



Luminous prospects for Italy's solar industry

Italy for the first time exceeds 100 MW_p of installed PV capacity. How is the market south of the Alps going to develop in 2008?

Italy's solar industry has closed a successful year – but there remains a sour note: While foreign investors in particular were able to benefit from the subsidies that came into effect in 2007, most Italian companies participate in the growth through the sectors of system integration and distribution. According to Gestore dei Servizi Elettrici (GSE), national promoter of renewable energies, a capacity of 60 MW_p was newly installed in 2007. For solar thermal energy, market researcher Centro Studi Solarexpo estimates a capacity of 200 MW_{th}.

Conditions for PV subsidies improve

Compared to other European countries, Italy's average solar irradiation level of 1,400 kWh/m² is a high potential. Solar irradiation in the North ranges at 1,200 kWh/m².

Even in the traditional Tuscany photovoltaics is gaining more acceptance: Mitsubishi Electric built a 420 kW_p roof-top system in Livorno

Photo: Mitsubishi Electric

Southern regions even register annual averages of 1,700 kWh/m². In 2005, Italy's renewable energies covered no more than 6 % of the total consumption. The rising implementation, however, signals change for the national energy policy. Since retreating from nuclear energy in 1990, Italy has held among the highest imports dependencies in the EU-25 group with 86.5 % for important resources such as crude oil, natural gas and coal. Need for action was also imposed by the European Union (EU). In order to meet the climate protection targets, Italy is bound to increase the renewable energy share within the total production from presently 20 % to 25 %.

Italy's Conto Energia, a legal scheme for PV feed-in tariffs introduced in 2005 and reviewed in 2007, improved the situation for the solar energy market considerably. The revision includes a number of modifications to foster the national industry, in particular, installer firms. Accordingly, a special focus was set on private small home systems that require minimal expertise for instalment. However, these smaller systems also ask for a certain acquaintance with the conditions of the local area and climate making them less attractive for foreign providers. Also, licensing procedures were simplified. The valid feed-in tariffs are now awarded according to the degree of building integration (see table on page 178) and guaranteed for a duration of 20 years. Even the annual ceiling of 85 MW_p of 2006 was revoked and replaced with a total ceiling of 3,000 MW_p until 2016 of which 1,200 MW_p will be subject to the new tariffs. An annual degression of 2 % was also decided with effect from 2009. In order to avoid speculation, the feed-in tariff is only approved after individual systems are fully operable.

Besides the Conto Energia, a new finance act was passed in December 2007 introducing a rule for minimum output of at least 1 kW_p for private and 5 kW_p for commercial systems. Highest feed-in tariffs are reserved



for installations in public buildings plus an additional 24 months of time beyond the projected ceiling. With these improvements, the number of PV manufacturers has already increased to about 30. At large, however, professionals still have doubts that the present national production might catch up with the developments on the international market.

Organisations see need for further rectification

Italy's oldest PV association, Gruppo Imprese Fotovoltaiche Italiane (GIFI) founded in 1999, today represents about 50 members being itself member of the Italian Employer Association Confindustria. Gert Gremes, chairman of GIFI, is not really satisfied with the recent changes. In particular, Gremes sees problems with the proper implementation of the new regulation: »The regional and communal requirements for licensing procedures are difficult especially for the growth of larger-sized solar plants.« Gremes advocates a higher national standard to sideline regional prescripts. Because of the strong differences in standard specifications for construction and environmental protection, Italy faces unequal stages of development on the internal market. »Apulia articulated clear regulations for the licensing procedures, especially in the area of large-sized systems. Many other regions still have a need for rectification,« Svenja Bartels, associate of Rödl & Partner law office in Padua and specialist for Italy's renewable energies, explains.

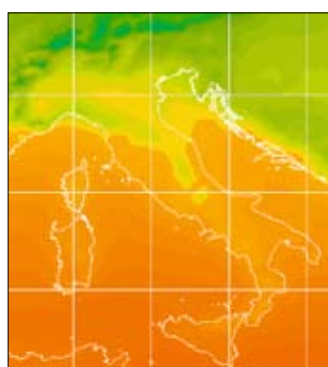
One further problem is pointed out by Gianni Chianetta, Chairman of Associazione dell'Industria Solare Fotovoltaica (Assosolare) founded in 2006, Italy's second PV association today representing about 50 members. Assosolare sees a particular problem in the delay and even impediment of grid connections caused by the various network operators. According to Eurostat, the five biggest electricity producers in Italy hold a joint market share of 70 %. As a reaction, the Regulatory Authority for Electricity and Gas has introduced measures to improve the collaboration of the grid connectors among which is the 30 % state-owned Ente Nazionale per l'Energia Elettrica (ENEL).

