

✓

**REIMBURSEMENT POLICY FOR THE SPACE STATION  
FREEDOM PROGRAM**

---

**Submitted to the**

**COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY  
U.S. HOUSE OF REPRESENTATIVES**

**and the**

**COMMITTEE ON COMMERCE, SCIENCE AND TRANSPORTATION  
U.S. SENATE**

---

**Office of Space Station  
National Aeronautics and Space Administration**

**May 1989**



National Aeronautics and  
Space Administration

Washington, D.C.  
20546

JUN 8 1988

Reply to Attn of:

SF

Honorable Robert A. Roe  
Chairman  
Committee on Science, Space  
and Technology  
House of Representatives  
Washington, D.C. 20515

Dear Mr. Chairman:

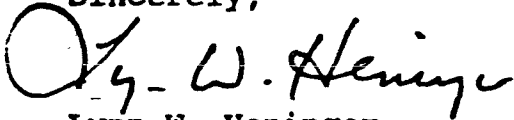
I am hereby transmitting the "Reimbursement Policy for the Space Station Freedom Program: A Report to Congress" in response to Public Law 100-147, Section 111, of the National Aeronautics and Space Administration (NASA) Authorization Act for 1988. Section 111 requested that NASA submit a detailed plan for collecting reimbursements for utilization of the space station.

Space Station Freedom is a unique national facility whose user base will be extensive and varied, and whose life expectancy is estimated to be 30 years. In support of the objectives outlined in Section 110 of the Act, NASA recognizes the need for, and will pursue, the development of a comprehensive policy that will encourage efficient operation, resource allocation and utilization of Space Station Freedom.

The enclosed report provides information on NASA's efforts to develop a policy and procedure for collecting reimbursements for the utilization of the Freedom Space Station. The report presents the definitions of the classes of Freedom users, the objectives of the reimbursement policy, the ground rules and assumptions used in the current study effort, and discusses the potential services to be provided. Finally, the report outlines the steps being taken to develop the reimbursement policy. It is NASA's goal to have a reimbursement policy in place soon after the Preliminary Design Review (PDR), scheduled to occur in 1990. This timing is consistent with the requirement to identify the earliest space station users 5 years before flight time, which will be in 1995.

A stable, predictable reimbursement policy is necessary if we are to encourage meaningful commercial research and endeavor on Freedom Station. We will continue to work towards such a pricing policy and will keep you and your staff apprised of our progress.

Sincerely,



Lynn W. Heninger  
Acting Associate Administrator  
for Congressional Relations

Enclosure

## TABLE OF CONTENTS

PREFACE

I. INTRODUCTION

II. DEFINITION OF USER CLASSES

- A. U.S. GOVERNMENT USERS
- B. NON-U.S. GOVERNMENT USERS

III. OBJECTIVES, GROUND RULES AND ASSUMPTIONS OF THE REIMBURSEMENT POLICY

- A. OBJECTIVES
- B. GROUND RULES AND ASSUMPTIONS
  - 1. User Policy and Cost Recovery
  - 2. U.S. Allocation On the Station
  - 3. Platform Reimbursement Policy

IV. POTENTIAL RESOURCES AND SERVICES TO BE PROVIDED

V. DEVELOPMENT OF SPACE STATION FREEDOM REIMBURSEMENT POLICY

## REIMBURSEMENT POLICY FOR THE SPACE STATION FREEDOM PROGRAM

### PREFACE

This report is being submitted in accordance with Public Law 100-147, NASA Authorization Act for 1988. Specifically, Section 111 of the Act states:

"No later than September 30, 1988, the Administrator shall submit a detailed plan for collecting reimbursements for the utilization of the Space Station under section 110, including services to be offered, the methodology and bases by which prices will be charged, and the estimated revenues."

