

# Mena's largest grid-connected solar power plant gets ready

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The largest grid-connected solar power plant in the Middle East and North Africa (Mena) region will become operational next month to power the construction of the capital's Dh81 billion zero-carbon Masdar City.

The 10mw plant has 87,777 solar photovoltaic panels spread over a 212,000 square metres site within the green city and is being developed by Abu Dhabi-based Enviromena Power Systems. The thin film and photo crystalline silicon panels have been brought from the US and China.

The plant will provide clean power to 4,860 residents, or 810 homes accommodating six individuals each. The excess energy will be passed to the Abu Dhabi grid to provide residents outside Masdar with eco-friendly energy, a first in the region.

The Dh185 million plant is the first phase of the city to be developed and the contract was awarded to Enviromena by Abu Dhabi Future Energy Company (Masdar).

Normally the location of the under-construction city is strictly off-limits but **Emirates Business** was given exclusive access to see the plant and meet senior officials.

The vast array of solar panels is spread out like a massive shining field on the northern edge of the Masdar site. Cables hang from the panels ready for connected to a converter that will feed electricity to the grid.

"The project is on track and we are very focused on it," said Enviromena CEO Sami Khoreibi, who was awarded the Entrepreneur of the Year by Future Fuels and Energies magazine at the Abu Dhabi International Petroleum Exhibition and Conference.

"The installation of the panels is almost complete, as is the related work. We are on schedule to deliver this project on time, it will be fully operational next month and will be connected to the Abu Dhabi power grid."

He said Abu Dhabi-based Enviromena was founded in 2007 by a group of people inspired by Masdar's clean energy initiative.

"We started with just four members in our team and we now have 25 partners. The company has grown six-fold and we see further growth in the future as the potential for clean energy in the region.

"This Masdar project to deliver an operational 10mw clean power plant is our first contract and we hope it will be an inspiration for others to create a competitive market for alternative energy. The project is designed to save 15,000 tonnes of CO2 emissions a year and will have a lifespan of more than 25 years, which could be extended through maintenance and renovation work.

"The initial function of the plant will be to power the construction of Masdar City. It is the foundation stone of a city without any source of power that generates CO2 emissions. This is just the beginning. Solar is a potential source of energy in Abu Dhabi and the entire Mena region. We have been able to attract talent with tremendous solar experience from around the globe to come here to Abu Dhabi to form a team. Hopefully they will become the leading solar design group in the country and the region. The plan is to become a global competitor.

"Enviromena will become an exporter of advanced technology and will build efficient systems starting off in Abu Dhabi and the region, though our ambitions are global."

He said the company was attracting interest from investors around the world and would be able to raise capital in North America, the UK, Switzerland and throughout the Mena region.

"The Masdar contract is worth Dh185m, that is the cost up to the start of power production. With a team in Abu Dhabi we have been able to come up with the most efficient system in the world."

Khoreibi said the company was holding talks about similar projects with the Abu Dhabi Government and a number of developers. "A lot of interest has been shown by the government and various developers in the country and the region as a whole. We have some very exciting projects in the pipeline. What we have seen recently in the region is that solar power technology has triggered a tremendous response.

"We want to use this 10mw plant as Enviromena's launchpad to establish our position as one of the major integrators here in the region. We have already seen interest from government and private entities.

"In the near future we will discuss some very exciting projects that will be very high profile. We are already discussing some, but unfortunately I cannot go into detail."

However, he said, most of the projects under discussion would involve roof-mounted solar panels that would produce energy for new properties, particularly towers in Abu Dhabi city and other parts of the emirate.

"I can mention only one project, a very interesting roof-mounted installation on a new iconic building. Work on the project will start next year and it will provide power for a good part of the building.

"We will also supply rooftop solar installations to some of the other developments coming up in the UAE and other parts of the region. We have some interesting projects from the Abu Dhabi Government and developers in the country as well as throughout the region."

Looking ahead, Khoreibi said he expected that Enviromena would become the first alternative energy company in the region to launch an initial public offering.

"We plan to become a publicly listed company in the near future. The goal of Enviromena is to be one of the first vehicles through which people can invest in clean technology in the region. We would like to be the first as we are already the first solar company here in Abu Dhabi.

"Our IPO plan depends on the economic conditions but we would like to be the first clean-energy company to enter the Gulf stock markets."

But he said he could not say when the float would happen, adding: "Giving a timeframe for any kind of liquidity event in the current market conditions would be beyond anyone's capabilities and would be unrealistic.

"We are also focusing on new clean energy funds that want to invest in the potential of green technology, particularly solar power. We have already attracted some clean energy funds and continue to attract more from around the world."

He said the global economic downturn had affected his business as it had made it difficult to obtain credit.

