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Photovoltaic power

SOLAR POWER

The development and use of solar power has significant potential in the context of a Green New Deal. It can offer important social benefits in terms of job creation.

Photovoltaic power

Solar Generation V - a joint study by the European Photovoltaic Industry Association (EPIA) and Greenpeace International, published in September 2008 found that much of the employment creation is at the point of installation (installers, retailers and service engineers), giving a boost to local economies. The report projects that **1,4 million jobs** could be created in the PV sector by 2030 in Europe alone and **10 million worldwide**.

Today, the PV sector employs at least 90,000 people in Europe, with 57,000 jobs in Germany, 26,800 in Spain, 3,500 in France (projected to 16,000 by 2012) and 1,700 in Italy.

Based on information provided by the industry, the study assumes that 10 jobs are created per MW during production and about 33 jobs per MW during the process of installation. Wholesaling of the systems and indirect supply (for example in the production process) each create 3-4 jobs per MW. Research adds another 1-2 jobs per MW.

Worldwide employment in PV-related jobs under Solar Generation Scenarios

Year	Installation	Production	Wholesaler	Research	Supply	Total
Advanced Scenario						
2007	77.668	22.968	6.890	2.986	8.613	119.125
2010	220.162	62.546	18.764	8.131	23.455	333.058
2015	559.282	147.373	44.212	19.159	55.265	825.291
2020	1.632.586	393.530	118.059	51.159	147.574	2.342.908
2025	3.877.742	839.338	251.801	109.114	314.752	5.392.747
2030	7.428.118	1.406.841	422.052	182.889	527.565	9.967.465
Moderate						

Scenario						
2007	77.668	22.968	6.890	2.986	8.613	119.125
2010	166.518	47.306	14.192	6.150	17.740	251.906
2015	486.219	128.121	38.436	16.656	48.045	717.477
2020	1.018.552	245.519	73.656	31.917	92.070	1.461.714
2025	1.806.321	390.978	117.294	50.827	146.617	2.512.037
2030	2.770.569	524.729	157.419	68.215	196.773	3.717.705

The table below compares actual market data with predictions from the Solar Generation scenarios and reveals that in most cases, the market has exceeded predictions.

Annual MW Installations Capacity:

Market versus 'Solar Generation' Scenario Predictions since 2001

Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Market results	334	439	594	1.052	1.320	1.603	2.392			
SG I 2001 MW	331	408	518	659	838	1.060	1.340	1.700	2.150	2.810
SG II 2004 MW					985	1.283	1.675	2.190	2.877	3.634
SG III 2006 MW						1.883	2.540	3.420	4.630	5.550
SG IV 2007 MW							2.179	3.129	4.339	5.650
SG V 2008 MW								4.175	5.160	6.950

Solar Thermal

There are about **40,000 jobs** currently in the rapidly expanding solar thermal industry in Europe. Germany is leading the way with an estimated 19,000 jobs and Spain second, with 9,000, ahead of Italy with 3,000. The European Renewable Energy Council (EREC) points out that much of the jobs in the solar thermal industry are in retail, installation and maintenance and that the jobs created are primarily in SMEs.

Many countries in the "sun belt" around the equator could benefit from Concentrating Solar Power (CSP) (1) technology. A new study carried out by Greenpeace International and the European Solar Thermal Electricity Association looked at employment potential under several scenarios (2). It estimates that countries with the most sun could together create more than **200,000 jobs by 2020**, and nearly **1,2 million in 2050**. They could also **save 148 million tonnes of CO2 annually in 2020, rising to 2,1 billion tonnes in 2050**.

(1) Concentrated Solar Power (CSP) systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam. The concentrated light is then used as a heat source for a conventional power plant. A working fluid (usually water) is heated by the concentrated sunlight and is then used for power generation or energy storage.

(2) A **reference or 'business-as-usual'** scenario takes into account current policies and measures. It includes assumptions such as continuing electricity and gas market reform, the liberalisation of cross-border energy trade and recent policies aimed at combating pollution. A **moderate scenario** takes into account all policy measures to support renewable energy either under way or planned around the world. It also assumes that the targets set by many countries for either renewables or concentrated solar power are successfully implemented. Moreover, it assumes increased investor confidence in this sector following a successful outcome of the Copenhagen climate talks next December.

Sources:
- Solar Generation V, EPIA/Greenpeace, September 2008
- UNEP (Sept 2008): 'Green jobs: towards decent work in a sustainable, low-carbon world'.
- WWF, Low carbon jobs for Europe, June 2009.
- European Solar Thermal Industry Federation
- IEA SolarPACES
- Greenpeace International
- European Solar Thermal Electricity Association

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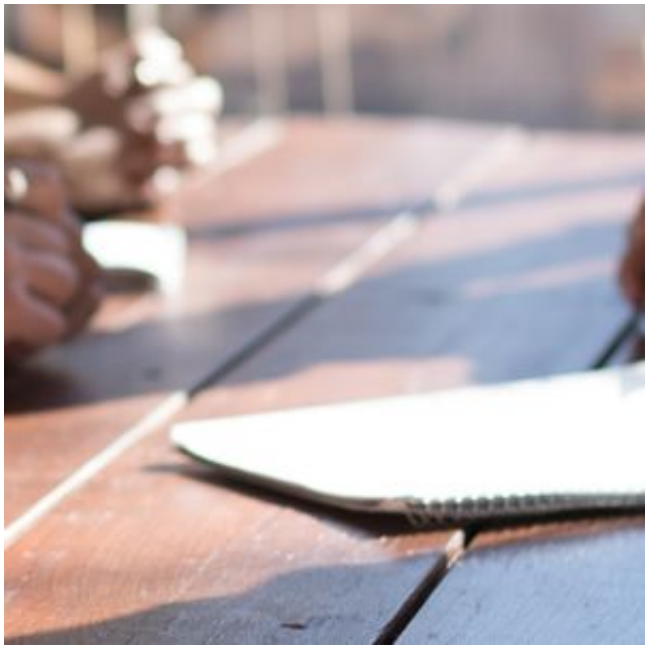

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