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Remarks:

To 4: Please prepare SIG material for DDCI for 22 July meeting.

19 July 85 -
3-ring binder delivered "eyes only" to DDCI.

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July 16, 1985

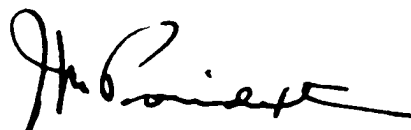
MEMORANDUM FOR MEMBERS, SENIOR INTERAGENCY GROUP FOR SPACE

SUBJECT: Third SIG(Space) Meeting on the Shuttle Pricing Issue

Attached is a new draft of the Shuttle pricing issue paper which has been prepared in accordance with the direction from the SIG(Space) meeting on June 17, 1985. This latest draft:

- Substantially modifies the first two options based upon evolving agency positions.
- Provides a brief description of implied priorities by each option.
- Attempts to place primary emphasis on the concept of each option rather than the price.
- Inserts a section on the conclusions of the CCCT and OMB studies, along with NASA's rebuttal to each.

The third and last SIG(Space) meeting on this subject will be held on July 22, 1985, 1:30-2:30 p.m., Room 208, OEOB. Principals plus one staff member are invited to attend. Please inform Gil Rye (395-5022) of the names of your representatives.



J. M. Poindexter
Deputy Assistant to the President
for National Security Affairs

Attachments

1. Draft Issue Paper
2. SIG(Space) Membership List

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ALCII #1

SHUTTLE PRICING ISSUE PAPER

ISSUE

Which approach to recover the full cost of Space Transportation System (STS) services to commercial and foreign users after 1988 best serves the overall national interest?

NASA will charge Shuttle customers a price of \$71M (in 1982 dollars) per flight during the FY 1986-1988 period. This issue paper deals with the FY 1989-1991 period. Three options are outlined in the latter part of this paper: Additive Costs, Auction Pricing and Total Costing.

BACKGROUND

National Space Policies: Presidential policies relevant to this issue are as follows:

- The U.S. will maintain space leadership (NSDD 42), e.g., U.S. competitiveness with other nations.
- U.S. private-sector investment in civil space activities will be encouraged (NSDD 42).
- On October 1, 1988, prices for STS services provided to commercial and foreign users will reflect the full costs of such services and capabilities (NSDD 144).
- The Shuttle will become fully operational and cost-effective (NSDD 42).
- The commercialization of U.S. expendable launch vehicles (ELVs) will be facilitated (NSDD 94).

At any given Shuttle price level, these five policies cannot be completely and simultaneously implemented. Therefore, the challenge presented by this issue is how best to reconcile these five policies while establishing the Shuttle price.

Prior Studies: NSDD 144 directed that OMB, in consultation with other agencies, prepare a joint assessment on "International Competitiveness in Launch Services", and that the Cabinet Council on Commerce and Trade (CCCT) also review the Shuttle pricing policy. The OMB-led study was completed in February 1985 and concluded that the option to have a commercial ELV industry in the United States will disappear unless action is taken now to implement fully a pricing policy for commercial and foreign users that recovers all of the costs of the Shuttle, consistent with Government-wide cost recovery policy. The study states there is a serious risk that by the

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early 1990s, Shuttle availability for commercial and foreign traffic could be reduced by greater U.S. Government demand or lower than planned flight rates. Finally, the study concludes that commercial ELVs provide the best hedge available for dealing with the uncertainties in the international marketplace for launch services. NASA did not concur with many of the study's conclusions, stating that if the U.S. is to maintain its world leadership position in providing commercial space transportation, Shuttle prices must remain competitive. If Shuttle prices are escalated extensively, NASA believes the French will be in a position to capture as much of the world market as they desire.

The CCCT Working Group Study was completed in April 1985 and concluded that it is in our national interest to maintain an environment where our domestic ELV industry has the potential to compete in the launch services market. That environment as viewed by the study can be maintained without sacrificing any legitimate objective of U.S. space policy, significantly reducing revenue to the Treasury or jeopardizing U.S. trade interests. The study concluded that the spectrum of justifiable full cost recovery prices runs from \$116M per flight to \$135M per flight (depending on the assumed flight rate) which reflects the allocated pro rate share of the direct and indirect costs associated with the Space Transportation System. NASA nonconcurred with most of the CCCT study's conclusions as well. NASA states that an increase in Shuttle prices aimed at commercializing ELVs will stifle other space commercialization goals. NASA states that over five times as many companies are investing ten times as much money in Shuttle-dependent and other new space commercialization activities as there are companies investing in private ELVs.

Relevant Factors: Four important factors in determining whether a high or low Shuttle price proves to be in the national interest are: the projected Shuttle flight rate, future supply and demand for foreign and domestic flights, the prospects for Ariane to capture a larger segment of the market and the impact on space commercialization. These factors are explained below.

