EURODISH-THE NEXT MILESTONE TO DECREASE THE COSTS OF DISH/STIRLING SYSTEM TOWARDS COMPETITIVENESS

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Abstract:

Modern dish/Stirling systems reached already a high development stage and are demonstrating in different countries around the world their ability to produce clean, sustainable energy. Most of the actual systems operate at high performance and their costs have dropped significantly in the past years.
Among the electricity producing units the development in Europe based in the last years on the DISTAL I/II technology with a stretched membrane concentrator and a SOLO V161 engine at the 9-10 kWe power level. These systems demonstrated their potential in more than 30.000 hours of operation at the Plataforma Solar de Almería (PSA).
Since the costs of these systems are about 11.000 Euro/kWe a further step in cost reduction is essential to compete in the markets for remote area power supply with photovoltaic or Diesel engine systems.
Therefore an EU funded project had been started to develop a dish/Stirling system that is able to meet the cost requirements for these markets of about 5.000 Euro/kWe. The steps to reach those goals are the development of new components, new fabrication procedures and the tools for a small series production of up to 100 units per year.
This paper describes in detail the component development of the dish/Stirling system from the concentrator with its structure, drives and control to the Stirling engine with features like beam control, water cooled cavity and others. The cost projections of the new system are compared to those of PV and Diesel engine systems for remote areas.