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THE IMPACT OF SPACE SOLAR ENERGY ON SOCIETY

Abstract

The United Nations has designated 2012 as the International Year of Sustainable Energy for All. One form of Sustainable Energy is electricity generated by photovoltaic cells from solar radiation falling on the surface of the earth. Research and development to enable space crafts to use electricity from solar radiation have also benefitted users of solar energy on the surface of the earth. Solar voltaic cells used on earth are increasingly having greater efficiencies, becoming more easily available, and being sold at a lower price. The existence of many commercial companies competing to manufacture better and cheaper solar voltaic cells have benefited many communities on earth using solar energy, including remote isolated communities for whom electricity from solar radiation would be the main source of power.

In recent years, there has been interest in several countries to use satellites to collect solar radiation in space, convert the solar radiation to electricity and send the electricity to earth. In 2011, The International Academy of Astronautics' Commission III published a Study titled Space Solar Power. It is "The First International Assessment of Space Solar Power, Opportunities, Issues and Potential Pathways Forward" This Study examined in detail, three proposed Space Solar Power (SSP) systems in geo-synchronous earth orbit. It also identified, without analyzing, other proposed systems in different types of earth orbits. It indicated that some time would be needed for SSP to develop to its full maturity.

It may be recalled that in the developments of satellites for communications, for earth observation and for navigation, a wide range of major difficulties had to be overcome before they became widely used in Society today. In the coming decades, some obstacles would have to be overcome for SSP to provide safe, clean and always available energy for sustainable development of society. SSP would make society less dependent for its energy needs on oil, gas and coal. It could also reduce the need for nuclear power which in the event of accidents, can result in radiation dangers. SSP could change very significantly the factors influencing world economics and politics. The impact on Society of using satellites to provide Sustainable Energy for All on earth would be as great as the impacts on Society of using satellites for communications, earth observation and navigation.