8, 2004.

JTO in meeting its statutory goals, (2) whether JTO's structure has been effective in transitioning technologies to the warfighter, and (3) the impact of DOD's decision to shift funding responsibility for JTO efforts from the Office of the Secretary of Defense (OSD) to the Air Force.

The conferees required the Secretary of Defense to provide this report by January 15, 2005, and asked GAO to review the report and provide an assessment to the congressional committees by March 15, 2005. We received DOD's report in May 2005 and are providing our assessment of the report's responsiveness to the conferees' three requirements with this correspondence.

To address the report objectives, we reviewed DOD's 2005 report on the effectiveness of the HEL JTO and drew upon our May 2005 correspondence that addressed the extent to which DOD implemented the recommendations of the HEL Master Plan.⁴ To determine whether JTO has been effective in achieving its statutory goals, we reviewed the fiscal year 2001 National Defense Authorization Act and the HEL Master Plan. To identify the impact of shifting JTO funding from OSD to the Air Force, we reviewed funding trends and reductions levied on JTO budgets. In particular, we discussed the impact of such reductions on JTO as well as the reductions in the context of overall OSD and Air Force budgets. To determine whether JTO was effective in transitioning laser technology to the services, we discussed JTO's role in moving HEL technologies to the warfighter with officials from OSD. We also reviewed DOD's draft Directed Energy Technology Roadmap to gain insight into DOD's future strategy for HEL-related work as a whole. We conducted our work from May 2005 to July 2005 in accordance with generally accepted government auditing standards.

Results in Brief

The Department of Defense's report on the effectiveness of the HEL JTO is generally responsive to congressional direction but lacks detail on how and when it plans to eventually transition laser technologies to the warfighter. Specifically:

- The DOD report describes the actions DOD has taken to meet the statutory goals and cites an increase in funding as evidence of its commitment to advance HEL technologies. We agree that, in large part, JTO has been effective in achieving the statutory goals outlined in the National Defense Authorization Act for Fiscal Year 2001. In addition, on the basis of our previous work, we believe that DOD's implementation of the recommendations of the HEL Master Plan has increased the focus on critical HEL issues.
- While the DOD report discusses efforts to transition JTO-sponsored technologies to the services and agencies, it does not address the broader issue of how HEL technology will eventually transition to the warfighter.

⁴*Department of Defense Initiatives on High Energy Lasers Have Been Responsive to Congressional Direction*, [GAO-05-545R](#) (Washington, D.C.: May 18, 2005).

The Department's Directed Energy Roadmap, currently in draft, may provide the detailed technology plan to develop and mature HEL technologies, as Congress directed in the 2001 legislation, but it has not yet been implemented as official department policy or guidance.

- DOD reports that devolving funding responsibility for JTO from OSD to the Air Force has had no negative impact on the program. Judging from the information provided by OSD, the financial impact appears minimal thus far. The office is continuing to use the same processes for its day-to-day operation, with OSD retaining responsibility for management oversight of the office.

JTO's Effectiveness in Meeting Its Objectives

The Secretary of Defense's report assessing JTO's effectiveness cites an increase in HEL science and technology funding since 2002 as evidence of DOD's commitment to advancing HEL technologies. The report explains (1) how JTO manages its programs and executes its responsibilities, (2) how JTO funds for developing HEL technologies are allocated across six HEL technology thrust areas based on recommendations from HEL experts from the services and agencies, and (3) how JTO solicits and awards individual technology projects. The report also identifies the members of the Technology Council who provide direction to JTO and approval of JTO's plans and investments.

We found that DOD has, in large part, met the statutory goals. In responding to the statutory goals, DOD has:

- Set up JTO and the HEL Technology Council and established the management and organizational structure required by the 2001 legislation.
- Implemented the recommendations of the HEL Master Plan and increased the focus on critical HEL issues.
- Increased overall investment in HEL efforts and the percentage of the overall investment represented by the S&T base.
- Provided opportunities via the Technology Council and JTO's Technical Area Working Groups for more collaboration among the HEL community as well as opportunities for key HEL experts to discuss goals and objectives and share project information.
- Included criteria in the JTO process to determine funding for projects that address the most critical technical issues: these criteria are clearly defined, objective and based on input from a wide range of experts in the HEL field. While JTO has a process for establishing its funding priorities—as we previously reported—the services and agencies fund their own HEL S&T projects based on their specific needs.

