Photo: Arava Power Company/Ruti Rubenstein

PV systems in Israel are mostly small-scale installations. Arava Power Company is taking on Israel's larger solar PV projects. Pictured here: the inauguration of Ketura Sun, located at Kibbutz Ketura in the Arava Valley.

Solar kibbutzim

Israel: At this year's CleanTech summit and exhibition, organized by Mashov Group in Tel Aviv, Israel's PV industry looked forward to when PV electricity production will become competitive without subsidy.

When the Israeli government introduced a feed-in tariff (FIT) in the summer of 2008 to incentivize the small and mid-sized/commercial PV market, predictably it started a solar rush as installers, suppliers and other players descended to carve out a slice of the market. As a result of the FIT, grid-connected PV installations grew from 25 kWp in 2007 to 186,000 kWp in 2011 and Israel quickly emerged as one of the first sun-belt markets in the region. But in managing to avoid the boom-and-bust travails of PV markets such as Spain and Italy – through introducing measures to rationalize growth – the opposite effect has left an industry frustrated by excessive red tape, from quotas, market capping and licenses. "Israel has been a very up-and-down PV market," concedes Rami Feller, President of RCS Solar, a leading global distributor with a 40 percent share of the domestic market.

Pent up demand

Nevertheless, while they may have been fewer in numbers compared with previous years, the distributors, installers, developers, suppliers and other PV industry players that were present at CleanTech in Tel Aviv in July are singularly determined to create successful solar businesses in Israel, with or without government subsidy. In a country where more than 20 different public offices are involved in regulating and permitting solar energy, licenses for projects remain very oversubscribed, says Lior Handelsman, founder of Israel-headquartered inverter supplier SolarEdge Technologies. According to the Renewable Energy Association of Israel (REAI), out of 977 MW of solar PV-approved quotas and tenders, only 225 MW has been installed and connected to the grid. Most of this comprises small-scale commercial installations, followed by small-scale residential.

The quota for larger commercial and utility-scale is largely unmet. Backed by funds from its investor and partner Siemens, Arava Power Company is taking on Israel's larger capacity solar PV projects. Recently the company raised finance for eight solar plants, totaling over 50 MW, in the Negev Desert in southern Israel. Beyond Negev, land is predominantly used for farming, or for defense, so unlike Europe and the U.S., multi-megawatt solar fields that blanket hundreds of acres of land are not feasible in Israel.

In order for Israel to meet its mid-term goal of five percent renewable energy consumption by 2014, the REAI published a report to coincide with CleanTech, stating 900 MW more solar capacity needs to be installed. The report was sent to government ministries and authorities, asking for new energy regulations and legislation to help reach the target.

Grid parity is near

Suntech Power is the largest supplier of PV panels to Israel, through partnerships with local companies like RCS Solar. Strategically Israel is important for Suntech both as an end-user market for its panels and also as a rich vein of PV-related R&D to be tapped. During CleanTech 2012, Suntech's CTO Stuart Wenham, accompanied by REAI and the Israel Export and International Cooperation Institute, met with government officials and business executives from solar technology companies.

With the Israeli Public Utility Authority (PUA), which sets quotas for solar PV, and the Israeli Electric Corporation, Suntech discussed PV market dynamics, particularly as the economics of PV electricity generation are almost competitive with conventional electricity. The company also met with Israel's national economic council and the chief scientist's office to "help them better understand current trends in PV technology," confirms Ryan Ulrich, communications supervisor at Suntech.

During CleanTech 2012 Eitan Parnass, founder and CEO of REAI, spoke to **pv magazine** about the self-consumption model that is poised to emerge in the coming months. As the economics of PV generation continue to look more favorable in a country that benefits from some of the highest levels of solar irradiation in the world, initiatives that avoid the FIT altogether are in the pipeline. In Israel, much of the land for farming is owned by communal cooperatives such as kibbutzim. Using the space available on rooftops of cow, chicken and other farming and industrial sheds for PV electricity generation does not compete with land used for crops and other agricultural activity. Kibbutzim have the collective income to finance PV projects and producers could trade any excess PV-generated electricity generated. Such concepts are risky, admits Parnass, since they are hedging on the likelihood that Israel's electricity prices, which have been historically low, will rise over time. Nevertheless, low PV panel prices coupled with abundant sunshine hours mean that such projects may be economically viable from 2013 onwards. "It is a free market initiative coming from entrepreneurs here in Israel, not the government," explains Parnass.