Shuttle Flight Rate. The first factor is the ability of NASA to generate 24 flights at a reasonable level of funding as targeted in NSDD 164. Options #1 and #2 are calculated using this projected rate. Some other agencies question NASA's ability to generate 24 flights per year pointing to the agency's inability to date to generate the number previously or currently planned. These agencies believe 20 Shuttle flights is a more realistic rate and have used this estimate in calculating Option #3.

Supply & Demand. In the area of free world commercial and foreign payloads, recent assessments call for 17-20 such

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payloads (6-8 Shuttle-equivalents) to be launched each year between FY 1989-1991. With respect to supply, as little as 2 or as many as 7 Shuttle flights could be made available to compete with the projected 7 Ariane flights (approximately 3 Shuttle-equivalents) to service commercial and foreign payload demand. While no U.S. ELVs are currently launching, they have a theoretical launch capacity larger than projected demand. Under these conditions, there would be an excess of worldwide launch capacity relative to demand. The Shuttle may have the capacity to launch almost the entire market. Ariane could service 52-82% of the market, depending on load factor; and U.S. ELVs could service the entire market. However, if significant increases in demand result from such programs as space station and the Strategic Defense Initiative, the environment would change from a "buyer's market" to a "seller's market."

Ariane. The Ariane program is seen by Western Europeans as vital to improving their leadership position and as a source of employment and technology development in aerospace. Ariane-space has demonstrated a willingness to bid approximately 5% below U.S. prices to capture market share during the beginning of its operational phase and is expected to continue this practice. CIA estimates Ariane's costs to be in the range of \$84M to \$127M per Shuttle-equivalent flight. Ariane's planned production and launch capacity is estimated to be eight launches per year through the late 1980s increasing to ten per year by 1993. CIA has no evidence to indicate that either ESA or the French plan an expansion of production facilities for the 1989-1991 time frame. U.S. industry has filed an unfair practices complaint against Ariane. USTR has recommended to the President that he make a negative finding under Section 301 with respect to allegations of unfair trade practices by the European Space Agency and its Member States in the field of satellite launching services (more specifically, the French-built Ariane ELV).

Space Commercialization. Expanding the private sector's investment in space is a high priority of this Administration. The Shuttle price is the most important factor in determining whether commercial ELVs can become competitive with the Shuttle in attracting commercial and foreign flights. Also, the Shuttle price will have an impact on U.S. industry's willingness to remain or become involved in other areas of space commercialization such as space communications, upper stages and space manufacturing.

DISCUSSION

Advocates of a lower Shuttle price argue that:

- Any Shuttle price above the mid-\$80M would be non-competitive against Ariane. Higher Shuttle prices would immediately concede to Ariane roughly 80% of the market and

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possibly encourage Ariane to expand capacity to capture the entire market and encourage other foreign competitors to enter the market.

- Higher space transportation costs would inhibit private sector investment and research in space. As much as 90% of commercial space revenues may come from new areas such as space manufacturing, while only 2% will come from commercial ELVs.

- Noncompetitive Shuttle prices would encourage customers to use other means of space transportation, thereby reducing revenues to the government. All NASA reimbursements above the marginal cost of a flight (\$33M) are net revenues acting to defray the fixed costs of operating the Shuttle for government needs. Without commercial and foreign customers to help in defraying fixed costs, the price charged U.S. Government users, including DOD, would increase.

- Large increases in government or foreign and commercial demand for launch services are unlikely. However, if demand should unexpectedly increase, future private ELV capacity could be provided by extending production runs of Titan (now being produced for the Air Force) or by restarting production of other ELV's (which would require no more than two years lead time).

Advocates of a higher Shuttle price argue that:

- Continuation of the current low Shuttle price will place the government in direct competition with the private sector and ultimately eliminate the private U.S. ELV industry. If launch demand increases (due to such Presidential initiatives as Space Station or SDI) or the Shuttle continues to experience flight delays, U.S. ELVs provide a no-cost-to-taxpayer means of satisfying this demand.

- The low price does not conform to government policies for full cost recovery and continues to subsidize profitable commercial satellite businesses and foreign governments by tens of millions of dollars per launch. Lower Shuttle prices will not recover the full range of long-term Shuttle costs, resulting in net costs to the government even if the Shuttle is fully utilized. The unique benefits of the Shuttle should be sufficiently attractive to new space applications at higher prices to assure that the Shuttle will be fully utilized and recover its costs.

- The reliability of the Shuttle is suspect. Today, STS is losing 50-70% of the commercial and foreign market to Ariane, its only competitor. This is primarily the result of Shuttle delays and operational problems, customer demands for launch alternatives, and preferences for simpler, unmanned system. Continued low prices will not remedy this situation.

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- It supports the Administration's policy of free trade. Fair and full competition for launch services internationally can be achieved and enforced by USTR only if a price is adopted which is publicly recognized as reflecting full costs.

OPTIONS AND IMPLICATIONS

All of the following options purport to meet the policy objective of "full cost recovery."

