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Many Greek solar companies are facing the current economic situation by developing diversified portfolios. Solar Cells Hellas for instance participates in all stages of the supply chain in order to spread its risk during recession.

Reconfiguring the market

Greece: Since new, lower feed-in tariffs came into effect on March 11, the Greek PV market is facing a slowdown. The new measures the Greek Energy Ministry introduced last August have been met with mixed reactions and diametrically opposite opinions.

According to the latest data published by the Greek electricity market operator LAGIE, Greece had a 2.070 GW cumulative installed PV capacity at the end of February. Of these 1.741 GW came from ground-mounted PV projects and 329 MW from rooftop installations. Both in relative and absolute terms Greece has become one of the world leaders in solar energy utilization. The country now ranks third in solar PV per capita worldwide, behind Germany and Italy.

The first months of 2013 saw high numbers of new installations too. In January and February LAGIE reported 300 MW and 234 MW of newly installed PV capacity respectively. In 2012 Greece had installed 890 MW of new PV capacity.

New PV installations in the beginning of 2013 had been anticipated on the back of the announcement of new, lower feed-in tariffs, which came into effect on March 11. Since then, the Greek PV mar-

ket has seen a slowdown. Nevertheless, LAGIE noted in April that cumulative PV capacity in the main electricity system at the end of 2013 and 2014 will reach 2.591 GW and 2.825 GW, respectively.

Greece developed solar energy policies that worked. Perhaps they worked better than was originally anticipated, or even desired, but the fact is that Greek renewable energy sources (RES) policies led to a domestic PV market worth €523 million in 2012 (over double that of 2011). The Hellenic Association of Photovoltaic Companies (HELAPCO) says the industry employs about 20,000 workers, with half of the direct jobs located in the design and installation of PV systems, and the other half in the supply, marketing, equipment and services sectors.

A negative side effect of this impressive growth is the deficit in LAGIE's Special Renewable Energies Fund, which is used to pay solar power producers. The

Greek Ministry of Environment, Energy and Climate Change (YPEKA) says LAGIE's enormous deficit and most worrying its upward trend were the reasons for introducing new measures last August.

Current policy framework

YPEKA's measures last August included significant FIT cuts and the Government stopped receiving new PV installation applications and processing pending ones. Only rooftop installations and the so-called "fast-track" projects were excluded from the licensing freeze.

YPEKA's measures have been met with mixed reactions. This is exemplified by the contrasting opinions of HELAPCO and the Greek Association of Photovoltaic Producers (SPEF). HELAPCO is a fierce opponent of the licensing freeze, arguing the measure only succeeds in creating a black licensing market. SPEF stated in an interview with **pv magazine**

Photo: Ilias Tsagkas



According to LAGIE, Greece had a 2.070 GW cumulative installed PV capacity at the end of February 2013. Of this capacity, 329 MW consists of rooftop installations.

that YPEKA's measure was correct: "The 2014 Greek national target for PV installations is already surpassed; therefore integrating more projects in the grid should be illegal and owners of the additional projects receive in essence 'illegal' subsidies from LAGIE's RES fund." More crucially, SPEF notes that there is the issue of the Greek electricity grid overcapacity: "Greece has a cumulative installed capacity of 16 GW, including both conventional and RES projects. Demand is approximately about 7 to 9 GW. Thus, if you want to add further capacity to the system, you rather have to remove a power producer from it. Otherwise, we are heading towards a crash point."

The Greek Public Power Corporation (PPC) has announced it is going to replace its old lignite power fleet with new ones. Asked whether the Greek Government should pursue an energy strategy of gradually replacing its fossil fuel installations with renewable energy systems, SPEF's chairman Stelios Loumakis said that this would be possible, but first the country needs to answer the question of who is going to pay the extra amount of money that renewable energy plants cost compared to conventional stations.

The 2009/28/EC Directive defines indicative targets for each member state for a share of renewable energy in gross final consumption by 2020. Greece's 2020 national PV installations target is 2.2 GW, which LAGIE forecasts will be met before the end of 2013. Stelios Psomas, policy advisor at HELAPCO, confirmed the asso-

ciation's request to increase 2020's target to 6 GW. Psomas explained in an interview, "LAGIE's RES Fund deficit is due to the old PV systems enjoying high FITs. If new projects awaiting to be installed receive low FITs as compared to the costs of conventional and other RES stations, then LAGIE's deficit will not increase. Thus, low FITs may permit a significant increase in the 2020 national target."

Photovoltaics levy

A measure that unites all actors against it is the levy YPEKA introduced last November on PV installations of 25 to 30% of their annual turnover (the levy excludes rooftop installations and projects granted building permission with the reduced FITs valid from August onwards). The measure was introduced on the basis of the LAGIE deficit and was imposed retroactively from July 2012 to June 2014. The Government further has the right to lengthen it for an additional year.

LAGIE's deficit, said Loumakis, is the result of long term distortions and miscalculations in the planning of the energy market. For this reason, he explained, SPEF has suggested YPEKA-specific reforms in the energy spot market: "Should they come into force, LAGIE's deficit could be significantly reduced." YPEKA seems to understand the problem with the spot market, Loumakis added, and SPEF believes YPEKA will make changes in the design of the energy market soon.