Section 110 of the Act, referred to above, directs that "(a) The Administrator shall set and collect reasonable user fees for the use and maintenance of the Space Station. (b) The Administrator shall set user fees so as to -- (1) promote the use of the space station consistent with the policy set forth in Section 106; (2) recover the costs of the use of the Space Station, including reasonable charges for any enhancement needed for such use; and (3) conserve and efficiently allocate the resources of the space station. (c) The Administrator may, on a case-by-case basis, waive or modify such user fees when in the Administrator's judgment such waiver or modification will further goals and purposes of the National Aeronautics and Space Act of 1958, including-- (1) the advancement of scientific or engineering knowledge; (2) international cooperation; and (3) the commercial use of space."

The policy set forth in Section 106 states that

"(a) The Administrator is directed to undertake the construction of a permanently manned space station (hereinafter referred to as the "space station") to become operational in 1995. The space station will be used for the following purposes--(1) the conduct of scientific experiments, applications experiments, and engineering experiments; (2) the servicing, rehabilitation, and construction of satellites and space vehicles; (3) the development and demonstration of commercial products and processes; and (4) the establishment of a space base for other civilian and commercial space activities. (b) The space station shall be developed and operated in a manner that supports other science and space activities. (c) In order to reduce the cost of operations of the Space Station and its ground support system, the Administrator shall undertake the development of such advanced technologies as may be appropriate within the level of funding authorized in this Act. (d) The Administrator shall seek to have portions of the space station constructed and operated by the private sector, where appropriate. (e) The Administrator shall promote international cooperation in the space station program by undertaking the development, construction and operation of the space station in conjunction with (but not limited to) the Governments of Europe, Japan, and Canada. (f) The space station shall be designed, developed, and operated in a manner that enables evolutionary enhancement."

In February 1988, the Administration's Space Policy and Commercial Space Initiatives included recognition of the non-government commercial space sector and guidance to federal agencies to seek commercially available goods and services and to rely on commercial development of future space station requirements, including those under study. The Space Policy also states that NASA

and other agencies will work cooperatively to develop and implement specific measures to foster the growth of private sector commercial use of space.

## I. INTRODUCTION

This report provides information on NASA's initial efforts to develop a policy and procedure for collecting reimbursements for the utilization of the Freedom Space Station. The report presents the proposed definitions of the classes of Freedom users, the objectives of the reimbursement policy, and the ground rules and assumptions used in the current study effort, and examines the potential services to be provided. The report also outlines the steps currently underway within NASA to develop the Space Station Freedom reimbursement policy.

In support of the objectives outlined in Section 110 of the NASA Authorization Act for 1988, NASA recognizes the need for, and will pursue, a comprehensive policy that will encourage efficient operation, resource allocation, utilization and commercialization of aspects of Space Station Freedom. NASA also recognizes that this policy will probably need to change over time, reflecting increased understanding of station operations costs, the degree and nature of private sector participation, and reimbursement policy impacts as Freedom operations mature.

Various policy alternatives have been studied over the past year. There is insufficient detailed information regarding operations costs and total demand for Space Station Freedom resources to warrant making a final decision at this time. Also, more detailed information on the resources available to users will not be determined until the Preliminary Design Review, currently scheduled to occur in 1990. This kind of information is also essential for the development of the reimbursement policy. Accordingly, NASA's study is not yet complete and a specific policy is not warranted at this time. Current planning for Space Station Freedom anticipates user operations beginning soon after the First Element Launch in 1995. As recommended by the Space Station Operations Task Force, and as agreed to by the international partners in the Memoranda of Understanding (MOU's) covering space station cooperation, plans for each year's station utilization will be prepared five years in advance of flight time. Thus, the initial annual operations and utilization plan will be prepared no later than 1990. NASA plans to have the initial reimbursement policy in place before the operations and utilization plan is completed. This is necessary so that users can know the prices to be charged.

Consistent with the schedule above, NASA plans to publicly release an initial reimbursement policy for the early use of Space Station Freedom in 1990. This reimbursement policy will provide a listing of services to be offered and also the methodology and bases by which NASA will determine the prices to be charged. By that time NASA anticipates having a clearer understanding of potential reimbursable users of the station, so that it will be possible to begin to estimate reimbursements that would be derived from those charges. Similar to other NASA pricing policies, this initial policy will be updated as mature operations and utilization become better defined, in order to ensure that the stated objectives continue to be met satisfactorily.