Option #1. Additive Costs (Sponsored by Commerce)

This option would establish a price based on the additive costs associated with adding Shuttle flights for commercial/foreign payloads plus depreciation for an Orbiter. Additive costs are those above the fixed operational base costs required to maintain and refurbish the Space Transportation System to meet government mission requirements. The price charged commercial/foreign customers should also include a capital recovery fee for depreciation to capture the production costs of a new Orbiter. The total of all these costs is \$65M per flight.

In the opinion of the sponsor, this option supports the policies shown on the first page in the order shown. The sponsor believes maintaining U.S. competitiveness in world markets is the primary national interest. U.S. competitiveness in launch services will maintain U.S. space leadership consistent with NSDD 42. Because competitiveness tends to drive prices to their lowest possible level, the low cost Space Transportation System will encourage the private sector to invest in space-related research and development -- the second most significant policy goal. Beyond the funding needed for government missions, it is entirely consistent with full cost recovery to require commercial users to bear only the additional costs associated with their particular additional needs. Such a pricing rationale is consistent with a fully operational and cost effective Shuttle system as called for in NSDD 42. The commercialization of ELVs should not be subsidized through inappropriate pricing of Shuttle operations.

Option #2: Auction Pricing (Sponsored by OMB, CEA and NASA)

This option permits market forces, not the government, to determine the price for Shuttle commercial services. For each year of flight beginning with 1989, Shuttle flight capacity available for foreign and domestic commercial users would be sold at auction. A minimum acceptable bid (auction floor) would be established at \$82.5M (82\$). However, the NASA Administrator may price up to two Shuttle-equivalent flights per year below the auction floor if necessary to match bona fide offers from foreign competitors. The NASA Administrator will also be able to price the Shuttle below \$82.5M (82\$) for other reasons subject to authorization from the Assistant to

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the President for National Security Affairs and the Office of Management and Budget. Auction bids will be accepted at any time and available capacity will be sold until it is no longer available, up to three Shuttle-equivalents worth. Starting two years before the launch year, NASA will be able to offer any remaining unused capacity to the commercial market. All sales will be subject to the pricing conditions stated above. NASA will review annually the commercial Shuttle activities and submit a report of such activities, together with any recommendations for changes in this pricing policy, to the Assistant to the President for National Security Affairs. Any policy issues raised as a result of this annual report will be promptly considered by the SIG(Space).

In the opinion of the sponsors, this option best reconciles and supports the first four policies shown on the first page. It places less emphasis on encouraging the commercialization of ELVs. In particular, this market pricing approach will permit continued U.S. competitiveness for launch services, encourage space commercialization, and maximize the return to the U.S. Government for selling commercial launches. This option does not represent a subsidy to foreign and domestic commercial users. DOD and other U.S. Government users will negotiate an appropriate price for Shuttle services in accordance with NSDD 164. Under this approach, U.S. commercial ELVs will be encouraged to develop without subsidy in response to rising market prices as market conditions allow.

Option #3. Total Cost (Sponsored by Transportation)

This option recovers direct and indirect operating costs, depreciation and interest. These elements and the resulting price are based on a definition of "full cost recovery" consistent with standards and policies prescribed by OMB, GAO and the Generally Accepted Accounting Principles (GAAP) used by the private sector. This approach and price are supported in the CCCT Working Group study on "Commercial Impacts of Shuttle Pricing Policy," which identified a range of full cost Shuttle pricing of \$116M to \$135M per flight depending on assumptions. The price recommended by this option is \$129M.

In the opinion of the sponsor, this option supports the President's initiatives to recover full costs for Shuttle services and capabilities as well as encourage and facilitate development of a U.S. commercial ELV industry. A U.S. ELV industry is viewed as a much needed element in the U.S. space transportation to maintain leadership since the Shuttle at current \$71M prices is losing 50-70% of the commercial and foreign market to the French ELV, Ariane. Options #1, and #2, which are based on either operating costs only, short run marginal cost do not support the President's policies for full cost recovery or a U.S. commercial ELV industry, as directed in NSDDs 94 and 144. Shuttle pricing based on any of these options represents a contrived effort to keep the Shuttle competitive with Ariane

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even though current low prices have not proved productive in improving Shuttle competitiveness. This option reduces substantial Shuttle subsidies and unfair government competition with the private sector which must recover all costs. In addition, it ensures U.S. capability to meet increases in demand for space transportation. NASA would continue its policy for providing below-cost transportation for high-risk research and development ventures with commercial potential.

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SENIOR INTERAGENCY GROUP FOR SPACE

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Deputy Director
Office of Science and Technology Policy

JOHN SVAHN
Assistant to the President for Policy Development

Executive Secretary: COLONEL GILBERT D. RYE
Director of Space Programs
NSC Staff

Additional invitees to July 22, 1985 SIG(Space) Meeting:

Dr. Beryl Sprinkle
Chairman, Council of Economic Advisors

Mr. Alfred Kingon
Special Assistant to the President for Cabinet Affairs