At a glance: Italy's PV market

According to Federico Brucciani, project manager at GIFI, the Italian PV market is currently shared among approximately 150 companies that in 2007 already gave work to 1,700 employees and generated profits in the range of € 520 million. Estimations of the Swiss Bank Sarasin and the European Photovoltaic Industry Association (EPIA) indicate that the number of employers in the solar sector could soar to 7,500 until 2010. The Italian promoter of renewable energies Gestore dei Servizi Elettrici (GSE) estimates a number of 10,000 PV systems presently installed in Italy. Out of the total number, there exist 4,836 private systems with outputs below 3 kW_p. A range of 4,260 systems are producing between 3 and 20 kW_p. About 645 installations reach above 20 kW_p. The regions with the highest installed capacities are

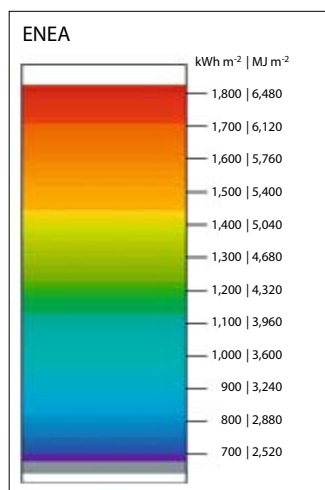
Rolling landscapes: Solar-world's Sunfix mounting system.

Photo: SolarWorld



Solar radiation in Italy Source: ENEA

Lombardy (12 MW_p), Apulia (11 MW_p) and Trentino-Alto Adige (10 MW_p). In the opinion of experts, the market is going to further segment. »Especially in the South there exists a high potential for the development of large commercial plants, while the North should be more interesting for small and middle-sized systems,« explains Anne Gassen, project manager of the study »The Italian Photovoltaic Market 2007/08 – Overcoming Obstacles« by EuPD Research (Germany). According to Gassen, companies are presently projecting large-sized systems with 20, 30 and 40 MW_p in the South.



Global solar radiation levels (total per year)

Source: ENEA

Solarexpo 2008: solar thermal novelties

One special focus of the Solarexpo 2008 that took place from May 15th to 17th in Verona, Italy, was this year set on large-sized solar thermal plants.

Paradigma Italia S.r.l., for example, introduced a large commercial version of the Solar System Aqua using water as a thermo vector instead of antifreeze. The company is a subsidiary of Paradigma Energie- und Umwelttechnik GmbH & Co. KG in Germany who hold further branches in Darzo (Trentino-Alto Adige), Turin, Brescia and Venice. German manufacturer **Viessmann Werke GmbH & Co. KG** took the opportunity in Verona to present the new hot water storage tank Vitocell 140-E for the Italian market. **Weishaupt Italia S.p.A.** – Italian subsidiary of Weishaupt GmbH in Germany – presented the WTS-F1 solar system for on-roof, in-roof and flat roof mounting. Integrated manifolds in the absorbers of the new K3/K4 solar systems allow connecting up to 20 collectors in a row. The K3/K4 system had already been established in Germany when the Italian market was entered in October 2007. In Verona the product was for the first time presented on an Italian trade fair. The system is especially suitable for the promising segment of tenements, hotels and public buildings in Italy.



Solar power a la Italiana:
a Leitner Solar 272 kW_p
PV system on the fruit
cooperative building of
Bozen

Photo: Leitner

Solar parks are becoming increasingly popular

More and more companies are presently entering the competition for largest open space PV systems in Italy. **Ecostream Italy S.r.l.** was able to install a complete solar park with 2 MW_p output in March 2008. Ecostream is part of the International Ecomcern Group, which has its headquarters in the Netherlands. More subsidiaries are located in Turin, Rome and Rovereto (Trentino-Alto Adige). Among the achievements of **Energos S.p.A.** range showcase projects as, for example, a building integrated 120 kW_p PV system for the BMW showroom in Viterbo. Until the end of spring, the company plans to complete a 1 MW_p open space solar park in Apulia. The German company **Juwi GmbH** is realising a 1.45 MW_p open space project at Sicily near Ragusa. Erwin Mayer, executive at Juwi in Italy, announced that the company aims at installing more than 20 MW_p on the national market in course of the year. In addition, German system integrator **Phoenix Solar AG** entered the competition planning to collaborate with **Red 2002 S.r.l.** for the market on the peninsula. Italian distributor **Leitner Solar S.p.A.** is ambitious to achieve an installed capacity of 4 MW_p in 2008. According to Leitner, the company had already installed an equal capacity in the previous year.

