SACE RESOURCES AND SPACE SOLAR POWER: LEGAL AND REGULATORY ISSUES

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NO LIMITS TO GROWTH

• Earth resources are limited
• The vast majority of the resources of the solar system are in space – not on the Earth
• One way to grasp the amount of material resources available is to ask how much land area could be produced in the form of Orbital Space Settlements
LAND AREA IN THE SOLAR SYSTEM

• ASTEROIDS: 1,000 times the land surface area of the Earth
• MOONS OF OUTER PLANETS: increase land surface area 100 times
• OORT CLOUD: increase land surface area 10 times
• TOTAL: one million times
RENEWABLE ENERGY IN THE SOLAR SYSTEM

• The sun produces more than TEN TRILLION times the amount of energy currently used by humanity.

• Can solve energy crisis

• Can halt climate change

• Environmentally benign
SUCCESSFUL SSP PROGRAM: ENORMOUS LONG-TERM IMPACT

• Let’s define a successful Space Solar Power (SSP) program, to be one that provides at competitive prices a substantial fraction of the Earth’s electricity.

• Initially all parts of SSP satellites will be built on the Earth.

• However, a successful SSP program will create a large market for the use of materials obtained from the Moon and/or asteroids.

• There is a consensus, that given such a market, a large fraction of SSP satellite parts can be built at lower cost using materials obtained in space rather than on the Earth, because doing so avoids the high cost of transportation from Earth to space.

• Once large amounts of energy and materials from space resources are being used for SSP, then this energy and these materials will be available at low cost for all potential space uses.

• This includes the incorporation of the resources of the solar system into the human economy.
LEGAL AND REGULATORY ISSUES: General

• It’s the future of humanity, not just energy and climate change that is relevant.
• Interaction with space resource and space settlement issues
• Opposition from parochial interests, such as nations that are heavy exporters of fossil fuels
LEGAL AND REGULATORY ISSUES: SPECIFIC

• Need for early understanding of the market
  – International cooperation
  – Frequency allocation

• Recommend modified space station like governance structure

• Potential problem areas
  – Military issues
  – Space debris
ACCORDING TO MICHAEL GRIFFIN, FORMER NASA ADMINISTRATOR

“...the single overarching goal of human space flight is the human settlement of the solar system ... no greater purpose is possible”