

**MEMORANDUM OF UNDERSTANDING
AMONG
THE DEPARTMENT OF ENERGY
AND
THE DEPARTMENT OF DEFENSE
AND
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AND
THE FEDERAL AVIATION ADMINISTRATION
FOR
THE COOPERATIVE RESEARCH, DEVELOPMENT, AND DEMONSTRATION OF
PROPULSION AND POWER SYSTEMS TECHNOLOGIES**

I. PURPOSE

This Memorandum of Understanding (MOU) establishes a framework for the cooperative research, development, and demonstration of propulsion and power systems technologies among the Department of Energy (DOE), Department of Defense (DoD), National Aeronautics and Space Administration (NASA) and Federal Aviation Administration (FAA), hereinafter referred to individually as a PARTY (or collectively as the "PARTIES"). The principal implementing organizations for the PARTIES include, but are not limited to, DOE National Energy Technology Laboratory (NETL); DoD Office of the Deputy Under Secretary of Defense (Science and Technology) [ODUSD(S&T)] and relevant Army, Navy, and Air Force laboratories; NASA Glenn Research Center, and the FAA Office of Aviation Research (AAR).

The PARTIES believe that implementation of this MOU will contribute to more cost-effective technology development, mitigate duplication, and enhance technology readiness across a broad spectrum of civil and military applications. The PARTIES further believe that successful coordination and collaboration will result in more capable propulsion and power products, leading to improved military and civil aircraft systems, ground power systems, energy conservation, and environmental security for the U.S. as a whole.

II. BACKGROUND

Traditionally, DOE, DoD, NASA and FAA have separately developed and demonstrated new technologies for enhancing the operating safety, performance, affordability, and environmental compatibility of propulsion and power generation systems. In August 1999, the PARTIES (except the FAA which joined in 2001) agreed to improve coordination and collaboration in the areas related to propulsion and power systems, in anticipation that this would lead to greater national cooperation among the participants and stakeholders, and more effective leveraging of program funding. The efforts of this alliance have led to more fully coordinated and integrated DOE/DoD/NASA/FAA program plans that achieve individual organizational goals and objectives, while maximizing investment synergy in areas of common need or interest. It will also lead to the broader application and more rapid transition of advanced propulsion and power generation technologies. However, it was recognized that an MOU was needed to provide an overarching framework to enable the participating agencies to enter into subordinate agreements in areas of mutual interest and benefit.

III. AGREEMENT

This MOU is intended to encourage and enable new agreements, as well as highlight and reinforce the activities already underway among government organizations, national laboratories, industry, academic participants and other stakeholders. Several inter-agency workshops have identified technology areas where collaboration among DOE, DoD, NASA and FAA offers the potential for substantial improvements. Such areas include, but are not limited to:

1. Turbine engines;
2. Airbreathing high-speed propulsion;
3. Airbreathing combined cycle systems;
4. Fuel cell power systems; and
5. Fuels

Subordinate projects and collaborations will be identified through discussions and separate agreements among the organizations participating in this MOU. Each of these agreements will identify, at a minimum, objectives, areas of responsibility, activity timelines, and points of contact.

This MOU broadly states the intentions of the PARTIES to identify and, where appropriate, support collaborative technology activities, and does not bind the PARTIES. The MOU does not create legal rights or obligations for any PARTY, and any PARTY may withdraw, without penalty. This MOU may be modified by mutual agreement of all PARTIES, including changes in the membership. Collaboration under this MOU will be in accordance with applicable statutes and regulations governing the undersigned organizations.

IV. AUTHORITY

DOE - This MOU is entered into on behalf of DOE under the authority of the Department of Energy Organization Act, Public Law 95-91, as amended, 42 U.S.C. § 7101 et seq.

DoD - This MOU is entered into on behalf of DoD under the authority of the Secretary of Defense.

NASA - This MOU is entered into on behalf of NASA under the authority of Section 203 (c) of the National Aeronautics and Space Act of 1958, as amended, 42 U.S.C. §2473 (c).

FAA- This MOU is entered into by FAA pursuant to 49 U.S.C. § 106(l)(6) and (m).

Nothing in this MOU is intended to conflict with current law or the regulations or directives of DOE, DoD, NASA or FAA.

V. RESOURCES

Unless otherwise agreed, the PARTIES shall independently bear the costs they separately incur for performing, managing, and administering their activities under this MOU. These costs include salaries, travel, and per diem for project personnel, as well as any contract costs. Any transfer of funds between the PARTIES must be supported by subsequent agreements and appropriate fiscal documents, including Economy Act orders pursuant to 31 U.S.C. §1535, where applicable.

VI. MODIFICATION

This MOU may be modified at any time upon the mutual written consent of the PARTIES. Modifications must be signed by the original signatories to the agreement, or their designees or successors. No oral statement by any person shall be interpreted as modifying or otherwise affecting the terms of this MOU.

VII. TERMINATION

Any PARTY may terminate its involvement at any time, with or without cause, and without incurring any liability or obligation, by giving the other PARTIES at least 30 days prior written notice of termination.

VIII. DATA RELEASE

Any public information released concerning the activities related to this MOU shall

describe the contribution of all PARTIES to the activity. This does not apply to reports or records released pursuant to the Freedom of Information Act, 5 U.S.C. §552, or other applicable law or regulation.

Each PARTY's classified and proprietary material will be appropriately labeled and treated in accordance with its pertinent rules, policies, instructions, and regulations.

IX. PERIOD OF PERFORMANCE

This MOU shall be effective when signed by all the approving officials appearing below and shall remain in effect unless terminated upon written request of any PARTY, pursuant to Section VII.

This MOU expires on September 30, 2010. However, this MOU can be extended by mutual agreement of the PARTIES.

X. ANTI-DEFICIENCY ACT

This MOU is not a funding document, and does not represent the obligation or transfer of funds. All activities pursuant to this MOU are subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. §1341.

XI. EFFECTIVE DATE

This agreement will take effect upon the date of the last signature appearing below.

This MOU for Cooperative Research, Development and Demonstration of Propulsion and Power Systems technology is executed in quadruplicate on the dates indicated below:

By:  _____

Date: 4/13/04

Robert G. Card
Under Secretary of Energy for Science and
Environment
U.S. Department of Energy

By: _____

Date:

Dr. Ronald M. Sega
Director, Defense Research and Engineering
Department of Defense

By: _____

Date:

Jeremiah F. Creedon
Associate Administrator,
Office of Aerospace Technology
National Aeronautics and Space Administration

By: _____

Date:

Charles Keegan
Associate Administrator for Research and Acquisitions
Federal Aviation Administration
Department of Transportation

MOU No: FNA 08

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By: _____ Date:
Robert G. Card
Under Secretary
Department of Energy

By: _____ Date:
Dr. Ronald M. Sega
Director, Defense Research and Engineering
Department of Defense

By: Lebacqz 10/16/03 Date:
Dr. J. Victor Lebacqz (Acting)
Associate Administrator for
Aerospace Technology
National Aeronautics and Space Administration

By: _____ Date:
Charles Keegan
Associate Administrator for Research and Acquisitions
Federal Aviation Administration
Department of Transportation

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Robert G. Card
Under Secretary
Department of Energy

By: _____

Date:

Dr. Ronald M. Sega
Director, Defense Research and Engineering
Department of Defense

By: _____

Date:

Dr. J. Victor Lebacqz (Acting)
Associate Administrator for
Aerospace Technology
National Aeronautics and Space Administration

By: _____

Date: 1/29/04

Charles Keegan
Associate Administrator for Research and Acquisitions
Federal Aviation Administration
Department of Transportation