## **II. DEFINITION OF USER CLASSES**

In establishing a reimbursement policy, one of the first steps is to define those groups who will be charged under that policy for use of station resources and those who will not. Based on studies by the Space Station Operations Task Force (SSOTF) and other groups, NASA has identified five distinct categories of users of Space Station Freedom resources. These include space science researchers, space technology users, joint government/commercial space research and development users, operational space users, and commercial users. These users will be supported by either U.S. Government or by non-U.S. Government organizations.

### **A. U.S. GOVERNMENT USERS**

U.S. Government users would typically fall under the first four categories and would include experimenters supported by any organization within NASA, as well as those sponsored by other executive agencies. NASA-sponsored users would generally not make reimbursement for use of Space Station Freedom resources unless specific agreements are executed under NASA statutory authority, such as space systems development agreements. Other government agencies sponsoring experiments or activities on Freedom, such as NOAA, will be reimbursable users; the nature and level of their reimbursement would be subject to negotiation in the future.

### **B. NON-U.S. GOVERNMENT USERS**

It is anticipated that the bulk of non-U.S. Government users of the U.S. portion of the Freedom Space Station will end up being U.S. companies, because the international partners have allocations of space station space and resources that they will assuredly be making available to their own commercial users. Domestic companies sponsoring experiments, production facilities or other activities are the most likely kind of non-government user. However, by analogy to the non-discriminatory reimbursement policy used for other NASA programs, any accepted foreign users of U.S. space and resources on the station would likely be charged on the same basis as comparable U.S. users. The Space Station Freedom reimbursement policy will address prices to be charged all non-U.S. Government users for use of Freedom resources, consistent with U.S. policy, laws and objectives.

## **III. OBJECTIVES, GROUND RULES AND ASSUMPTIONS OF THE REIMBURSEMENT POLICY**

### **A. OBJECTIVES**

In accordance with President Reagan's National Space Policy and Commercial Space Initiative, the Congressional direction as expressed in Section 110 of the NASA Authorization Act of 1988, and NASA's policies and statutory authority with regard to the promotion and assistance of scientific, technological and commercial activity in space, the objectives of the Space Station Freedom reimbursement policy will be as follows:

- The encouragement of early and efficient use of Space Station Freedom.
- The encouragement of efficient design and use of equipment provided by users on Freedom.

- The encouragement of commercial space activities.
- The recovery of costs to the U.S. Government for the use of Space Station Freedom.

It is important to recognize that these may be to a degree competing objectives which may not be met equally well with a single pricing structure. Adjustments to an initial pricing approach may be required over time as its implementation effects become better understood. Furthermore, shifting priorities as a function of the evolution of station capabilities, changing user requirements and the development of a commercial space industry, including participation in the Space Station Freedom program, may also drive changes in the policy.

## **B. GROUND RULES AND ASSUMPTIONS**

NASA has established a number of ground rules as assumptions underlying its efforts to evaluate and develop a reimbursement policy for Freedom. They include the following:

### **1. User Policy and Cost Recovery**

The Space Act of 1958, as amended, allows the NASA Administrator considerable latitude in establishing user charges. NASA policies traditionally set user charges in order to recover costs, generally charging average costs to non-U.S. Government users of NASA property and services. Consistent with general policy, NASA intends to set charges for the Freedom program to recover the costs of operating the system, consistent with U.S. policy, laws and regulations.

### **2. U.S. Allocation on the Station**

The Space Station Freedom reimbursement policy will address only the U.S. allocations on the station. In accordance with the international agreements covering Space Station cooperation with Europe, Japan and Canada, NASA's international partners have the latitude to develop their own reimbursement policies regarding their allocation of Freedom. It is important to note that the U.S. policy applies to U.S. allocations of space on all Freedom elements, not just on those elements being provided by the United States.

### **3. Platform Reimbursement Policy**

The reimbursement policy for the U.S. allocations of the U.S. and ESA polar orbiting platforms will follow a reimbursement policy similar to that for the manned base. Specific and unique features of platforms may require modifications, but these will be addressed when specific policies are promulgated. Therefore, this report focuses on the manned base of Freedom with the understanding that the principles developed will be adapted to the platforms of the Freedom program.

