

INSIDE

Trina Solar Ltd., the world's biggest manufacturer of photovoltaic panels, is planning an *IPO* of a "growthco" unit.

India's government has laid the *groundwork* for development of offshore wind for 200 nautical miles out to sea.

Despite Israel's sunny climate and world-class tech sector, gas, and not solar, is *dominating* the country's energy agenda.

The offshore wind industry will need to cut costs *significantly*, in order to compete in the long term.

WHAT TO WATCH

Volatility in the euro-dollar exchange rate could impact EU carbon permit prices this week, according to Bloomberg New Energy Finance. A surprise-hike announcement from the Federal Reserve could lead to an appreciation of the dollar against the euro, and spell short-term bearish pressure on permits.

SCIENCE BUZZ

The Southern Ocean — the region below the 35th parallel south — has increased its uptake of carbon dioxide since 2002, according to a new *study* by the American Geophysical Union. Comprising only 26 percent of total ocean area, the Southern Ocean has absorbed nearly 40 percent of all carbon dioxide taken up by global oceans to the present day.

This is a revised version of the Clean Energy and Carbon Brief, published Sept. 14, 2015, incorporating corrections to the article on Belectric-Kuloglu on page 1. The original headline and second and third paragraphs have been replaced with new ones.

Turkish Solar Developer Takes Aim at 500MW by 2021

BY BEN VICKERS, BLOOMBERG NEW ENERGY FINANCE

Belectric-Kuloglu, the joint venture partner in Turkey of Germany's **Belectric Holding GmbH**, secured licenses in March to develop 77.4 megawatts in three solar parks. The cost of the licenses, the most expensive of which amounts to the equivalent of \$657,732 per megawatt, won't be a problem, says **Cenap Kuloglu**, founder and director.

The company says it stands to benefit from the falling cost of photovoltaic systems and their integration, and possible declines in the value of the Turkish lira against the dollar, as Federal Reserve Chair Janet Yellen raises interest rates.

The first instalment of Belectric-Kuloglu's fee for the license is due to be paid in local currency in January 2018. Meanwhile, the tariff paid per megawatt-hour is paid in dollars.

Belectric-Kuloglu's solar projects will have an internal rate of return of 12-15 percent over 49 years, Kuloglu said. The company is aiming to have 500 megawatts of solar capacity built and operating by the end of 2020. Turkey is attracting interest from investors in renewable power as the government plans to cut dependency on imported energy. The plan, which includes building several nuclear plants and boosting local coal usage, also targets growth in renewables.

Turkey is aiming for 20 gigawatts of wind energy capacity and 5.5 gigawatts of solar by 2023. Renewables are expected to rise to more than 35 percent of the energy mix, from 25 percent now.

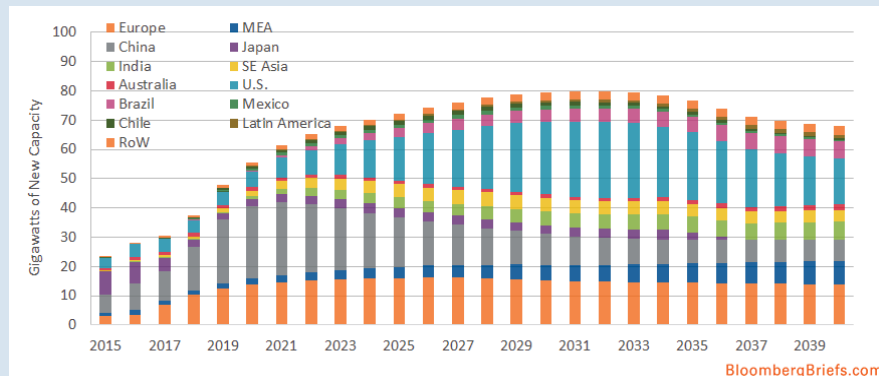
Belectric's JV will be seeking funding from the **European Bank for Reconstruction and Development** and Germany's **KfW**, and will also be talking to the largest Turkish commercial banks. Funding is expected to be at about 7 percent, Kuloglu said.

Indeed, Turkey may be heading for rapid growth in renewables, so long as the numbers add up. In August, new rules set out the framework for small-scale solar developments of less than 50 kilowatts. Kuloglu is planning a pilot development in a city on Turkey's Mediterranean coast in the first half of next year. He spoke further about these plans with Clean Energy & Carbon [here](#).



Source: Belectric-Kuloglu
Cenap Kuloglu,
founder of Belectric-Kuloglu

U.S. to Surpass China in Small Scale PV Installs From 2026



Source: Bloomberg New Energy Finance - <https://www.bnef.com/core/new-energy-outlook>
Data as forecast in Bloomberg New Energy Finance's New Energy Outlook.