The German **Conergy AG** has been holding a subsidiary in Vicenza since 2005. For planning, installation and management of solar parks in Italy the company has a special unit in Brescia, Lombardy. Today, Conergy has already developed six open space large-sized plants in Italy of which the biggest ones are Serracapriola (999 kW_p), San Sepolcro (667 kW_p) and Corato (599 kW_p). Another ambitious project is targeted by **Solar Energy Italia S.p.A.** near Grosseto in form of the 1 MW_p »Cicalino 1«. Lastly, **Sharp Electronics Italia S.p.A.** has been able to realise an open space solar park with 400 kW_p at Paestum near Salerno.

On contrast, Japanese manufacturer **Mitsubishi Electric, Inc.** has specialised on roof-top collectors for the Italian market. Only recently, the company was able to build a 420 kW_p system near Livorno. In collaboration with Pisa University, a 5 kW_p test facility was inaugurated at the Department of Aerospace Engineering in January this year. The collaboration is only one example of the several Mitsubishi research projects conducted in Italy on the productivity of different cell types incorporating thin film technology.

Showcase: Energos realised a 120 kW_p BIPV system at the BMW Showrooms in Viterbo.

Photo: Energos

Solar thermal energy: Italy among the five leading European markets

But also the solar thermal market in Italy has undergone positive developments, reports the European Solar Thermal Industry Federation (ESTIF). Together with Germany, Austria, France and Spain, the country has been among the European top flight since 2006. While the market size in 2006 still ranged at 130 MW_{th} of new installed capacities with a total panel surface of 186,000 m², research institute Centro Studi Solarexpo is now expecting a new installed capacity of 200 MW_{th} for 2007. Compared to the previous year, this means growth rates of 54 %. Although an official number has yet been published, Valeria Verga, secretary general of the Italian solar thermal association Associazione Italiana Solare Termico (Assolterm), is confident of the estimation. Assolterm has about 100 members and represents close to 80 % of all solar thermal companies in Italy.

A solid foundation for solar energy was laid through the Legge Finanziaria 2007 and confirmed in the successive Legge Finanziaria 2008, in which a 55 % tax reduction was introduced for investments in energy effi-





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cient building modifications. More growth potential could arise from the 311/2006 decree, which enforces that 50 % of the annual energy demand to supply domestic hot water in new buildings as well as new installations and modifications be covered by renewable energies. During the last two years, however, the market has been waiting in vain for a law to finally put the decree into effect.

Modules and components – innovations on the Italian market

A panorama of the product innovations recently floated on the Italian market can be revealing in view of the country's position on the international level: Companies from all over the world are preparing to present their new products during the Intersolar trade fair in Munich next month. When the Solarexpo took place in Verona, mainly established technologies were introduced to the Italian market to raise the interest of the trade visitors.

One exception of this rule was **Kyocera Fineceramics GmbH** from Esslingen in Germany whose distributors presented the new polycrystalline module KD180GH-2P with nominal outputs of 180 W_p and an efficiency of 16 % for the first time. The module will be floated on the Italian market in spring 2008. Kyocera products can be purchased in Italy through **Dea S.r.l.**, **Tecno Lario s.n.c.** and **Tecno Spot S.r.l.** A further Kyocera novelty was the polycrystalline module KD205GH-2P with output increases of 2.5 % compared to the previous model KC200. **Vipiemme Solar S.r.l.** from Italy presented its comprehensive VPSI01 series consisting of 11 different models with polycrystalline cells and outputs between 190 W_p and 240 W_p.

In the area of building integrated PV systems, **Sharp Electronics Italia S.p.A.** introduced its thin film modules on the Italian market with transparencies of 10 % to 30 % as well as a dual axis solar tracking system.

The German **Viessmann Werke GmbH & Co. KG** also took Verona as an opportunity to start sales of its new thin film modules Vitovolt 100 manufactured from amorphous silicon with nominal outputs of 86 W_p. Italian wholesaler **Enerpoint S.p.A.** confirmed that products with capacities of 24 MW_p have already been distributed on the Italian market. In Verona, Enerpoint promoted products of three different manufacturers: modules of Chinese **Trina Solar Ltd.** with outputs of 200 W_p, 210 W_p and 220 W_p, German **Schott Solar GmbH** with 170 W_p and 220 W_p and the Italian **XGroup S.p.A.** with 190 W_p, 200 W_p and 210 W_p.

New technologies in the inverter sector were presented by **Saft Power Systems** with the Protect PV 33 and the Protect PV 25 available on the market since March 2008. The models achieve outputs of 25 kW_p and 33 kW_p and allow 9 and 6 different MPPT inputs.

