

Solar Power Energy: Useful Facts & Information Regarding the Market for Photovoltaics

Modern energy services are crucial to a person's well-being and to a country's economic development¹, and yet globally over 1.3 billion people are without access to electricity and 2.6 billion people are without 'clean' cooking facilities (i.e. that don't generate pollution)² resulting in millions of deaths each year.

More than 95% of these people are either in sub-Saharan African or developing Asia (84% being in rural areas)¹ representing a conservatively estimated \$100 billion potential global market for the supply of autonomous clean energy solutions. The global energy market is monopolized by heat (47%), electricity (17%) and transportation (27%)³.

Furthermore, there will be a 33% increase in the world's demand for energy by 2035 with China (36%), India (13%), SE-Asia (8%) and the Middle East (6%) predicted to lead this extra demand⁴, with renewables needing to supply almost 50% of the new energy required⁴.

The earth receives more energy from the sun in a 1 hour period than the whole world consumes in an entire year⁵.

The technology for harnessing energy from the sun and converting it into electricity is photovoltaics (PV).

PV is recognized as being critical to meeting the World's future energy needs⁵.

Energy poverty is defined as a lack of access to modern energy services¹.

The provision of PV energy to poor areas of the world is life changing, supporting and enabling the fundamental elements of social and economic development.

Expanding access to affordable, clean energy is critical for realizing and enabling sustainable development across the globe⁶.

PV is thought to be the only technology that is versatile enough to meet the needs of individuals and services in the multitude of formats and environments in which they are needed for global effectiveness i.e. urban & rural, personal & national, portable & fixed infrastructure.

It is also the only form of energy supply that can be targeted at economically restricted groups, e.g. agriculture, education, health and/or communications.

Although solar PV energy supply can be stand-alone, the majority of applications are connected to the grid for which the current market leaders are Germany with a capacity of 5.3GW, Spain 3.4GW, Japan 2.1GW and the US 1.2GW. Together this represents 80% of the World's total capacity for grid-connected generation of solar PV energy⁶. By 2050 it's estimated that there will be over 3,000GW of installed grid-connected solar PV energy capacity in the world generating 11% of global energy needs.

References:

1. International Energy Agency (www.iea.org/topics/energypoverty) accessed Sept 2014
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3. International Energy Agency – Advantage Energy Report, 2011
4. International Energy Agency 'World Energy Outlook 2013' Factsheet, 2013.
5. International Energy Agency PV Roadmap, 2010
6. United Nations Development Programme, Universal Energy Access - Fast Facts, July 2011