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NASA TECH BRIEF

Cone and Column Solar Energy Concentrator

The problem:

To design a large, lightweight solar energy concentrator. Large paraboloidal solar concentrators are difficult to fabricate accurately.

The solution:

The use of an optically folded system that consists of a large aluminized plastic film cone with a ring supporting the rim of the cone. A secondary reflective surface is a stepped parabolic column located along the axis of the cone.

How it's done:

This solar concentrator concept is a compound reflector system consisting of a reflective membrane cone and a stepped parabolic column located along the optical axis of the cone. Solar energy is reflected from the cone to the column, back to the cone, and then to the focal point. The membrane cone can be folded for packaging and is supported by an expandable ring at the rim of the cone when erected. The stepped parabolic column can be telescoped for packaging.

Note:

Further information concerning this invention is presented in NASA CR-52845, "Investigation of the Optical Characteristics of the Cone-and-Column Double Reflector Solar Concentrator," by J. W. Haylett, November 1963. Inquiries may also be directed to:

Technology Utilization Officer
Langley Research Center
Langley Station
Hampton, Virginia 23365
Reference: B67-10517

Patent status:

This invention has been patented by NASA (U.S. Patent No. 3295512), and royalty-free license rights will be granted for its commercial development. Inquiries about obtaining a license should be addressed to NASA, Code GP, Washington, D.C. 20546.

Source: Thomas J. McCusker
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under contract to
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