

# Potential of the sun dawns on the US

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Solar panels may not adorn every rooftop but governments globally could finally be giving the industry the fresh impetus needed for it to fulfil its potential.

In spite of record growth, rates over the past five years, high costs (solar energy can be four times as expensive as traditional gas-fired electricity) and the economic downturn mean solar has not become a mainstream energy source.

While many solar companies were profitable before the economic downturn, boosted by government subsidies, the credit squeeze and fall in energy demand has hit them along with the rest of the power sector. This has led some component prices to drop, which has heaped pressure on margins at many manufacturers.

Germany, Japan and Spain lead the market, mainly because their governments took an early lead in pushing the technology's development and, as a result, the industry is led mostly by European companies.

Germany's Q-Cells is the world's largest solar cell manufacturer, while Abengoa Solar, a Spanish company, this year built the world's largest solar tower, delivering electricity to 10,000 homes.

However, China and the US are making a concerted effort to make up for lost time. China is already the world's biggest producer of solar panels but exports 90 per cent of the equipment, while many in the industry expect the US to overtake its rivals shortly following increased attention from Washington.

Globally, Jeff Smidt, general manager of Underwriters Laboratories global energy business, says solar submissions for the seal of approval from the safety certification and testing organisation is on the rise, particularly from Chinese makers.

"We're seeing a huge increase in solar panels submitted for our evaluation," Mr Smidt says.

## [Green shoots for energy sector](#)

This is the second in a series on the growth of green energy and its impact on industry. The first part of this FT coverage dealt with [wind power](#).

China is building its first commercial solar power station, which sparked interest from companies globally looking to bid for contracts.

However, the US, following its \$787bn economic stimulus package, which includes grants and tax breaks for US clean energy projects over the next 10 years, has attracted the most attention.

“Most manufacturers around the world see the US as the next big thing for solar,” says Mr Smidt.

A recent report by Pike Research, the clean technology research group, says the US could well lead the solar industry by 2014. It is currently the fourth largest, behind Germany, Spain and Japan.

In anticipation of a boom there, a string of companies have in the past year moved into the US.

[SolarWorld](#), a German group, invested \$500m in a solar-powered manufacturing plant in Oregon. SolarWorld combines all stages of the solar photovoltaic (PV) value chain, from the raw material silicon to solar power plants.

Fotowatio, one of Spain’s largest independent solar power producers, agreed to buy the key US solar power assets, including the biggest US solar photovoltaic installation, at Nellis Air Force Base, from MMA Renewable Ventures of California.

And Japan’s [Itochu](#) acquired 85 per cent of the shares of SolarNet, a solar photovoltaic system integrator.

The concept of solar panels was developed in 1861 by Auguste Mouchout, who invented the first solar motor. In 1953, Bell Laboratories (now AT&T) created the first silicon solar cell able to generate an electric current to many high hopes. The 1970s oil embargo sparked intense interest in the energy source.

Solar is now used in a variety of ways. Photovoltaics converts sunlight into electricity; solar thermal absorbs the sun’s energy to provide low-temperature heat to create hot water or space heating; and concentrating solar power uses reflective materials in utility-sized systems to concentrate the sun’s heat to warm a synthetic liquid, which heats water to power steam turbines and produce electricity.

In addition, passive solar is used by architects to direct sunlight to brighten buildings and sometimes involves building with special materials that absorb the sun’s heat to be released later to warm during cooler evenings.

Legislation is a sure way to increase the use of solar power, says Branko Terzic, energy and resources regulatory policy leader for Deloitte, the consultancy. He points to Germany, which, among other countries, has increased its solar market by requiring utilities to buy all solar power made available at a government-set, high fixed price.

The price is set high enough and length of sale terms are long enough to enable operators to finance projects and achieve attractive profit levels.

However, Mr Smidt is concerned that consumers might not feel as strongly about the issue once the increase in high-cost renewables (solar and wind each account for about 1 per cent of the US energy produced) shows up on their electricity bills.

“The real test is whether we have the political will to have relatively high energy prices when renewables become a significant part of the mix,” says Neal Schmale, president and chief operating officer of Sempra Energy, the power producer.

Sempra recently opened its first solar power-generation project in Nevada, installing more than 167,000 solar modules on 32 hectares of desert to generate enough electricity to power about 6,400 homes. The entire 10MW output has been contracted under a 20-year power purchase agreement with Pacific Gas and Electric, the Northern California utility.

Demand for renewables by utilities is growing as they must comply with state (and eventually, many expect, federal) renewable electricity standards, requiring a percentage of power production be from renewable sources.

Mark Pinto, chief technology officer at [Applied Materials](#), manufacturer of solar and semiconductor technology, says part of growing solar is changing the mindset, getting utilities who doubted the widespread use of such technology to see it will be built and used.

"We're selling solar like crazy in Houston," says John Berger, chief executive of Standard Renewable Energy. Given the long history of oil and gas in the energy capital of the world, that is saying something.