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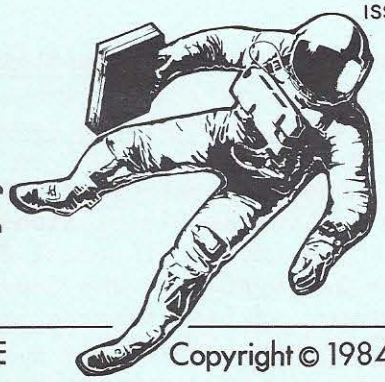

A MONTHLY NEWSLETTER ON FREE ENTERPRISE IN SPACE

Volume 8, No. 2 February, 1984

Dear Subscriber:

Reagan Advocates Space Station, Private Enterprise in Space

The State of the Union Address included a call for a manned space station, as expected. Reagan's proposed budget for 1985 includes $150 million for NASA to begin initial definition studies. The space station, expected to become operational early in the 1990's, will cost an estimated $8 billion over an eight-year development period (more on this later).

More importantly, Reagan at the same time strongly endorsed private enterprise as the preferred road into space, specifically mentioning private sector launch services. This endorsement was re-emphasized the following Saturday in the President's weekly radio speech.

Several groups are advising the Administration on space commercialization, searching for ways to encourage the process. These groups include a White House Space Commercialization Group made up of industry managers, and a NASA Commercialization Task Force. Recommendations include:

- NASA policies encouraging space commercialization. These involve such things as improved private access to NASA facilities (and the Shuttle), better protection of commercial proprietary information, and directing more of NASA's research and development towards aiding private enterprise in space development.

- Economic incentives such as tax credits, and tax law reform to encourage private space activity.

- Regulatory reform to remove roadblocks (and prevent the creation of new ones). The positive attitude of the Department of Transportation towards free enterprise is an encouraging sign in this direction.

The present political environment is excellent for private space endeavors. The government seems to be bending over backwards to allow a maximum amount of operating freedom to the entire spectrum of space industry. In the December, 1981 C.S.R., we pointed out that the time was at hand for serious investment in this industry. Yet, at that time, the government had not dealt seriously with private sector space transportation and development, and stood as a major possible impediment. Hard work on the part of many people changed this, resulting in a government which is considerably more favorable towards private enterprise in space than back in 1981.

The private launch business is still hungry for investment. There are excellent opportunities to get in on the ground floor of numerous companies (many of which were mentioned in last month's C.S.R.), and major investors who fail to do so are going to be kicking themselves a few years down the road.

Space Station Costs--Sky is the Limit?

Eight billion dollars for a six-man space station is an astonishing figure. Skeptics in government, such as T. F. Rogers (heading a study of the space station for the congressional Office of Technology Assessment), believe that costs could even rise as high as $20 billion(!) Just for comparision, consider the NOAA estimates of the total financial damages resulting from last year's devastating "El Nino" weather system. The damages, (from storm and flood destruction, drought-ravaged crops, ruined fishing industries) worldwide, added up to $8.65 billion (National Geographic, Feb. 1984, p. 155).

What kind of space station will $8 billion buy? The facilities included in the cost estimate include five 22 x 14 foot cylindrical modules (two lab modules, one habitation module, and two logistics modules--one a spare); docking adapters and servicing structure; a resources module for power and life support; and two unmanned free-flying platforms (one in the same 28 deg. orbit as the station, the other in a 98 deg. polar orbit). Estimated station weight is about 80,000 lbs., and the six to eight man crew will occupy a pressurized habitable volume of about 6800 cubic feet.

Can a useful system be developed for less money? The standard libertarian response is that for private enterprise to underprice a government project would be like shooting fish in a pork barrel. The truth is even worse...the government itself could do better.

As an example, we can refer to a previous space station study performed by McDonnell Douglas in 1975 under NASA contract NAS8-31014. The study proposed a space station, or Manned Orbital Systems Concept (MOSC), quite similar to the $8 billion system presently under discussion.

The final design of the MOSC consisted of a four-man station made up of four modules (a habitability module, a payload module, a subsystems module, and a logistics module). Spares were included for the payload and logistics modules. Total weight was about 64,821 lbs., and habitable volume about 5,000 cubic feet. The MOSC would be placed into a 28.5 deg. orbit. Estimated development time: five years. Costs were calculated in FY 1975 dollars, practically down to the individual bolt.

Total estimated cost: $1.185 billion, or about $2.5 billion in 1983 dollars--$5.5 billion less than the new NASA station. Remember, this is not a privately financed system, but a government project. There's more.

That price also included five years' operations costs, i.e. cost of simulators, non-NASA personnel, and five years' worth of consumables. And that's not all--

A second, identical MOSC, complete with crew, was included for polar orbit, incorporating the same four modules with spares, and three years' operations costs. All of this for about a third of what NASA wants for a space station today.

Why this huge discrepancy? Does this extra $5.5 billion cover some enormous expense not accounted for by the MOSC study? How about Shuttle launch costs? MOSC cost estimates did not include either the launches required to orbit the two MOSCs or the ones required to service them. The $8 billion for the new space station doesn't include Shuttle servicing missions either, or any operational costs for that matter. It is not clear if initial launch costs are included in the $8 billion, but this would come to about $500 million for the five or six launches required to orbit the space station--which still leaves around $5 billion to be accounted for.