Q&A

Cenap Kuloglu, founder and managing director of Belectric-Kuloglu, the Turkish JV of Belectric Holdings GmbH, spoke with Bloomberg New Energy Finance's Ben Vickers about the economics of investing in solar projects in Turkey and opportunities in small-scale developments. The interview has been edited for space and clarity.

Q: Belectric Kuloglu broke new ground in Turkey earlier this year when it bid successfully for Turkey's largest ground-mounted solar array, with a capacity of 45 megawatts, in the eastern region of Van.

The company now has a tally of 77.4 megawatts to execute. With tariffs only guaranteed for ten years, and the high prices bid per megawatt — can you explain what the economics of these projects is?

A: At the tender on April 29, we committed to the largest project in Turkey, 45 megawatts in Van, with a contribution fee of 1.91 million Turkish lira (\$657,732) per megawatt. In January, our Antalya Akseki project received the highest AC connection capacity, 23.4 megawatts, for a lower-than-average contribution fee of 1.14 million lira per megawatt. The other successful one was 9 megawatts in Mardin for 610,000 lira per megawatt.

These fees are in Turkish lira. When we build the plants in the first half of 2017, the first fee payment is due on January 1, 2018. By that time we expect the dollar to have appreciated, so the impact of these fees will be lower. Besides, the downward trend in system integration prices, PV panels and so on, will make our projects' internal rates of return even more attractive.

Q: So the currency risk is a big factor here. What range of forecasts are you working with for exchange rates — where will the lira be against the dollar in 2018?

A: I can't say what our forecasts are. But [the Fed Chairman Janet] Yellen will be raising rates in the coming years and you can see a definite trend there. We are very conservative in our estimates. I can say we're expecting a return of 12 to 15 percent, as a project IRR over 49 years.

Q: What sort of rates do you expect to pay for financing, and are you going to be working with Turkish banks or banks abroad?

A: Our project finance will be at about 7 percent — and we'll be working with development banks like the EBRD or Germany's KfW. In Turkey we'll be talking with the top five commercial banks. You can work with them in financing bundles of 20 megawatts.

Q: What timeline are you looking at for the Turkish projects, and will you be working with local manufacturers to earn the supplement on locally manufactured parts?

A: The process is going from pre-license to license, then construction and grid connection permits. We're talking about 12 to 18 months to get there. As a system integrator, we're independent of PV panel producers — we have some possibilities for working outside Turkey. We didn't take into account the incentive for local parts in our plans, except for a \$0.08 incentive for substructure for five years.

Q: How important is a Turkish partner for firms investing in Turkey?

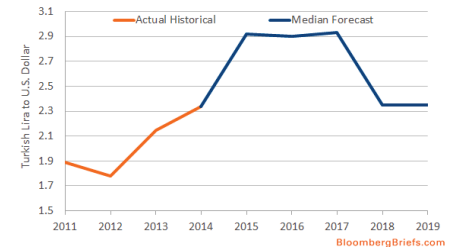
A: The bidding process is transparent. Of course, coupling with a domestic partner who is able "to read the DNA" of the Turkish market and its players is vital for success. Companies coming into a market like this lack the expertise to execute efficiently — and local partners can help do that.

We're developing projects both in the licensed and the unlicensed market (less than 1 megawatt) together with two international companies in joint ventures. We have the agility to get things done in the country, while also being quite conservative in our risk taking.

Q: On August 25, a new regulation was introduced for small-scale PV — below 50 kilowatts. Are you looking at this market?

A: We have been preparing for this. In the first half of 2016 we will start a pilot project in a city on the Mediterranean coast, working with neighbourhoods. There are lots of lessons we need to learn — one of these is how to reduce

Lira to Impact Project Costs



Source: Bloomberg

Median is based on forecasts from 39 banks.

customer acquisition costs — maybe we could find PPA partners. But once the pilot is finished we plan to roll out the business very quickly. Market players with the right business system will emerge as the winners in this large market.

Once the regulators experience the benefits of hybrid gas and solar systems, grid stabilizing technologies and utility-grade energy storage, the current set target of 5 gigawatts of renewables (compared with Germany's 40 gigawatts) will be raised. This should then lead to abolishing subsidies on gas and thus improving our current account deficit.

Q: What are your targets for installed capacity by 2020?

A: We will have built, and have under our own O&M [operations and maintenance] contract, about 500 megawatts by the end of 2020 — of that, 200 will be unlicensed and 300 will be licensed.

Q: With the costs of licenses and the lengthy process for the larger plants, why not just focus on unlicensed?

A: Because with unlicensed you just get 10 years and you don't know where you stand. With licensed you have 49 years and you even have the possibility of selling the assets. We believe that within less than three years the LCOE of PV solar power will be better than for wind. In the longer term, the market for renewable energy will be massive, not just domestic and industrial demand but also for transport in other countries.