

## **Qatar set to benefit from solar project**

**A solar parking project will be established at the upcoming Solar Test Facility, a Chevron Qatar-GreenGulf initiative at Qatar Science & Technology Park**

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Qatar is poised to benefit from solar car-parking canopies, an innovative concept from Chevron Qatar, an affiliate of global energy giant Chevron Corporation, and GreenGulf, a Qatari renewable energy company.

A solar parking project will be established at the upcoming Solar Test Facility, a Chevron Qatar-GreenGulf initiative at Qatar Science & Technology Park where the organisations are based.

“We have several commercial proposals also with regard to solar parking,” GreenGulf’s CEO Omran al-Kuwari told Gulf Times in an interview.

Chevron Energy Solutions has built hundreds of solar parking lots in California over the past decade, Chevron Qatar president Carl A Atallah pointed out.

“Solar parking is a simple and cost-effective way of utilising solar energy,” Chevron Qatar’s project and construction manager Jeff Munoz explained.

Since car-parking shades often need to be built, adopting the solar parking concept can provide lighting at night and offset electricity use of adjacent buildings.

“Solar parking is easier to plan and install than solar panel arrays on roof tops or on the ground. It is easy to clean and maintain as well,” Munoz observed.

Atallah cited that in California, facilities including schools, universities, government buildings and post offices have embraced solar parking.

“They save money very quickly by using a lot less electricity from the grid. The project pays off within three to four years.”

Chevron Qatar is keen to try and develop, among its other activities, a business model locally for solar parking given that the country is progressing towards solar utilisation.

“This is the easiest thing, the low-hanging fruit, and it is a great utilisation of space and function,” the official said.

A typical solar parking design has solar panels instead of the conventional roof. Tailored T-shaped columns support the “solar roof”. LED lighting can reduce energy consumption further.

In the case of multi-storeyed car-parking buildings, arrays of solar panels can be set up on the roof. Crystalline silicon or thin-film photovoltaic (PV) panels are used.

Crystalline silicon, also called wafer silicon, is the oldest and the most widely used material in commercial solar panels, has an efficiency of 15% and accounts for as much as 85% of the PV market.

Thin film solar panels, which offer the lowest manufacturing costs, and becoming more prevalent in the industry, have an efficiency of 10 to 12% and take up the rest of the PV market.

“Specialised structural design is necessary for solar parking, to account for factors such as wind loads, cantilevers, module mounting, impact resistance, efficient use of materials and relocation ability,” Munoz maintained.

Design has been perfected by Chevron after more than 30MW of projects and patents filed for several structural innovations.

The energy and economics assumptions are \$6-8/Watt project cost, 2-3kW per parking bay, 2140 kWh/sqm/yr, 15% module efficiency, 25 year project lifetime and savings of 0.19kgCO<sub>2</sub>/kWh.

Indicative metrics per parking bay are an electricity yield of 2.9-4.4MWh/yr and CO<sub>2</sub> savings of 550-830kg/yr.

“Given the abundant sunshine Qatar gets round-the-year, the potential is huge for solar car parking canopies,” Munoz added.

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