

Germany's Energy Talk

Article # 39

Photovoltaic Installations – Graph 4

Albrecht Kaupp, Manager
Indo-German Energy Programme, IGEN

The graphics shows all PV Panel installations which are either grid connected or operate in an island mode. For grid connected systems feeding into the public grid, owners get about 27 Rs/kWh paid by the power utilities (not the German Government) over a period of 20 years. Some conditions apply. Observe that there is no public subsidy for PV, but an Act that mandates financially healthy power utilities to buy this electricity. See the table:

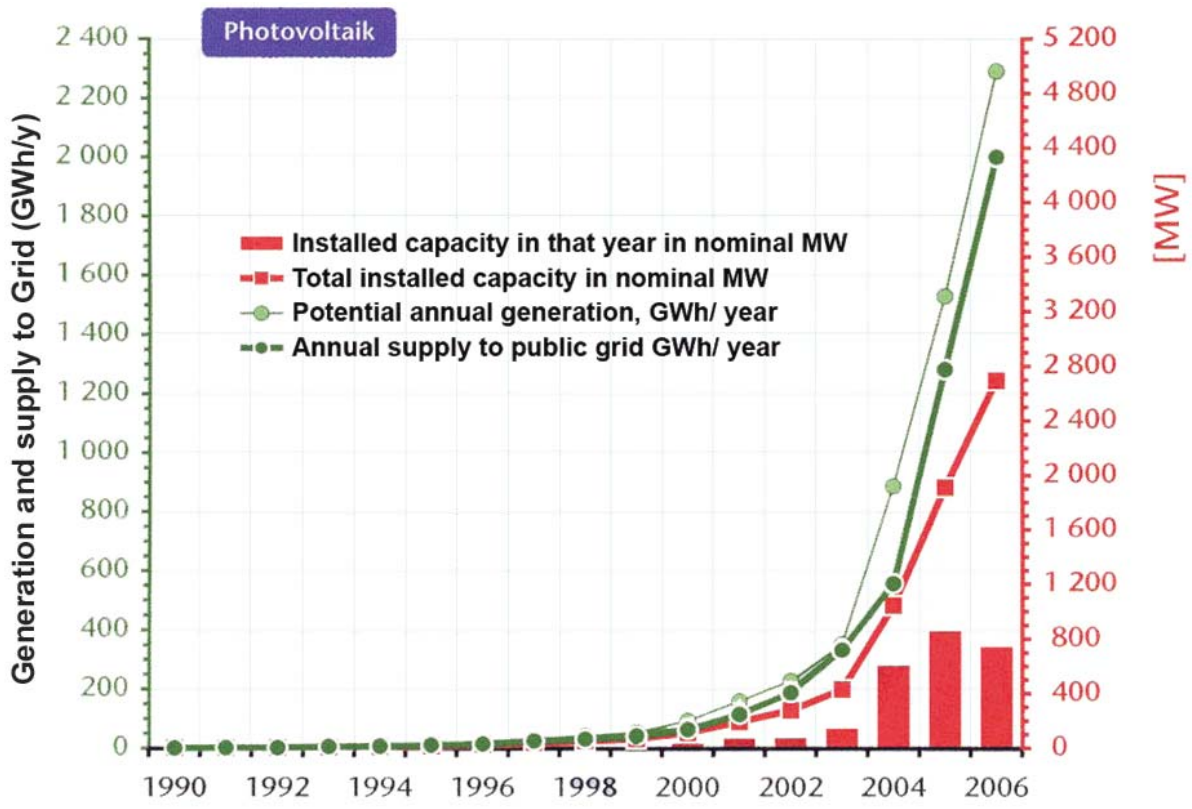
Table 1: Tariff for PV-electricity in Eurocents/ kWh, Germany

Year	2004	2005	2006	2007	2008
Building	57.4	54.53	51.80	49.21	46.75
> 30 kW	54.6	51.87	49.28	46.82	44.48
> 100 kW	54.0	51.30	48.74	46.30	43.99
Solar field	45.7	43.42	40.60	37.96	35.49

Of interest is to estimate the all important plant load factor (PLF) from the graph 4 which shows installed nominal capacity of 2635 MW and generation of about 2200 GWh in the year 2006. Consequently:

$$2635 \text{ MW} \times 8760 \times \text{PLF} = 2200 \times 1000 \text{ and therefore PLF} = 9.5\%.$$

In other words a 1000 MW PV Solar field may replace $9.5 \times 1000 / 85 = 110$ MW of thermal power plant capacity at PLF 85% in terms of generation of electricity in Germany. Just stating the installed capacity is meaningless when it comes to reporting the contributions of various power generation technologies. As long as the electricity generation in kWh is not known or the PLF is not given to estimate the kWh generation you may get misleading figures. The exponential growth in PV installation capacity after the year 2000 is due to the financially attractive tariffs paid by power utilities which were between 40.6 € cent and 51.8 € cent per kWh in the year 2006. Nevertheless the contribution of PV power was only 0.3% to the total gross consumption of electricity in Germany. Overall contribution from renewable energy sources (hydro, wind, biomass, PV) to electricity generation was 73,200 GWh or 11.9% of the total gross consumption of 615,800 GWh in 2006.



Ref: BWK 4/2007