CIA

18 September 1974

MEMORANDUM FOR THE RECORD

SUBJECT: OSI Assessment of Progress in the S&T Bilateral Agreement Project on Energy: Solar

1. Our current assessment of Soviet work in solar energy is that they have an active program in the conversion of solar energy into electrical power with the main area of interest being in the development of efficient, reliable solar cells. These solar cells have been extensively used for providing power in spacecraft, and to a lesser extent in the development of small power plants in remote terrestrial areas. The Soviet interest in terrestrial applications of solar energy appears to be mainly for use in locations remote from conventional power plants and where the cost of transporting conventional fuel (oil, gas, etc.) would be excessive.

2. Soviet research on solar cells has been of generally high quality and has produced some notable accomplishments such as the "Photovolt 1000" consisting of vertical stacks of silicon p-n junctions for efficiently developing a high voltage power source. Also worthy of note is Soviet work begun prior to 1969 on gallium arsenide (GaAs) cells and gallium aluminum arsenide-gallium arsenide heterojunction cells. The latter now are also being developed in the US where researchers claim they constitute an extremely significant advance. Both of these cells are capable of operating under high solar flux conditions which would render them compatible with the use of focusing systems--lenses and mirrors--in a photovoltaic solar energy plant for terrestrial applications.

(b)(1)
(b)(3)

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3. The US-USSR exchange in the solar energy area has been of some value in that we have learned more specifics of the Soviet technical work in this field. While we have learned more about the "Photovolt 1000" there is considerable interest in finding out more about this solar cell to determine the reliability of Soviet claims for it. The photovolt has been licensed by the Soviets in several nations but thus far our efforts to obtain one through commercial sources have been unsuccessful. Conceivably the US-USSR solar energy exchange might provide the opportunity to get one.