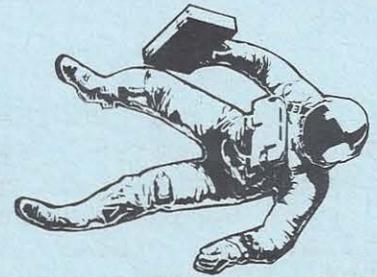


THE  
**COMMERCIAL  
SPACE REPORT**



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Gary C. Hudson, Editor

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Dear Subscriber:

February

Last month we began the new year and new administration with the first half of a memo written by noted space lawyer Arthur Dula of Houston which was circulated to the Reagan campaign team. Mr. Dula's recommendations to the Reagan Administration promote "a hopeful and positive view of America's future" and include a number of specific proposals. To summarize:

1. "The Reagan Administration Could Increase the Space Shuttle Fleet to Five Orbiters"
2. The Reagan Administration Could Maintain Our Nation's Planetary Sciences Program
3. The Reagan Administration Could Build a Permanent Space Station"

Mr. Dula continues...

4. "The Reagan Administration Could Expand the Solar Power Satellite Program

The Solar Power Satellite (SPS) concept was originated in 1968 by Peter Glazer, Vice-President of Arthur D. Little. SPS would gather the sun's energy in geosynchronous orbit, where the sun shines over 90% of the time, and beam it back to the earth via microwaves or lasers. The government, through NASA and DOE, has funded SPS research and development studies since 1974.

The fiscal year '80 budget for SPS was \$5.5 million, appropriated through DOE. Carter's original FY '81 budget held this level. However, this march the Carter Administration asked Congress to cut the development budget for this promising new solar energy technology to zero.

The current strategy of SPS supporters is to wait for a DOE report on SPS, which is expected to be highly favorable, scheduled for this November. The House Science and Technology Committee, sparkplugged by Chairman Don Fuqua, will then hold hearings and push for a supplemental appropriation to cover FY '81.

The cost to the U.S. Government of an SPS program has been exaggerated. Figures in the range of the hundreds of billions represent the cost, not only of all research and development, but also of building enough orbiting power plants to produce at least 25% of U.S. electrical generating capacity projected by the year 2000. Figures in the range of \$60 to \$100 billion represent the cost of all space activities to reach the point at which the U.S. will have the space manufacturing capacity needed to produce 10-Gigawatts (10,000 Megawatts) of SPS electrical generating plants each year. This is enough electric power to run New York City. This total does not take into account all the military, communications, remote sensing, navigation, space industrialization and ground-based solar energy development that would also be paid for by such solar energy programs. Even if we never use a watt of energy from SPS, at least 90% of this \$100 billion development cost would represent Earth-based investments in new technology. For example, the space station, the solar electric propulsion system, and the space shuttle augmented fleet discussed above are all key elements of a space solar power program.

In both 1978 and 1979 the House passed by a large margin, a bill (HR 2335) to increase SPS funding to \$25 million per year. It now awaits action by the Senate Energy Committee. There is a high probability that Congress would support a FY '82 DOE appropriation for SPS of \$25 million.

##### 5. The Reagan Administration Could Hold NASA's Budget Constant

It should be noted that this year's \$5.5 billion NASA budget is dominated by the space shuttle program. Shuttle funding begins a rapid decline by FY '82. By holding the NASA budget constant it would be possible to move ahead with all the projects discussed in this memorandum, including the space solar power program.

A space solar power program, even in its research and development stage, could make a strong near-term favorable impact on the U.S. economy. A strong energy high technology research and development effort would put OPEC on notice that the U.S. is on the road to energy independence. Macroeconomic analysis indicates that expectation of future energy cost declines, such as might accompany electricity produced from solar power in space, will cause oil suppliers to hold down price rises in order to move oil stocks sooner.

For perspective we should consider that the U.S. oil import bill alone reached \$90 billion in 1979. The Reagan Administration could afford to raise U.S. energy research and development activities to \$5 billion per year and still "show a profit" from the macroeconomic effects of such spending on the U.S. economy.