The most important factor may be NASA's need to support itself. NASA is a research and development agency--it was never intended to be an operations organization for existing systems. Therefore, for the agency to survive and prosper through

the 80's, there is considerable pressure to create new systems rather than using off-the-shelf technology. The Space Shuttle is nearly completed as a major R & D project. The space station came along just in time to create a whole new project.

Presently, NASA statements on space station technology seem to confirm this. They call for advances in propulsion, avionics, materials, energy systems, life support, and many other fields.

There is also pressure from potential NASA contractors for all-new technology. For example, Boeing Aerospace has stated that it would be "impractical" to use existing European Spacelab hardware (MOSC garnered considerable savings by utilizing existing and proposed Spacelab and Shuttle hardware and technology). On the other hand, Reagan has advocated international cooperation which would help spread the costs around. It remains to be seen which view will prevail.

It can be demonstrated that large quantities of new technology are not required to produce a working manned space station. The MOSC study is one piece of evidence. Another is an article by Eric Drexler in the January 1984 L-5 News (1060 E. Elm, Tucson, AZ 85719). The article analyzes the basic cost drivers of space stations, and points out some of the false assumptions and traditions of bureaucrats and aerospace industries which have resulted in prices that could make an American space station, a huge structure, worth over sixteen times its weight in gold.

Private Enterprise Negates Need for Government Space Mission

Hughes Communications Galaxy, Inc., is seeking approval from the FCC for its planned series of 20-30 GHz communications satellites. The company has also informed NASA that it intends to launch two of these satellites, built by Hughes and based on the Intelsat VI bus design, beginning in 1988. The cost, privately financed, is expected to be about $450 million.

NASA had been planning a similar R & D test satellite, ACTS (Advanced Communications Technology Satellite) which would have cost about $300 million. With the advent of the Hughes project, NASA has changed its plans. The $95 million budgeted for FY 1985 has been restructured to $5 million, which will support technology development on the ground. NASA no longer sees a need for the ACTS, a victory for private enterprise and the taxpayer.

Pacific American Satellite Proposes Privately Funded Lunar Orbiter

Pacific American Satellite Co. has proposed a lunar prospecting mission using the company's Globesat satellite bus (C.S.R., Jan. 1984, pp. 2,5). The firm would build the satellite and launch it on the Shuttle using private financing. The satellite would use its integral propulsion system to take it from low earth orbit to a polar orbit around the moon, where it would seek out water or other useful volatiles near the poles.

NASA would purchase satellite data from the company for about $50 million. This "pay on delivery" arrangement could be most convenient for NASA, which would not have to request funds for lunar data until it was actually available--essentially a no-risk proposition.

Starstruck Prepares For Dolphin Launch

The first flight model of the Dolphin hybrid rocket was rolled out of Starstruck's Redwood City plant on February 1st, on schedule, in preparation for its first test launch, scheduled for February 9th. The rocket, designated the D-2, was painted black, white, and a brilliant international orange for visibility at sea. Signatures of enthusiastic Starstruck personnel covered the lower half. The rocket

was loaded aboard its carrier to be shipped to a debarking point at Terminal Island in Long Beach, California. From there it will, weather permitting, set out to sea to make its first low-altitute sea launch attempt. A detailed report will appear here next month.

U.S. Earth Resources System Still Up for Sale

On Jan. 3, the U.S. Department of Commerce issued a request for proposals for transfer of the U.S. land remote sensing program to the private sector (C.S.R., Dec. 1983, pp. 2-3). The due date for bids, originally Feb. 29, 1984, has been extended to noon Monday, Mar. 19, 1984.

Articles of Interest in Other Publications

Geostar, Gerard O'Neill's satellite navigation/communications system based in Princeton, NJ, was featured in an illustrated article in the February, 1984 issue of Popular Science.

Upcoming Conferences

The Third Annual Conference on Space Development will be held at the Sheraton Palace Hotel, San Francisco, California, April 20-22, 1984. As with the previous two conferences, this one will be an excellent opportunity for representatives from aerospace industries, government space programs, space organizations, and the general public to meet and trade information. Registration fees (before April 1) are $30.00 for L-5 members, $50.00 for others. Contact: Third Annual Conference on Space Development, 1275 4th St. #242, Santa Rosa, CA 95405.

The Space Technology Conference and Exhibition will be held in Zurich, Switzerland, June 19-21, 1984. It will provide an opportunity for U. S. public and private space programs to present themselves to European business leaders, financiers, and government officials. The conference is actively seeking literature and exhibitors, and represents an opportunity for private space companies to gain exposure to the European marketplace. Contact: Trans European American Marketing, P.O. Box 3092, 265 Varsity Ave., Princeton, NJ 08540 U.S.A. (609) 452-2895.

The Freeland II New/Free Country Conference will be held May 12, 1984, at the Golden Sails hotel, Long Beach, California. The conference will deal with outer space settlements as an alternative to coercive nation-states. Speakers will include author Poul Anderson, space entrepreneur Gary Hudson, and others. Admission is $18.00 before April 24. Write: Freeland II, Box 4, Fullerton, CA 92632.

Until next time,

Tom Brosz

The Commercial Space Report (C.S.R.) is published monthly, and endeavors to report and analyze developments in the field of private initiatives in space transportation and exploitation.

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