## **IV. POTENTIAL RESOURCES AND SERVICES TO BE PROVIDED**

There are a number of resources and services which will be provided to users by NASA or others as a part of the Space Station Freedom activities. Part of a total U.S. reimbursement policy will include determination of how these resources and services will be packaged. One of the complexities of station reimbursement is the



linkage among the cost of transportation to and from Freedom, other services such as TDRSS data transmission, and the use of the facilities available on Freedom. NASA intends to provide each user with comprehensive pricing information for all NASA items required to use the facility, including transportation, time, resources on the Freedom Station, and data handling available. NASA will also provide information on goods and services available from the private sector in future updated editions of the catalogue, Accessing Space: A Catalogue of Services, Equipment and Resources for Commercial Users, produced by the Office of Commercial Programs at NASA.

As part of the ongoing study of reimbursement policy options, NASA is reviewing a variety of alternatives for grouping or packaging NASA services related to Freedom. NASA plans to designate some services (e.g. safety reviews) as standard services which will be required of all users and which must be performed by NASA. Other necessary services can be performed either by NASA or by an outside public or private commercial organization. Determining which services would be placed in which categories is a major portion of the current study effort. In addition, it should be noted that NASA is aware and is taking into consideration the possibility that some of these services, in particular those associated with ground operations, may be the subject of commercial interest.

As an example, the study will be assessing how NASA might use a fixed price based on some parameter such as weight or volume for the preparation, transportation to, and installation of a payload on Freedom, as well as another for its removal and return to Earth. It will also assess how variable or fixed rates might be charged for actual use of resources such as crew time, power, time in operation and fluids. There are a number of questions of a technical as well as a pricing nature that will be driven by the choice of groupings or packages. The ongoing reimbursement policy study is addressing these issues.

## V. DEVELOPMENT OF THE SPACE STATION FREEDOM REIMBURSEMENT POLICY

The Space Station Freedom reimbursement policy is being developed by a NASA working group experienced in technical, operational and economic areas. This working group is made up of representatives from the various program offices as well as staff organizations such as the Office of the Comptroller and the General Counsel. Other interested agencies would also participate where appropriate. In the coming months, the group will be addressing the many issues outlined in this report.

The pricing policy should play into the manifesting process so that policy objectives for space station use are met. At the same time, the policy must be clear and understandable to users, and its implementation must be manageable by NASA without undue administrative burden. The reimbursable policy working group is specifically looking at these features of various policy options.

Prices need to be established early enough in the program to allow users time to adequately plan what resources they wish to use, as well as to project the economic consequences of their decisions. Prices must also be stable enough so that users can depend on them when making relatively long-term design, engineering and operational decisions. On the one hand, the pricing structure should be such that private sector use of the station is encouraged. On the other hand, prices should contribute to recovering costs, consistent with U.S. policy, laws and regulations, and should encourage efficient use of scarce station resources.

As station operations mature over the lifetime of the program, it is likely that the initial reimbursement policy will evolve to take into consideration our growing understanding about user demands, greater private sector participation, and availability of station resources and impacts on users of the reimbursement policy.

NASA is highly aware of its responsibility for the development of a timely, comprehensive reimbursement policy for Space Station Freedom. This report has attempted to describe and explain NASA's current thoughts on some of the issues involved. During the coming months, NASA plans to pursue the following actions:

- Continuation of the ongoing reimbursement policy study.
- Development of a draft policy statement for internal review, revision, and submission to the NASA Administrator.
- Coordination of the policy within the U.S. Government and with other affected parties as appropriate.
- Release of a final reimbursement policy and associated implementing procedures.

NASA's goal is to develop a final reimbursement policy that will provide future users with a comprehensive price structure for Freedom Station resources and services. Although there remain a substantial number of issues which require detailed analysis and evaluation, NASA is confident that the study progress to date is providing the foundation upon which an effective reimbursement policy will be built.