Another factor encouraging strong space, energy and military research and development is the well documented effect such spending has on the economy at large. For example, the most recent report on the impact of NASA's research and development, "U.S. Must Spend More to Maintain Lead in U.S. Space Technology", (Government Accounting Office, January 31, 1980) points out that over 50% of U.S. productivity growth since World War II is directly attributable to technological innovation.

The Reagan Administration has an opportunity to aggressively promote the solar power satellite project by:

(A) Increasing DOE's space solar power budget to \$25 million in FY 1982.

(B) Supporting continued vigorous solar cell development by DOE.

(C) Holding the NASA budget up to at least FY 1981 levels and using the money freed by the end of Space Shuttle development to fund the space solar power program. This program will include: (1) augmented shuttle fleet; (2) a solar electric propulsion vehicle; and (3) a permanent 8-person capacity space station, as well as large space structures and construction research, and development of a large volume, low cost space transportation system.

#### 6. The Reagan Administration Could Reverse Carter's Policies of Weakness in International Space Negotiations

The U.S. faces a growing challenge from less developed nations and the Soviet Union over the sharing of the electromagnetic spectrum, geostationary orbit slots and space resources.

For example, at the World Administrative Radio Conference (WARC) in Geneva last fall, a U.S. plan to create 700 new AM stations within our borders met stiff resistance. This is because the less developed nations wish to "warehouse" radio frequencies, denying their use to the U.S. in the expectation that at some indefinite future date these nations might wish to use them.

At the 1979 WARC conference these nations also objected to a U.S. proposal to beam energy in the 2.45 Gigahertz band from space solar power satellites to Earth -- a proposal that one FCC observer says is now "all but dead".

In 1976 Brazil, Colombia, Ecuador, Indonesia, Kenya, Uganda, and Zaire laid unilateral claim to jurisdiction over those portions of geostationary orbit over their territories. This may foreshadow future claims over geostationary orbit. These claims might follow recent trends in which less developed nations, for example, are seeking radio frequency allocations on the basis of equal access for each country, regardless of their state of development.

The U.S. also faces opposition to our making unrestricted use of remote sensing data and direct broadcast satellites. Nations are demanding prior consent before we release remote sensing data or make broadcasts over their borders. Remote sensing, like satellite surveillance, has become a valuable intelligence tool for the U.S. and its allies. Direct broadcasting would enable the U.S. to employ the world's most potent weapon -- the free press -- to reach the hearts and minds of other peoples.

The "Agreement Governing the Activities of States on the Moon and Other Celestial Bodies" was passed by unanimous vote of the UN in December of 1979. Due largely to strong U.S.-based opposition, spearheaded by the L-5 Society and backed by seven members of the Senate Foreign Relations Committee (including Chairman Frank Church and ranking minority member Jacob Javits) this treaty has been stalled. Carter has not signed it, although some observers fear that he might sign it next fall if he is reelected.

This treaty, which would declare all space resources "the common heritage of mankind", a phrase interpreted, by most nations to mean "common property", is another example of how less developed nations' are attempting to limit U.S. access to natural resources. The "common heritage" clause has already been used by the United Nations to impose an indefinite moratorium on deep seabed mining. U.S. signature of this lunar treaty, even if the Senate were to refuse to ratify it, would signal a lack of will in the ongoing Law of the Sea negotiations, which threaten immediate U.S. strategic interests as well as endangering an investment of over \$200 million by U.S. private industry in deep seabed mining.

The U.S. is developing an international reputation as an unreliable partner. One of the factors contributing to this is our recent record of reneging on promised space joint ventures. For example, two studies conducted last fall of the Space Shuttle's delays showed that budgetary restrictions, not technical weakness, have caused the scheduled slippage. These have delayed the European Space Agency (ESA) Spacelab project, which must be launched by the Shuttle. Shuttle delays and limited payload capacity due to Carter's slashing the fleet to only four orbiters have forced other nations to book their payloads on the French Ariane launcher and even Soviet flights. Most recently, Carter called for a two year delay of the joint U.S./ESA solar polar mission. The Europeans say that if the U.S. delays, they will go ahead with their end of the project on schedule, launch on the Ariane instead of

the Shuttle and leave American experimenters out in the cold. Congress, led by Don Fuqua, is opposing the delay, but Carter supporters are threatening to impose it through a battle on the Floor of the House, if necessary.

