

ABSTRACT

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**CONCEPTS FOR USING STORED SOLAR ENERGY, BIOMASS, OR WASTE ENERGY
by Realisation and Application of An Engine with an Open Regenerative Cycle**

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Air is heated up in a concentrating collector and then transported by a blower to the thermal storage, consisting of gravel and insulation, or directly to the SoliSolar engine. This storage is working like a very big regenerator. The losses are comparable small. The SoliSolar engine converts part of the thermal energy to pressurize the air. The rest of the thermal energy is converted to warm up water, e.g. for heating rooms. The pressurized warm air drives a turbine to generate electric power (min.30kW). Then the air is fed to the high temperature collector or the storage again. The necessary precision of the optical system is much lower, compared to using a solar Stirling engine: The ratio of concentration of the solar radiation has to be only 20-100. The published solar Stirling engine systems are working with a ratio of 600 - 4000. By using low technology components for building the solar collector of the SoliSolar System, it is possible to decrease the costs. Electric power can be produced during day and night. The working time of the SoliSolar engine can be more than twice as high as of a Solar Stirling engine. This is also decreasing the specific costs. It is even possible to store the thermal energy for weeks or months. Basing on this system there are interesting concepts possible for architecture and autarky .