In the system component sector, **Solarworld AG** from Germany will be expanding the distribution of the Sunfix mounting system to the Italian market. Sunfix systems are multivariable, fully adjustable in height and suitable for installation of open space solar modules. One such open space system, a new version of the tracker »Sun Catch System«, was presented by Italian manufacturer **Vipiemme S.r.l.** from Isso in Lombardy. Different from the earlier version, the successor makes use of 27 instead of 24 modules and achieves a nominal output of 6.075 kW_p. Since the modules are mounted at about 5 m height, the underneath surface can be used for agricultural purposes.

In the sector of hybrid systems and off-grid solutions, **Beghelli S.p.A.** with headquarters in Monteveglio near Bologna, introduces Pianetasole Beghelli, a tracking system offered in combination with an integrated geothermal system, a so-called »Energy Tree« (Albero dell'Energia). The PV system occupies an area of 25 m² and is available in two different models: 2.5 kW_p and 3.3 kW_p both for on-grid and off-grid operation. Outputs exceeding the energy use of the geothermal heat pump can be fed into the public grid.

With Leonardo Tower, manufacturer **Western CO. s.n.c.** from San Benedetto del Tronto, offers a small mobile unit. Each of the integrated two PV modules has an output of 200 W_p. The system is mounted on a pole with a total height of 7.80 m and includes a wind energy system with an output of 400 W as well as a battery. It is suitable for off-grid operation, for example, on beaches sites.

System size	Non-integrated	Semi-integrated	Integrated
1 - 3 kW _p	€ 0.40	€ 0.44	€ 0.49
3 - 20 kW _p	€ 0.38	€ 0.42	€ 0.46
>20 kW _p	€ 0.36	€ 0.40	€ 0.44

Basic tariffs of the Conto Energia

Source: Conto Energia 2007, translated and published in DM 19/02/07

At a glance: Italy's solar thermal market

In the opinion of ESTIF experts, the Italian solar thermal market seems to have been drastically underrated until 2006. After the corporate figures given to the solar thermal association had resulted incomplete, the data collection method for 2006 was additionally furnished with a comprehensive questionnaire. According to ESTIF, Italy had already ranged at a comparable level with other Mediterranean countries in 2006 with a share of 6 % of the total European solar thermal market. Similar to the PV sector, the Italian solar thermal industry has for most part ranged at the end of the value added chain. Production is still limited to a few isolated companies. According to Assolterm, a number of 70 manufacturers and distributors are currently active in Italy's solar thermal sector. Figures by the research institute Centro Studi Solarexpo indicate that these companies achieved a profit of € 78 million in 2006. Still, the Italian market utilised no more than 23 % of the national production. With an import quota of 77 %, Italy remained strongly dependent on international export articles. Market leaders are Riello S.p.A., Sonnenkraft GmbH, Viessmann GmbH & Co KG, Kloben Solar Evolution, MTS Group S.p.A., Paradigma Italia S.r.L., Accomandita Tecnologie Speciali Energia S.p.A. and Sunerg Solar Energy S.r.L.

Good prospects for growth

Italy could have a strong growth potential for the solar thermal sector. In the European context, energy costs still range much above average. According to the research institute Ambiente Italia, prices for private customers have ranged on average at 0.21 €/kWh for power, 0.65 €/m³ for gas and 0.095 €/l for oil in the last five





Innovative edge: Beghelli's »Power Tree« (Albero dell'Energia) combines PV and geothermal energy. The heating pump is powered by solar energy – surplus energy is fed into the public grid.
Photo: Beghelli

years. Italian consumers accordingly have good reason to turn to options such as solar thermal heating. Considering that the majority of Italians lives in tenements, a high potential could open for the previously neglected segment of large-sized systems.

Particularly characteristic for the Italian solar thermal sector are the strong regional differences between North and South. The biggest market share exists in the northern regions where domestic heating and backup heating systems find good sales markets. In the South, domestic heating but also cooling systems are becoming an interesting segment.

The legal promotion of solar thermal energy through the Legge Finanziaria 2008 was further strengthened this year. Previous obligations to obtain an energy certificate for buildings on which solar thermal systems could be installed were abolished. »It was an important step to take the administrative barriers,« Valeria Verga explains. »Another positive development has been the 55 % tax reduction that will be guaranteed until 2010 – an important detail that allows companies to plan at long sight,« Assolterm's general secretary continues. The legislative initiative Legge Finanziaria 2007 has already lead to a first milestone – according to the Italian research institute Ente per le Nuove Tecnologie, l'Energia e l'Ambiente (ENEA), the estimated panel surface of 100,000 m² for the year 2007 can be seen as a direct consequence of the new regulation.

Nina Schwab



Interesting for Italy: Weishaupt's versions K3 and K4 of the large-sized solar system WTS-F1
Photo: Weishaupt



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