7. Specific Actions the Reagan Administration Could Take to Strengthen United States Space Policy

The Reagan Administration has an opportunity to reverse the recent weakness in U.S. international space policy caused by the Carter Administration. Several events in 1981-83 are critical:

(A) In June of 1981 the United Nations Committee on The Peaceful Uses of Outer Space meets. The U.S. should ask that the "Agreement Governing the Activities of States on the Moon and Other Celestial Bodies" be returned for renegotiation to safeguard private enterprise and human freedoms in space. The U.S. delegation should maintain constant vigilance over COPUOS.

(B) Sometime in 1982 (the date and location are still being argued) the UN will host the Second Conference on the Exploration and Peaceful Uses of Outer Space. This meeting will be a trial run for at least the next decade of treaty negotiations and radio frequency allocations. The USSR has offered to host this conference although most COPUOS members do not favor this proposal. The Reagan Administration could ensure that it is held in a friendly nation.

The U.S. must submit its National Position Papers to the UN by June, 1981. The Reagan Administration could form a task force of space law experts who are known supporters of private enterprise and human freedoms in space to prepare these papers.

(C) In 1983 the Region 2 (Americas) of the International Telecommunications Union will hold an Administrative Radio Conference - Space Broadcasting. The Reagan Administration could resist the territorial claims of nations over geosynchronous orbit, stand up for U.S. rights to direct broadcast over any area of the Americas, and insist that solar power satellites be allowed to beam over the 2.45 GHz band.

(D) The Reagan Administration could publicly guarantee that the United States will never renege on joint space projects with other nations for purely budgetary reasons.

Mr. Dula's views on the shortcomings of the Carter space policy are shared by a broad spectrum of the professional aerospace community. As the new Reagan Administration moves into Washington, a wide variety of articles and reports are being circulated with suggested directions for NASA and the U.S. space program. Recently, Dr. Klaus P. Heiss, Chairman of the AIAA Economics Committee and President of Econ, Inc., published an editorial in the January 1981 issue of Astronautics and Aeronautics entitled "New Economic Structures for Space in the Eighties." Like Mr. Dula, Dr. Heiss sees the failure of NASA to capitalize on the foundation of the 1960's the result of "imposed" inactivity due to budgetary and fiscal constraints. Dr. Heiss offers his own three point plan to infuse life into the U.S. space program.

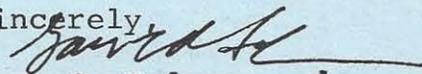
"First, NASA should be formally charged with creating a strong, large scale technology base in geosynchronous orbit (GEO) by 1990. The U.S. can meet this goal with an operational Space Shuttle. No other nation or group of nations can.

Second, "we must restructure the very basis and mode of space operations and applications." "Space applications and technological utilization funding should be transferred from NASA to a Space Transportation Company for operating and marketing any such services now performed by government." "The example of Comsat in space communications may furnish a useful reference."

Third, "space applications and technology utilization funding should be transferred from NASA to a Space Bank to be funded over the next decade." Formed along the lines of the World Bank, the Space Bank would "bring about the economic development of space and space technology" and leverage the funding of "long-term, higher-risk ventures as against what the market would accomplish anyhow."

Whether Dr. Heiss' strategy would actually promote private activities in space will not be analyzed here. Needless to say, Mr. Reagan will receive a wide range of opinions and suggestions, each of which will have different implications for the future of private enterprise in space. We will be following efforts of the transition teams closely in the next few weeks and will be keeping you informed as events in this new political arena develop.

Sincerely,

  
Gary C. Hudson

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