

COAL MINE OF LEIPZIG

Country: Germany

Region: Saxony

City: Leipzig

Types of plants involved: Photovoltaic plant

For additional information: <http://www.solarserver.de>

Timescale: 2004

General description:

Solar power plant in Leipzig is one of the world's largest photovoltaic system takes the place of coal mining activity.

Around 30 kilometres south of Leipzig is the area of Espenhain. Espenhain, where the sun radiance seems relatively intense, has become a symbol of a highly interesting example paradigm shift characterizing the new millennium: the "Leipziger Land Solar Park." The transition from a polluting power generation activity using fossil fuels to the production of renewable energy is particularly evident here, where coal mining has modified visibly all the surrounding environment. The Solar Park, composed by 33,264 solar modules on a 16 hectare area (over a landfill that was developed over one of the coal mines), was built by GEOSOL Solar Energy Society GmbH, Shell Solar GmbH and the Western Fund Real Estate Investment Company. The electricity is fed into the public grid and is enough to supply about 1,800 households with green electricity. The plant has been for some time one of the largest solar power plants in the world, with a capacity of 5 MWp, opening a new dimension to the production of solar electricity.

The annual solar radiation at the site is at an angle of 34 degrees according to the German Weather Service 1233 kilowatt hours per square meter (kWh/m²). A performance ratio (ratio of actual yield and actual yield) of the solar power plant of 79.5% expects the operator with a specific annual income of 950 kilowatt-hours per installed kilowatt solar-power (kWh/kWp). With a total capacity of 5 megawatts of solar park Leipzig country can produce around 4.75 million kilowatt hours (kWh).

WHAT CONTRIBUTED TO THIS PROJECT'S SUCCESS?

• Success Factors:

With this and other planned instalments the state of Saxony gave a long-lasting contribution to the implementation of the Kyoto Protocol: the solar power plant of Leipzig alone, avoids the production every year of around 3,700 tonnes of greenhouse gases (CO₂).



Picture 1

Aerial view of Espenhain area.
The solar park is located on a former Leipziger Land Kohlestauabsetzbecken, which had emerged from 40 years of coal mining in the south of Leipzig. The grid-connected solar power plant was built on an area of 21.6 hectares.



Picture 2

Panels in Leipziger Land Solar Park with Two transformer blocks (each with 2 MVA) with medium-voltage transform the low voltage to 20,000 volt medium voltage (20 kV) before the stream is fed into the network of German agent's Envia Energie AG. The feed point is located just 120 meters from the solar power plant.



Picture 3

Assembling technique in Espenhain.
The expected electricity sale in the first full year 2005 was 2169 million euros, the turnkey solar power plant costing 22 million euros.



Picture 4

Solar generator, biotope.