

Solar breaking oil's Middle East stranglehold



Credit: Masdar

Solar deployment is growing in the Middle East despite the collapse in oil prices.

Middle East | While oil falls and Saudi stalls, detractors are questioning the future of solar in the Middle East and North Africa. But rising electricity prices coupled with rising demand mean solar power remains an important investment from Muscat to Marrakech, writes John Parnell

For a while, solar energy in the Middle East has been all potential and no conviction. All eyes were on Saudi Arabia with top manufacturers and developers jostling for position on trade missions and hoping to find themselves at the front of the queue when deployment began.

Saudi Arabia's lack of progress continues to baffle onlookers with the country recently pushing its 2032 ambitions for 54GW of solar back to 2040. The recent drop in oil price has added fuel to the fire of sceptics who have little faith that the region would ever match its lofty renewable energy ambitions.

Quietly however, away from Saudi Arabia, Egypt has put 2.3GW to tender, Dubai has accelerated its own 1GW process and Jordan's long-awaited procurement round has seen power purchase agreements signed. Morocco and Tunisia are also pressing ahead with PV and concentrated solar power plans.

The impact of the price of falling oil on renewable energy rollout has neglected to consider that electricity prices in the region have largely been increasing as governments chip away at the subsidies on offer, a process reduced oil receipts will surely only

accelerate. In January, Kuwait announced six-fold increases in the per-kilowatt hour tariff for households that consume more than 10,600kWh a year. Smaller users are rewarded with more modest increases and the smallest users (under 6000kWh) with no increase in tariff at all. The current rate is two fils, about two-thirds of one US cent.

These prices are one reason why Sami Khoreibi, CEO of Abu Dhabi-based EPC firm Enviromena, is bullish about solar's future in the region, despite falling oil prices.

"We're a lot more competitive with today's cost of solar than the delivered cost of electricity from oil power plants and diesel, which is what we are displacing a lot of the time," he says adding that the market, not government targets and schemes, are driving solar's rollout.

"We're starting to see that in places like Egypt and Jordan, and even parts of the UAE where you have the high delivered costs of electricity. Solar projects are being driven and led by private sector players outside of the framework of government programmes. We're simply displacing higher cost energy. The underlying economics of any source of any energy are what is going to drive growth in an industry and, for solar, they are quite compelling."

Khoreibi also points out that while volatility in fossil fuel prices may appear to be working against solar for now, it can swing the other way just as easily.

"It's very hard to predict what direction oil prices or gas prices are going to go," he says. "Solar power systems have a 25-year life and you are capturing that price of electricity for 25 years all at once. So if we're looking at the case for solar I think it is strengthened when we see massive swings in [traditional] energy cost. We're still more competitive than oil-fired power plants but to a lesser extent. I think the predictability of our feedstock – the sun comes up and the sun goes down – is something that should supply a degree of comfort not just to regional governments but to all power producers globally."

These factors have seen a number of procurement rounds gain traction in the Middle East. They may be less headline grabbing, but they're also more tangible. Thierry Lepercq, CEO of developer Solaire-direct, says they represent a second phase in the development of solar in the region.

"I think there have been two periods for solar in the Middle East," says Lepercq. "The first was a few years back when you had the big political announcements. Masdar

on the one side, big announcements with a PR aim, and in Saudi Arabia there was KA CARE and talk of 54GW by 2032 and so on."

Since then the KA CARE plans have stalled and state oil company Saudi Aramco and Saudi Electricity Company (SEC) have looked to use their project expertise to launch projects separately.

According to a Citigroup report in 2012, Saudi Arabia risks becoming a net oil importer unless it can address its electricity supplies. Using solar in Saudi is not just about freeing up oil for export however; Lepercq says the country also has a reliance on imported diesel to contend with.

"There's insufficient power supply in many areas of Saudi Arabia so there is a lot of power generation from diesel. Strange as it is, the country imports diesel at a rate of US\$1 billion a month, largely from India," says Lepercq.

Pressures like this could exert similar pressures on Saudi Arabia to adopt solar, as are currently being applied on Jordan. Oil prices may be low for now, but the cost of electricity in the face of rising demand is a more predictable and immediate concern.

United Arab Emirates

Dubai has stolen a march on its big brother

emirate, Abu Dhabi, with the announcement that the winner of a 100MW PV tender round will actually double the project to a 200MW install. On top of that the winning bid of US\$0.059/kWh is the lowest ever for a solar power plant.

A further tender round for another 200MW has been announced for 2016 as part of its 1GW Mohammed bin Rashid al Maktoum Solar Park, named after the Emirate's ruler. The rock bottom prices are reminiscent of the early bids in India that proved too low when the time came to close financing.

Enviromena's Khoreibi thinks the winning parties, ACWA Power and Spanish firm, TSK, will be confident that they can fulfil their promises.

"Both companies are highly sophisticated entities that I'm sure had a very studied approach to their pricing. They have won and delivered solar systems in the past. There is real potential considering the access to capital to build up solar power plants well below US\$0.10/kWh," says Khoreibi, adding that the development should be considered positive by everyone working in the industry in that region.

"We're going to get to the point where we are not just competitive with oil-fired power plants but we'll be competitive

with gas-fired power plants regionally as well. The average production cost in Abu Dhabi is US\$0.08-0.12/kWh for the true cost of gas and when we start falling within that band we open up a more significant marketplace. From our point of view we think this is exciting."

