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South Korea taps Germany to help grow its solar industry

Jane Burgermeister, European correspondent

Once an importer of Germany's solar technology, South Korea is now partnering with the world champion to help build up its own home-grown photovoltaic (PV) industry with an eye on supplying the growing Asian market in the future.

South Korea's shift in strategy is a sign of how emerging solar nations are finding new ways of working together with established players to drive the development of the PV industry around the world, kicking off what promises to be a more dynamic phase.

South Korea emerged as the fourth largest PV market in the world in 2008 after growth took off spectacularly in 2005. PV installations grew from 1 MW of installed capacity in 2005 to 100 MW in May 2008 thanks to a feed-in tariff modeled on Germany's, which pays a high rate for solar power.

But in October 2008, the South Korea government decided to slash the feed-in tariff by 8%-30% and make a concerted effort to build up its own home grown solar industry producing its own efficient and low-cost solar modules. The country's long-term aim is to become a major solar technology exporter itself, and capture 10% of the global green tech market by 2020.

It is a radical change from the past: South Korea imported almost all its PV modules as well as the technical know-how to install them from abroad. According to Incheol Chang of South Korea's [S-Energy](#), 85% of the PV modules installed in South Korea have been imported.

The decision to cut the feed-in tariff in October as well as other economic factors meant that the Korean PV market installed only 10 MW between October 2008 and March 2009. But there are 925 PV power plants with almost 625 MW of capacity -- including a single 50-MW power plant -- in the pipeline as players wait to hear details of the new tariffs for 2010.

The [European Photovoltaic Industry Association](#) (EPIA), the world's largest PV industry association, expects the South Korea PV market to install an additional 250 to 300 MW in 2010. If the current 500-MW cap on PV is removed, the EPIA expects the South Korean PV market to grow to 1.3 GW by 2013.

However, South Korea's decision to change its strategy and build up a cost-competitive home-grown solar industry has created some short-term turbulence.

One reason for the change in strategy has been the high costs associated with the PV feed-in tariff. Unlike in Germany where the costs for solar energy are spread among all electricity consumers, the South Korean government has covered the costs of the feed-in tariff out of its own budget, a move that quickly became a strain.

But the government insists it is serious about a green energy revolution and that the current slowdown in the rate of growth of the PV market will soon give way to a new solar enthusiasm as the country acquires and also applies the latest green tech know-how by partnering with Germany.

South Korea estimates that it has about 50%-70% of the solar knowledge that Germany and other leading solar nations have, according to a report. By 2012, it aims to have closed the solar knowledge gap to 80% or 90%. It also aims to employ 1.6 million people in the green tech sector and to have a 7% share of the global green technology market by 2012.

As a first step on this path, South Korea partnered this year with Germany to hold the world's biggest industrial fair, the [Hanover Fair](#) between April 20th and 24, and closed renewable energy deals worth EU €200 million. South Korea closed deals with [SSF Solar Screen Factory](#), [Vestas](#), and [Solvay](#). The EU €130 million deal with SSF is for manufacturing and research into solar power cell module plants; the EU €50 million deal with Vestas is for wind turbine manufacturing facilities; and the deal with Solvay is for rechargeable batteries.

An attractive solar market

Solar energy is especially attractive for South Korea because of the amount of sunlight the country receives.

The [Korean German Cooperation Forum on Solar Energy](#) has been founded by the Korea Energy Management Corporation (KEMCO) to drive the development of the country's domestic solar industry. The best way to create a dynamic industry is to create a home market for the products and South Korea is doing just that.

By 2012, the government aims to power a million homes using PV covering 70% of the installation costs. Green villages that use renewable energy are expected to rise from 5 to 100 by 2012. Moreover, 80.5% of the country's recent economic stimulus package is devoted to projects connected with green tech and the environment, the largest proportion to be spent on green tech and the environment by any country as part of its stimulus.

As part of its green growth strategy, South Korea aims to invest EU €28.4 billion in four years as well as to quadruple the use of green energy and to create 900,000 green tech jobs. Korea also aims to ramp up the amount of money it spends on research into new green technologies, rising from about a quarter of the government's research budget in 2008 to half by 2012.

Certainly, Korea with its gigantic industrial sector is well placed to become a major future green tech exporter in Asia. The EPIA predicts huge growth in PV markets in countries like Japan and China.

And yet while Korea is tapping Germany to learn how to succeed in this future market, Germany is attracting leading solar companies not just from Korea but also from around the world. In fact, some American companies have set up manufacturing operations Germany.

In many cases, companies from abroad have gone the Silicon Valley South of Berlin to take advantage of the synergies produced by the solar energy industry cluster. Tobias Homann, PV expert from Germany's [Trade and Invest](#), highlighted the many advantages of Germany, including high levels of education, a strong culture of business enterprise, a close relationship between research and manufacturing, suppliers, local authorities and engineering companies.

Partnerships and tie-ins with countries like South Korea are vital to develop solar technology also in Germany, said Homann. Germany's own commitment to producing cutting-edge solar energy is strong, and there is a new, concerted effort to advance research and innovations.

"The more players, the more dynamism, the better for Germany because it creates an incentive to go for even better technology and build on our solid foundation," Homann said.

Germany's rapidly changing solar industry is quickly responding to new competition from around the world. In 2008, Spain saw its PV market grow almost fivefold in one year from 560 MW in 2007 to more than 2,511 MW in 2008, representing more than 45% of the global PV market, according to the EPIA. For comparison, Germany installed around 1.5 GW, the U.S. 342 MW and Japan 230 MW. The EPIA expects the strong performance to continue: it forecasts that the European Union PV market will grow from 4.5 GW in 2008 to 11 GW by 2013, the U.S. PV market from 0.3 GW to 4.5 GW, the Japanese market from 0.23 GW to 1.7 GW and the rest of the world (i.e. including China and South Korea) to grow from 0.5 GW to more than 5 GW by 2013.

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This article was originally published by [RenewableEnergyWorld.com](#).



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