

Solar ousting gas in United Arab Emirates

Verity Ratcliffe / London

Dubai and Abu Dhabi have turned to solar as a cheaper alternative to gas, as Dubai reveals plans for the world's largest concentrated solar project.

THE UNITED ARAB Emirates' two largest utility companies are planning major solar power projects as the price of solar energy has dropped below that of gas.

Dubai Electricity and Water Authority (DEWA) unveiled plans last week to develop 1 GW of concentrated solar power (CSP) capacity by 2030. The project, which will be built in the Mohammed bin Rashid al-Maktoum Solar Park, is intended to be the largest CSP project in the world.

Solar is now cheaper than gas-fired power generation in the UAE if gas is priced at international market rates. Solar power costs \$0.0421/kWh over the life of a project, while gas-fired plants can produce power at \$0.0481/kWh, according to Justin Dargin, a Middle East energy analyst at the University of Oxford.

However, gas can be produced from the UAE's associated fields for \$1.30/MMBtu, which means gas-fired power is still cheaper than solar energy if domestic gas production costs are applied. Nevertheless, gas from conventional fields is becoming less available in the UAE, forcing it to produce from non-associated complex fields and to import LNG, both of which are more expensive.

In addition to DEWA's new project, Abu Dhabi Water & Electricity Authority (ADWEA) has invited bids to build a 350 MW photovoltaic solar project at Swaihan. ADWEA and Abu Dhabi Water & Electricity Co. hosted a two-day event for potential bidders at the end of last month and bids to build the independent power project are due to be submitted by 19 September.

The emirates may hope to emulate the success of Dubai's recent solar PV tender. Masdar submitted a world record-breaking bid of \$0.0299/kWh in May, which will be cheaper than power from a clean coal project under construction in Dubai and Abu Dhabi's most recent gas-fired power plant.

The cost of producing solar power in the UAE has plummeted for several reasons. Firstly, the utilities are benefiting from intense competition among bidders. As has been the case in Mexico and Peru,

COMPARING THE COSTS OF POWER PRODUCTION IN THE UAE

	Emirate	Size	Bid deadline	Low bidder	Offer
Sheikh Maktoum solar park (Phase 3)	Dubai	200 MW (can be extended to 800 MW)	May 2016	Masdar Abu Dhabi Future Energy Co., FRV, Abdul Latif Jameel	\$0.0299/kWh
Sheikh Maktoum solar park (Phase 2)	Dubai	200 MW	Jan 2015	ACWA Power International	\$0.0585/kWh
Hassyan clean coal project (Phase 1)	Dubai	1.2 GW	May 2015	ACWA Power International	\$0.0450/kWh
Mirfa gas-fired independent water and power project	Abu Dhabi	1.6 GW	Mar 2013	Marubeni	\$0.0350/kWh

Source: Interfax

bidders in the UAE appear to be more concerned with market share than profit. The UAE authorities tender contracts on a project-by-project basis rather than offering a feed-in tariff, which encourages companies to submit aggressive offers.

Abu Dhabi-based renewables company Masdar was able to submit a low offer to build Phase 3 of the Sheikh Maktoum project because the company is owned by the Abu Dhabi government. "Masdar is supported quite generously from the state, so what some may term 'normal commercial considerations' may not apply as starkly to it as to other companies," said Dargin.

Being able to access cheaper finance than rivals is particularly important for renewable energy projects because costs are concentrated towards the early project phases. "Therefore, financing cost is of the upmost importance," said Dargin.

The creditworthiness of UAE utilities also helps to keep borrowing costs low. DEWA boasts higher ratings than the emirate's government. Other factors that keep solar power costs low in the UAE are extremely low land and labour costs, said Dargin. Other countries may therefore struggle to replicate UAE solar prices.

CSP vs PV

Although Dubai may hope to attract bids that are similar to the recent solar PV ones, DEWA's latest project is a CSP facility. Such projects are typically more expensive than PV. There is a smaller pool of companies specialising in CSP than for PV, which may hinder competition.

But while CSP is more expensive than PV technology, it has an important advantage. "The storage aspect of the CSP is a very critical point as it rectifies the typical failing of solar power generation, which is the fact it cannot produce after sunset [and is intermittent] during the day," said Dargin.

"CSP [offers] a different value proposition," Hannes Reinisch, a partner in PwC's power and utilities group in the UAE, told *Interfax Natural Gas Daily*, pointing to a recent CSP tender in Morocco that attracted a \$0.14/kWh bid. Dubai is expected to attract lower bids (below \$0.10/kWh) for its CSP plant. While that makes it more expensive than other technologies, the storage component is valuable.

The 1 GW CSP project will be able to store thermal energy for 8-12 hours per day, said Dewa. Once battery storage devices are included in the cost of PV, the price difference between the technologies narrows.

The UAE's ambitious renewable energy target has worried some observers. Dubai aims to produce 25% of its power from renewables by 2030 and 75% by 2050. The country's target is 24% by 2021, which the energy minister claims could be beaten.

However, without storage capacity renewables are unlikely to have any effect on the electricity grid before they clear a 20% share, said Reinisch. With the addition of CSP and storage facilities, the grid should be able to absorb more solar power capacity. ■

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