"At this point of time we have not seen any delays in our business and in this particular project. Of course as a new, young company we have seen some affects from the credit crunch in the sense that we capitalise the firm through our shareholders, like any other business.

"We have been affected one or the other. But at the same time we are very fortunate that we are an Abu Dhabi-based company and the alternative energy sector has so far met with a much, much softer lending than other industries offering services in other parts of the world."

### Plant details

- Work on the plant began in September last and is scheduled for completion next month
- The estimated cost of the project is Dh185m
- 87,777 solar panels are spread over an area of 212,000 sq m
- The panels are made of thin film and polycrystalline silicon
- Custom-designed system will maximise the capture and conversion of sunlight
- Lifespan of more than 25 years
- Excess power will be transferred to the municipal power grid for residents of the capital

### The benefits

- The plant will save 15,000 tonnes of carbon emissions a year
- It will supply power to more than 1,458 Abu Dhabi residents in addition to 4,860 in Masdar City
- It could power 666,000 energy-saving or 166,000 regular light bulbs
- The carbon emissions saved by the plant are equivalent to those produced by flying 11,000 passengers from Abu Dhabi to London
- The savings are equivalent to taking 4,500 cars off the road

### Masdar city – more than a concept

Masdar City, the world's first and only zero-carbon, car-free and with minimised air pollution as well as with facilities to recycle waste produced within, will be completed in 2016 to house a population of 5,000.

The city, being developed with an investment of \$22bn (Dh80bn), will be the world's first environment-friendly walled city to keep away pollution run by carbon-free energy. The only pollution the city might get would be from the air as the city cannot be roofed that itself is against environmental norms of not to deprive man from natural air and sun.

Masdar City will be built over seven years. Its master-plan design meshes the century-old learning of traditional Arabic urban planning and architecture with leading-edge technologies to create a sustainable, high-quality living environment for all residents.

The city will be built in seven carefully designed phases, incorporating the latest technological advances generated in its clean-tech cluster and globally. The first buildings under construction already demonstrate Masdar's innovation appetite – Masdar headquarters building that will receive its power required for construction from the solar power plant scheduled for completion next month.

Strategically located at the heart of Abu Dhabi's transport infrastructure, Masdar City will be linked to surrounding communities, as well as the centre of Abu Dhabi and the international airport, by a network of existing road, and new rail and public transport routes.

The city's entire transportation system will be operated with electrical sources generated from

alternative energy – computerised electronic vehicles taking people from one place to another, two-wheelers mini-vehicles using no energy other than battery powered.

No one will be allowed to take a car or any kind of vehicle with a huge car parking facility surrounding the city with electrical vehicles waiting at each entrance behind the wall to take visitors to their destinations in the city.

The walled-city, a free zone clean-tech cluster, also has an important feature – a city of academics, researchers, students, entrepreneurs and financiers and more than 1,500 visionary companies that will have offices, research centers and operations within city, benefiting from 100 per cent foreign ownership, zero taxes, zero import tariffs, zero restrictions on capital movement and among the strongest intellectual property protection in the region.

According to Masdar Initiative (Abu Dhabi Future Energy Company), the city is more than a concept – it is practically happening and has already attracted partners from across the globe.

To help achieve the initiative of clean environment and help expand it across the board in the entire emirate and the country, Masdar City will be the home for one of the world top technological institutes for promoting clean and alternative energy in the entire region.

As part of the phase one, work of the city, which has already begun with Solar Plant, includes the development of Masdar Institute of Science and Technology (Mist). The institute is scheduled for opening before the end of this year with 100 students.

At the recent World Future Energy Summit, the institute announced partnering with the Massachusetts Institute of Technology (MIT) Energy Initiative as a founding public member.

The collaboration will support ongoing research and development of alternative and renewable energy technologies and solutions, as well as provide new opportunities to help meet the world's need for sustainable energy supplies and practices.

As a founding member, Masdar will have a seat on its governing board. The Masdar Institute will also be directly involved in identifying sponsored research programmes, and will join with other members in supporting the MIT Energy Research Seed Fund programme which funds innovative early-stage research projects solicited from across the MIT campus.

The Masdar Initiative with its flagship and master plan of the city also includes a number of alternative energy investment schemes, such as a plant producing solar energy photovoltaic panels, wind power plants and investments in clean energy projects around the world.

One of the recent projects Torresol Energy, a strategic alliance between Spanish engineering group Sener and Masdar, that has announced a €171 million financing deal for the construction Gemasolar, the world's first solar power plant with central tower and salt receiver technology in Spain.

Gemasolar will provide clean and safe energy as well as create more than 1,500 jobs in Spain. The plant is located in Fuentes de Andalucía, in Seville.

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