

A holistic approach to climate action

The Dubai Electricity and Water Authority (DEWA) demonstrates its commitment to mitigating climate change throughout its operations to fulfil Dubai's energy and water needs. DEWA's flagship plant, M-Station, epitomises this approach

M-Station is the largest power production and desalination plant in the United Arab Emirates (UAE), with a current total capacity of 2,185 megawatts (MW) of electricity and 140 million imperial gallons per day. How is it helping to tackle climate change?

M-Station is a national landmark that adds to DEWA's growing list of achievements over the last five decades. It was inaugurated in Jebel Ali Power Station in April 2013 by HH Sheikh Hamdan bin Rashid Al Maktoum, Deputy Ruler of Dubai, Minister of Finance and President of DEWA.

M-Station adopts the highest levels of availability, reliability and efficiency, using the most advanced technologies in the world. It is equipped with the latest smart devices and sophisticated heavy-duty technological systems.

An expansion project – adding 700 MW to M-Station's installed generating capacity – is due to be completed in 2018. The project includes the addition of two dual-fuel gas turbine generators, two heat recovery steam boilers, and one steam turbine with 90 per cent fuel efficiency. This will increase the plant's thermal efficiency from 82.4 per cent to 85.8



The M-Station is currently being upgraded to make it one of the most thermally efficient power plants in the world

per cent – one of the highest thermal efficiency rates in the world.

DEWA has succeeded in enhancing the efficiency of fuel use to between 84 and 90 per cent, while improving production efficiency by 25.47 per cent in 2016 compared to 2006. This is through the deployment of highly efficient technologies in the production of electricity, and water desalination.

How does DEWA integrate energy management into its premises?

In 2013, DEWA opened its Sustainable Building in Al Quoz. It is the first sustainable government building in the UAE, and the largest government building in the world to receive a platinum rating for green buildings from LEED (Leadership in Energy and Environmental Design). The building uses 66 per cent less energy than a traditional building, and includes an on-site 660 kilowatt (kW) solar power plant. It also reduces water consumption by 48 per cent. In addition, 36 per cent of the materials used to build it came from recycled sources.

DEWA has also launched a number of initiatives to enhance the efficient use of power and water. Through these initiatives, the annual per capita consumption of electricity and

water has been reduced from 13,626 kWh and 38,554 imperial gallons (IG) in 2015 to 12,826 kWh and 36,391 IG in 2016.

DEWA has implemented many conservation measures, such as housekeeping changes, in five of its buildings. As a result, between 2013 and 2016 we achieved savings of 19 per cent for electricity and 52 per cent for water, amounting to 4.6 million dirhams (AED).

In April 2016, DEWA inaugurated one of the largest single-rooftop arrays in the Middle East and North Africa – a 1.5 MW direct current photovoltaic (PV) generation project at Jebel Ali Power Station – and successfully connected it to DEWA's grid. DEWA installed 5,240 PV panels on the roof of the water reservoir at the M-Station. The modules convert solar energy into electricity, which will be used to meet the station's energy needs and will generate 2,666 MWh of clean electricity annually. The project aims to preserve the environment and reduce CO₂ emissions by about 1,500 tons annually. ■



Installing PV panels at the M-Station

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UNA-UK thanks DEWA for its generous support for this publication