Currently though, LAGIE's deficit has led to delays in paying renewable energy

producers, which has further caused producers to struggle in meeting their financial obligations towards banks, suppliers and the state. The PV levy only worsened the situation. Loumakis noted that small solar producers are worst affected of all, due to the levy being imposed horizontally without allowing differentiation dependent on the size of the solar parks. "We hope though that this will soon change," Loumakis said. SPEF has brought the case to the Supreme Administrative Court of Greece. The trial is set for 5th June. SPEF has also asked the Greek Government to engage banks in reducing the interest rates to loans granted to PV investors. "By providing loans to investors," Loumakis said, "banks take risks; under these difficult financial circumstances that led to the levy, why should only PV investors bear the burden? Banks should accept a 'haircut' in their profits from PV loans too."

Preparing for further measures

YPEKA confirmed that it is preparing a new bill for renewable energy systems, "which is very possibly going to be introduced by the end of April," however the Ministry refused to provide specific details. A second package of measures dealing with the design of the energy market will follow later, YPEKA stated in an interview with **pvmagazine**.

PV market stakeholders interviewed for this article usually assumed that the new bill almost certainly will introduce further FIT cuts and a measure which secures financial guarantees from prospective investors. Under the last measure, investors applying for PV licenses now have to provide financial guarantees for their projects (this is currently valid only for projects up to 1 MW). Most stakeholders contacted expressed that further FIT cuts are necessary to keep the market sustainable. All of them though were definitely in favor of the measure of financial guarantees, suggesting it will free space in the power grid from projects that have been licensed but cannot be implemented due to financial constraints.

The way forward

The businesses interviewed for this article are facing the current situation by developing diversified portfolios. The following three cases support this argument.

Solar Cells Hellas is a leading Greek manufacturer of silicon wafers and solar

cells with an annual PV panel production capacity of 80 MW. Sophocles Pitarokilis, Solar Cells Hellas' General Manager, explained, "We provide integrated solutions in developing renewable energy projects. We specialize in solar energy and are responsible for the licensing, design, supply of equipment, construction and O&M of photovoltaic projects." Solar Cells Hellas, he said, has a portfolio of 400 MW of PV projects, of which 45 MW were built in the last two years. The company has significant export activities, he said, mainly in Italy and Spain. Solar Cells Hellas participates in all stages of the supply chain in order to "spread the risk during recession, achieve independence from suppliers, be flexible in gaining funding from different sources and develop a sustainable long term business model."

Upsolar Hellas is the Greek branch of the Chinese manufacturer Upsolar and has operated in Greece since 2010. Ioannis Markatatos, Upsolar Hellas' Sales Manager, explained that the main activity of the Greek office is to supply the Greek market with the company's PV panels: "Since March 2010 we have supplied 68 MW of PV panels in Greece." And he adds, "For 2013 we further aim to install 10 MW of our own parks."

The third case is represented by Sunday Solar, a company building and installing PV and micro-wind turbines. Managing Director Dieter Schmitt is a pioneer in the Greek PV market. Initially, he moved from Germany to Greece 16 years ago to work outside the PV sector. However, in

2001 he created Solion, a company installing PV systems. Conergy purchased Solion in 2004 and Schmitt became Conergy's General Manager in Greece for several years. Times are harsh, he says, however market growth continues. First of all there are licensed projects that still need to be built; secondly application licensing for rooftop installations is still open; and thirdly off-grid installations will become the new trend, explains Schmitt. Although off-grid installations cost more than grid-connected systems, Schmitt says, "the price difference tends to significantly decrease due to a series of high taxes added in the Greek electricity bills." Every building connected to the Greek electricity grid pays a special levy imposed on the country by the "troika" of the European Commission, International Monetary Fund, and European Central Bank, as an exchange for the Greek bailout program. A special renewable energy support tax and, bizarrely enough, a fee for Greek public television are also paid via the electricity bill. Finally, to add diversity to his business, Schmitt said, "Sunday Solar also provides O&M, which we believe is particularly relevant since due to the March deadline many projects were developed clumsily."

Tips for investors

If investors consider the "fast-track" program (it mainly concerns large-scale investments), Invest in Greece is the public institution to start researching. Eva Fragioudaki, Communications Director at

the company, says that all staff members speak at least English. "Most of our material is translated into English and other languages too, and only applications need to be filled out in Greek."

It is very hard to get a loan from a Greek bank because they do not have capital. Since re-capitalization of the Greek banks through the "troika" loan is scheduled soon, banks might become more open. However, investors will need to provide a reliable financial profile, a big amount of the investment themselves and some sort of guarantee. Also, most banks tend to fund ground-mounted projects through leasing and not via a bank loan. Upsolar Hellas said it recently signed a leasing contract with a Greek bank at a rate of 10%.

Investing in rooftop projects is the easiest of all. PV Grid, a European platform that provides information on PV installation progress and barriers in Europe, rated Greece the third most efficient country in Europe (behind Belgium and Germany) regarding its rooftop licensing procedure. Greek banks will most often provide up to 60% of the investment funds and at a rate ranging from 8 to 10%. Loans need to be paid back within five years.

"All related institutions have gained significant experience in dealing with PV investments compared to the past years," said Sunday Solar's Schmitt. However, he added, foreign investors should certainly employ a lawyer or accountant who speaks Greek. ♦

Ilias Tsagas

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