

## **Dish-based continuous solar thermal power using ammonia**

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Recent years have seen dramatic annual growth of around 30% per year in the installation of wind and photovoltaic power systems. To date growth of this magnitude has not been seen with solar thermal electric technologies. Reasons for the apparent inertia appear to be not technical but rather a question of the minimum size needed to achieve economies of scale. There are signs that this situation is about to change. Thanks to policy decisions in Spain (Royal Decree of 22/12/98) and funding approvals from the Global Environment Facility (GEF) amongst others, there are now projects planned around the world with combined capacities of hundreds of MW. If solar thermal electric follows the other technologies into a period of growth, the issue of the need for an energy storage capacity will inevitably arise.

The Australian National University (ANU) has been involved for many years in the development of a complete solar thermal power system that uses an ammonia based thermochemical energy storage system to provide inherent storage. The system exploits the well proven technology of the 120 million ton/year ammonia synthesis industry. The ANU concept involves utilising large dish concentrators, however trough collectors can also be contemplated. This paper will review the economic potential of the system and also report on the latest results obtained with the 15 kW<sub>sol</sub> closed loop demonstration that will be completed by the end of 1999.