Abu Dhabi's Masdar vehicle has installed a 10MW PV plant, a 100MW parabolic trough CSP plant and 2.3MW of rooftop solar on government buildings. It has invested in renewable energy projects overseas including the 630MW London Array offshore wind farm in the North Sea. With a steadier pipeline of projects available at home in the future, there is no reason why Masdar and other regional investors can't reap the benefits.

Even one of the smaller emirates, conservative Sharjah to the northeast of Dubai, has announced a 20MW solar tender.

Turkey

Turkey is one of the fastest growing economies in the world. At an energy markets event in Ankara in January, President Erdogan said the country's energy demand had doubled in the space of 12 years and was forecast to double again in the next 12 years.

The UAE has taken an early lead in deploying solar with projects such as the 100MW Shams CSP plan.



Credit: IBC Solar.



For a country with no meaningful oil or gas resources, that is an immense challenge and the opportunity for renewables is obvious. Erdogan's government estimates that the cost of building new generation capacity will be US\$120 billion.

"Turkey is in a very interesting situation because it has no domestic production of oil or gas so it has a very big energy deficit. It has great radiation in the south west of the country – we try to avoid the east for a number of reasons including political," says Solairdirect's Lepercq, adding that the country already has a well-functioning power market.

"The only thing is that they are yet to be fully aware of how competitive solar can be. They have done tenders for wind and they have on average US\$87/MWh for a wind project, more or less at the level of wholesale prices. With solar they expect it to be more expensive so they have issued tenders for 600MW at US\$133/MWh, which is far too high. We're in the situation where in the tenders they are asking for a payment to sign for the tenders at a high price." In practice, the regulator is asking for bidders to offer compensation to offset the high price that has been set.

Results were expected at the end of January 2015 as this publication was going to print. The first round of the tender in 2013 attracted almost 9000MW of interest. This would suggest the country's goal of installing 3GW of PV by 2023 is achievable. Lepercq can add to that body of evidence with his own personal experience.

"We had a meeting with a presidential aide in Istanbul recently and I think that they are opening their eyes to the incredible potential of solar in Turkey. I would not be surprised if once this 600MW tender is passed, a massive amount of India-style procurement followed. That would suit perfectly the needs of Turkey as a power user," he says.

Policy makers are beginning to understand the enormous potential of solar in Turkey.

Egypt

With a period of extreme political instability seemingly behind it, the Egyptian government is in a better position to be making long-term plans and it appears that solar is actually fairly high on the to-do list. Lepercq claims Egypt's finance and investment ministers have placed it solar right at the top.

Investment minister Ashraf Salman has identified power cuts as the major roadblock to economic progress.

Michelle T Davies, head of law firm Eversheds' clean energy and sustainability group, praises the long-term approach the government is taking: "Egypt has identified the sectors in which it can achieve growth – [such as] financial services, retail – but in order to achieve growth it needs to have the infrastructure in place so transport and energy are key areas of focus for it."

"From what I can see about Egypt they are going about this in a really considered way across their whole growth programme and if you look at what they are doing with energy, including coal and nuclear and

renewables, it is so well thought out. They have looked at what else happens around the world and as long they get the PPA right, they are creating a system that to the private sector and for private investment, is almost ideal."

Jordan

Jordan's progress may have stuttered in late 2014 but its hard work to piece together a PPA capable of attracting top solar developers was a significant milestone for the region.

The country is one of the energy "have-nots" in the region; prices are high, supply not entirely steady. Solar makes perfect sense and the first 200MW tender is set to deliver projects with Trina, Scatec and Phoenix solar among the winners. The next 400MW round of renewable energy procurement – four projects of 100MW each, open to wind and solar – has been postponed but not cancelled.

See next page for Raymond Carlsen of Scatec Solar's account of PV in Jordan. ►

The best of the rest

Iran

The country is starting from a very low base, but in October 2014 it did confirm plans to double its renewable energy capacity by March 2015. It is eyeing 5GW of renewables generation capacity in the next five years.



Oman

GlassPoint Solar last year secured a US\$53million in financing for an enhanced oil recovery (EOR) project. EOR uses steam to increase the return from the well. Remote oilfield operations usually use gas to generate steam. GlassPoint encloses a parabolic CSP system – inside a glass house to reduce the impact of dust – to generate the steam required.

GlassPoint has dealt with the Middle East's dust problem by enclosing its system entirely.

Credit: GlassPoint.

Morocco

Egypt is not the only North African nation that has made progress with solar energy development. Morocco is aiming for 2GW of solar by 2020 and has so far been focused on CSP developments with part-funding from the World Bank.

Tunisia

Clean energy investor Low Carbon and developer Nur Energie are working on a 2GW solar energy export plan from CSP plants. The idea is to send the power to the European grid. It is possible that the CSP project could receive subsidy support from the UK's contracts for difference scheme, which is open to overseas-based projects that export power to Britain.

Algeria

The country's FIT scheme, launched in April 2014, offers a fixed rate for five years followed by 15 years at a new rate determined by plant performance. Two bands of 1-5MW and over 5MW have helped get around 350MW of solar projects into development. Rates vary from US\$0.09-0.21/kWh. The scheme seems well on its way to hitting its 800MW target by 2020. In January, the government doubled its 2030 renewable energy target to 25GW in a further boost to the market's health.