



Solar Chimneys

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GLOSSARY

Greenhouse Large collector roof under which air is heated by solar radiation.

Solar chimney Tower in which rises air heated by solar radiation; the heated air runs a turbine that generates electricity.

Solar energy utilization Conversion of the electromagnetic radiation from the sun into usable energy such as heat or electricity.

IN A FUTURE ENERGY economy, solar chimneys will be able to produce electricity from solar radiation at economically viable prices. The results obtained at the experimental facility in Manzanares, Spain, have demonstrated that fully automatic operation with a high level of technical availability is already feasible. Economic appraisals have shown that the solar chimney is potentially economically viable, and that plants designed for an output of around 200 MW would be capable of producing electricity at less than \$0.07 per kWh.

I. INTRODUCTION

Current energy production from coal and oil is damaging to the environment and nonrenewable. Many developing countries cannot afford these energy sources, and nuclear power stations are an unacceptable risk in many locations. Inadequate energy supplies can lead to high energy costs as well as to poverty, which commonly results in population explosions.

Sensible technology for the use of solar power must be simple and reliable, accessible to the technologically less developed countries that are sunny and often have limited raw materials resources, should not need cooling water or produce waste heat, and should be based on environmentally sound production from renewable materials.

The solar chimney meets these conditions and makes it possible to take the crucial step toward a global solar energy economy. Economic appraisals based on experience and knowledge gathered so far have shown that even solar chimneys rated at 100 and 200 MW are capable of generating energy at costs comparable to those of conventional power plants. This is reason enough to develop this form