Despite the overregulation that has threatened to derail Israel's PV industry, it is the fast-approaching competitive economics of PV electricity generation – so-called grid parity – that many international PV businesses and suppliers are gearing up for with the Israeli government expected to publish a grid-parity report in mid-2012. David Lowen, Director of Sales Western EMEA, for Power-One, concurs: "From 2013, the Israeli PV industry is going to become a very interesting market indeed." The inverter company has recently opened an office in Tel Aviv. Through its partnership with Migvan Technologies & Engineering, a local representative and distributor of semiconductor and electrical components, Power-One should have sold over 30 MW worth of inverters by the end of 2012. SMA, which has the largest share of Israel's inverter market, plans to open a service office in Israel later this year.

Initially when Helios Strategia entered Israel just over two years ago, it was as a distributor of PV modules and products, but the company's founders quickly saw a niche for partnering with local firms to develop installations of plants in the one to 10 MW range, through experience in installation planning and other areas. The France-headquartered company is developing a 10 MW project in Israel with a group of private owners and another 10 MW project, also with a conglomerate of private investors, in Palestine. The latter project, explains Helios Strategia CEO Stéphane Aaron Draï, has come about through the company securing the support of the Israeli, Palestinian and French governments. Both plants will be completed in early 2013. Helios Strategia has helped open up the Israeli market for Spanish PV module maker Siliken. A stipulation of the Palestine PV project is the use of European PV panels.

Preserving resources

Haim Alush, co-founder and co-CEO of Mashov Group, which has launched several initiatives, such as energy efficiency and recycling in Israel's cities, says emphasizing the connection between the different clean technology fields is critical, citing solar and water as an example. The link is not immediately obvious until Barak Yekutiely, founder of Aquate, describes his company, which is getting ready to commercialize its floating-cover PV (FCPV) system. In Israel, where free land is scarce, collectively the country's reservoirs could provide enough surface area to host up to 2 GW of PV capacity. Covering reservoirs prevents water loss through evaporation and reduces water salinity and, in turn, more water enhances agricultural productivity. FCPV systems also take advantage of proximity to grid connections reservoirs have for pumping water, or they can work as off-grid installations. "By installing FCPV you are maximizing the existing productivity of the reservoir and also providing an additional function – the production of electricity," explains Yekutiely.

Photo: Mashov Group

The experts at CleanTech 2012 were determined to create successful solar businesses in Israel, with or without government subsidy.

The company is in the process of evaluating flexible and also rigid silicon PV panels, from mainly tier-1 suppliers, but also some tier-2 sources. In Israel, Aquate has several partnerships, including Mekorot, Israel's national water company which is developing the Nir Am reservoir on an area covering 120,000 m^2 and several reservoir projects with Moshavei Hanegev Company, Israel's largest agricultural company, covering reservoirs over a collective area of 600,000 m^2. Aquate has been working with different government ministries and authorities in order to gain approvals and should it gain these in time, construction of projects could begin this year, with plans to develop several hundred megawatts of FCPV in Israel by 2015. "The legwork is in obtaining the necessary approvals, while construction of the FCPV system can take under six months," says Yekutiely. Aquate is also working with partners globally, including the U.S., to commercialize its FCPV system.

Perhaps where PV is most likely to succeed in the future is where it is part of a system designed to preserve resources that are becoming increasingly scarce. Even the Israeli government has had to acknowledge that PV is the only technology to get it out of a tight fix, where interruptions to gas from Egypt coinciding with peak demand for electricity for air-conditioning means its citizens are prepared for summer blackouts. To plug the deficit, 30 MW of PV capacity is being licensed by the government on the condition that this capacity can be installed by August. Even though Israel has discovered gas fields for exploiting, these are unlikely to begin piping in fuel before 2015. But as solar PV production becomes more competitive, Israel is poised to become as proficient at harvesting energy as it is at growing crops and farming. ◆

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