

ENABLING GROWING CIS-LUNAR AND LUNAR ENTERPRISES

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Abstract:

The Intergovernmental Panel on Climate Change (2009) now clearly challenges world policy makers to enable a new sustainable and clean carbon-free global power system within the early part of this century. Otherwise, Earth's biosphere and the world economy face irreversible deleterious changes (Ref. 1). A Lunar Solar Power (LSP) System, built on the Moon from the common lunar materials, can provide the needed clean, affordable, and sustainable power (Ref. 2). The United States can return to the Moon, implement the LSP System, and enable a sustainably prosperous Earth. Within 5 to 8 years microwave power beams can be sent from stations on Earth to recycling ion-drive tugs that carry cargo between low-orbit about Earth to low-orbit about the Moon (Ref. 3, 4). High-tonnage cis-lunar transport cost can be reduced to the order of 10s \$/kg. Low-cost commercial-scale power can also be beamed to lunar bases and immediately enable the industrial-scale operations appropriate to the rapid growth of the LSP System. Japan and Western Europe now consume 1 terawatt-y of electric power (1 TWe) to output 42 T\$ of gross domestic product. The LSP System can increase global electric power to 20 TWe by mid-century and enable gross world product to increase from ~45 T\$ of non-sustainable product to over 840 T\$ of sustainable net new product. Clean LSP electric energy can be used to extract within this century all industrial carbon dioxide from Earth's atmosphere. The gross lunar product could exceed \$10 trillion within this century.

1. Pachauri, R. K. (2009, September 22) Address at the HIGH LEVEL SUMMIT ON CLIMATE CHANGE, UN Headquarters, New York. See <http://www.ipcc.ch/>
2. Criswell, D. R., Energy Prosperity within the 21st Century and Beyond: Options and the Unique Roles of the Sun and the Moon, Chapter 9 in "Innovative Energy Strategies for CO2 Stabilization" (Editor R. Watts, July 2002) Cambridge University Press
<http://www.cambridge.org/uk/catalogue/catalogue.asp?isbn=9780521807258>
3. Brown, W. C., A Transportronic Solution to the Problem of Interorbital Transportation, NASA CR-191152, (1992, July), 168p.
4. Criswell, D. R. (2009) Lunar Solar Power (LSP) System: Practical Means to Power Sustainable Prosperity, <<http://www.searchanddiscovery.net/documents/2008/nancy/2009criswell/criswell.pdf>>