

Solar Chimney Manzanares



**Schlaich Bergermann
und Partner**

Location	Manzanares, Spain
Project type	Pilot plant: tower of 194 m height and 10 m diameter, translucent membrane / glass roof of 40,000 / 6,000 sqm mit Unterstützung von:
Client	Bundesministerium für Forschung und Technologie, Bonn
Completed on	1989
Our scope	Basic research: design, construction, operation and evaluation
Cooperation	Maurer Söhne, München Balcke-Dürr, Ratingen Siemens Interatom, Bergisch Gladbach

Technical data	
Chimney height	200 m
Collector diameter	240 m
Turbine	50 kWel
Material Quantities	-
Chimney diameter	10 m
Collector height	2 m
Collector area	45,000 m ²
Chimney weight	125 t
Collector weight	5.5 kg/m ² (without glass)

A Solar Chimney converts solar radiation (direct and diffuse) into electricity by combining three well-known principles: the greenhouse effect, the chimney and wind turbines in a novel way. Hot air is produced by the sun under a large glass roof. This flows to a chimney in the middle of the roof and is drawn upwards. This upwind drives turbines installed at the base of the chimney and these produce electricity. A 50 kWel prototype was built in Manzanares, Spain, and produced electricity for seven years, thus proving the efficiency and the reliability of this new kind of solar power generating system. Tall Solar Chimneys could produce 100 or 200 MW each and power production cost may go down below 0.07 /kWh.