Plans for Transitioning Technology to Services

The conferees directed DOD to report on the effectiveness of the JTO structure in transitioning laser technologies to the warfighter. The DOD report points out that JTO does not transition technologies directly to the warfighter, but rather transitions technologies to the services, which insert these applications into new or existing research and development or acquisition programs. The report then briefly discusses how certain JTO-developed technologies could be inserted into such programs and states that by providing funding and partnerships to government, industry, and academia, JTO supports state-of-the-art advancements in laser development. The report provides five examples of service or agency programs and projects that have benefited from JTO's efforts:

- the Special Operations Command Advanced Tactical Laser program,
- the Navy Free Electron program,
- the Joint Army and Air Force High Powered Solid State Laser program,
- the Directed Energy Lethality program, and
- the Directed Energy Modeling and Simulation program.

While the DOD report discusses some specific efforts to transition JTO-sponsored technologies to the services and agencies, it does not address the broader issue of how HEL technologies will eventually transition to the warfighter or provide a strategy for maturing the technologies. Progress has been made in setting up the management structure and processes to facilitate HEL technology development, but it is not clear what, if any, progress has been made in furthering the transition of these technologies to the warfighters. Further, DOD does not have a detailed, department wide strategy for maturing the technologies— a strategy that could ensure the efforts of the services, agencies and JTO are coordinated and focused on goals achievable within a reasonable time-frame. In that regard, DOD has not yet satisfied the statutory goal of the 2001 legislation regarding the preparation of a detailed technology plan to develop and mature HEL technologies.

DOD officials are currently drafting a Directed Energy Roadmap that may provide the detailed strategy to develop and mature HEL technologies, as Congress directed in the 2001 legislation. It identifies the promising HEL technologies for which funding should be a high priority and the planning appropriate to evolve the HEL technology. However, the roadmap is a draft and has not been issued as policy or guidance.

Impact of Shifting JTO Funding Authority to the Air Force

In 2002, in an effort to streamline and downsize the number of organizations managed by OSD, the Undersecretary of Defense for Acquisition, Technology and Logistics proposed the transfer of JTO's funding authority from OSD to the Air Force. Under a memorandum of agreement finalized in early October 2004, responsibility for JTO's funding devolved to the Air Force. The Air Force executed funding responsibility for JTO in fiscal years 2004 and 2005. The previously established management structure, along with the influence of the HEL Technology Council, continues unchanged. According to the memorandum, the Deputy Undersecretary of Defense for Science and Technology retained responsibility for oversight of JTO, with the HEL Technology Council providing input on JTO program strategy and direction.

However, the Air Force became administratively responsible for the planning, programming, budgetary, and execution process activities for the JTO. As stated in the agreement, the Air Force would not move funding from any JTO program element to another Air Force science and technology program element. The agreement further noted that the Air Force would attempt to exempt JTO funds from being used for other corporate Air Force expenses, and, if this exemption was unsuccessful, would take no more than a “fair share” assessment.

DOD’s report on JTO stated that there had been no negative financial impact on the JTO program as a result of shifting funding responsibility. The report noted that the Air Force did reduce JTO’s funding by what the report termed a “fair share” of certain reductions directed by Congress or OSD. In fiscal year 2004, these reductions amounted to approximately \$2.3 million out of a total JTO budget of about \$64.8 million and, in fiscal year 2005, approximately \$2.7 million out of a total JTO budget of about \$72.9 million. According to an OSD official, OSD also applied similar mandated reductions to JTO funding in fiscal years 2001, 2002, and 2003. The official indicated that JTO anticipated these mandated reductions and thus suffered no significant impact as a result of the adjusted funding.

We have not seen any evidence to indicate that the shifting of JTO funding authority to the Air Force has had a negative financial impact on the JTO programs, particularly since the previously established management structure remained the same.

Agency Comments

The Department of Defense reviewed a draft of this report, but had no comments on the draft.

We also are sending copies of this correspondence to the Secretary of Defense; the Secretaries of the Army, Navy, and Air Force; the Director, Missile Defense Agency; and the Director, Defense Advanced Research Projects Agency. We will also make copies available to others upon request. In addition, the correspondence will be available at no charge on GAO’s Web site at <http://www.gao.gov>.

If you or your staff have any questions concerning this correspondence, please contact me at (202) 512-4841. Contact points for our offices of Congressional Relations and Public Affairs may be found on the last page of this report.

A handwritten signature in black ink that reads "Paul L. Francis". The signature is written in a cursive, flowing style.

Paul L. Francis, Director
Acquisition and Sourcing Management

Enclosure

List of Congressional Committees

The Honorable John Warner
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United States Senate

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The Honorable Daniel K. Inouye
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Subcommittee on Defense
Committee on Appropriations
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House of Representatives

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