

The Magazine



H.E. Saeed Mohammed Al Tayer is the Managing Director and CEO of the Dubai Electricity and Water Authority (DEWA).

Clean Energy UAE

Dubai's energy

A reliable supply of electricity is essential to global business hub Dubai. The Vice Chairman of the Dubai Supreme Council of Energy, and MD and CEO of the Dubai Electricity and Water Authority, explains how Dubai plans to meet growing demand, ensure stable supply, and shrink its carbon footprint.

In Dubai, our success as a global business, finance, trade, tourism and logistics hub hinges on the availability and reliability of electricity. Of course, that's a given in any modern economy, but even more so in a desert climate such as ours.

Add to this electricity demand growth of about 6 percent a year, driven by trends such as population growth fueled by the steady expansion of the city, growing leisure and tourism infrastructure, and the ongoing construction of homes, shopping malls, hospitals, schools, logistics facilities, warehouses, manufacturing, and industrial plants.

Smaller footprint

We are working on two important priorities set out by our Dubai leadership: to make Dubai one of the happiest cities in the world, and one of the smartest.

These aims are embodied in the recently announced Dubai Clean Energy Strategy 2050. As His Highness Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President, Prime Minister and Ruler of Dubai, said when launching the Dubai Clean Energy Strategy: "Our

goal is to become the city with the smallest carbon footprint in the world by 2050.”

Under this strategy, Dubai is committed to deriving 7 percent of its energy from clean energy resources by 2020, moving to 25 percent by 2030, and 75 percent by 2050.



Energy mix in 2030: 25% renewables targeted

61% natural gas

25% solar

7% nuclear

7% clean coal ¹

Solar and coal

To help achieve these renewable targets, we are adding solar photovoltaics (PV) and concentrated solar power (CSP) capacity, both at utility scale – reaching 5,000 MW by 2030 – and through distributed solar systems on residential and building rooftops. Ultimately, our goal is to see solar PV on the roofs of all buildings in the Emirate by 2030.

We also are thinking innovatively about more conventional power generation, with the development of the first clean coal plant in the Gulf region that will use an ultra-supercritical technology that allows the 2,400 MW power plant (in phase 1 and 2) to run at a higher steam temperature and pressure than regular coal-fired plants. This improves plant efficiency and decreases emissions, particularly of CO₂.



Current expansion projects

700 MW expansion of existing 2,076 MW Jebel Ali M-Station CCGP plant that will bring total capacity to **2,760 MW**: completion 2018

2,400 MW first and second phase of Hassyah clean coal plant: completion 2021

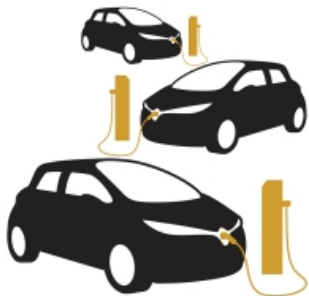
1,000 MW at the Mohammed bin Rashid Al Maktoum Solar Park: completion 2020

5 substation in the 1990s and **200-plus** 132 kV Umspannwerke in 2016 ¹

We also are enhancing the operations of our high-efficiency combined-cycle gas turbine power plants – among them the UAE’s largest, the M-Station in Jebel Ali – with a smart power plant project that allows us to monitor production and performance in real time and receive information on issues as they arise. This allows us to improve plant operations, and it complements the flexibility of these combined cycle gas turbine (CCGT) plants to ramp up and down quickly, a feature that will be increasingly important to us as the share of variable solar generating capacity increases.

Steep demand reduction

Supply, however, is only half the equation. The Dubai Integrated Energy Strategy seeks to reduce demand by 30 percent by 2030. We are pursuing this across a range of areas, including building retrofits and new building standards, use of district cooling, encouraging the purchase of more efficient appliances, efficient outdoor lighting, and demand management tools.



DEWA sustainability initiatives

Shams Dubai, DEWA’s initiative to encourage building owners to install photovoltaic panels on rooftops to generate solar power.

Smart applications through smart grids and meters for all customers.

DEWA’s Green Charger initiative to introduces electric vehicles in Dubai. Since 2014, more than 100 electric vehicle charging stations have been established at various locations in Dubai. ¹

Enabling all of this is an advanced smart grid infrastructure that is under development, and that will extend from customer smart meters to substation automation to smart power plants. Operators will have grid-wide transparency providing the information and flexibility required to manage a grid where 25 percent, and ultimately 75 percent, of our total power supply will come from clean power.

Dubai is in a perpetual race to build the infrastructure – including electricity – required to attract the world’s businesses, investors, and visitors. Achieving this requires that we successfully balance growing demand, expanding capacity, continued reliability, and an increasingly complex grid composition – all while shrinking our carbon footprint.

¹ (Source: Dubai Clean Energy Strategy 2050, DEWA)

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Saeed Mohammed Al Tayer

H.E. Saeed Mohammed Al Tayer is the MD and CEO of the Dubai Electricity and Water Authority (DEWA). He has led DEWA since 1992. Under Al Tayer’s leadership, DEWA has developed at the same ambitious pace as Dubai itself. DEWA has gone from 1,000 MW of capacity in 1991 to 9,656 MW today and 10,365 MW by 2018, after a 700 MW upgrade.

DEWA statistics

750,200 electricity and water customers in Dubai

Power generating capacity growth over the last 25 years: From 1,000 MW (1991) to **9,656 MW** (2016)

Current transmission and distribution performance

Grid loss rate: **3.26%** (compared with US & EU average of 6-7%)

SAIDI index: **4.9** (compared with 15 in the EU) ¹
