

Factsheet

Emirates Water and Electricity Company

About EWEC

EWEC is the sole procurer and supplier of water and electricity in Abu Dhabi, driving the planning, forecasting, purchasing, and system despatch services of water and electricity across the UAE. EWEC fulfils these responsibilities through the short-term and long-term balancing of bulk supply and demand for distribution companies.

EWEC is supporting the government of Abu Dhabi and the government of the UAE by enabling the reduction of cost whilst also providing the increased security of supply that comes from a cleaner, larger, and more integrated system. EWEC is mandated to achieve the 60 per cent clean energy target outlined in the Abu Dhabi Department of Energy's (DoE) Clean Energy Strategic Target 2035 for Electricity Production in Abu Dhabi and is accelerating Abu Dhabi and the UAE's energy transition by diversifying the country's energy mix through developing and deploying renewable and clean energy as well as low-carbon-intensive water desalination capacities.

Our Sustainability Contributions

EWEC contributes to the achievement of the UAE's sustainability and economic objectives, driving Abu Dhabi's transition to low-carbon-intensive water desalination and renewable and clean energy generation.

EWEC is working towards raising Abu Dhabi's solar power capacity to 18 gigawatts (GW) by 2035. Noor Abu Dhabi and Al Dhafra Solar Photovoltaic (PV), along with Al Ajban Solar PV, Khazna Solar PV, and Zarraf Solar PV, will make Abu Dhabi home to five of the world's largest single-site solar power plants.

EWEC is strategically diversifying Abu Dhabi's renewable energy sources, with a significant expansion in wind farm development. EWEC is working towards increasing Abu Dhabi's wind power capacity to 2.6GW by 2035, ensuring a more resilient and sustainable energy future.

EWEC's strategic initiatives will reduce the company's average carbon dioxide intensity from electricity generation from 330 kilograms per megawatt hour (kg/MWh) in 2019 to 150 kg/MWh by 2030, a significant 54 per cent reduction.

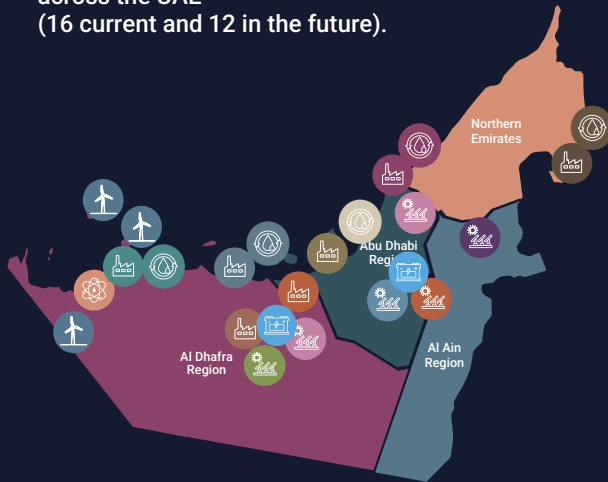
EWEC is also commissioning the development of low-carbon-intensive reverse osmosis (RO) projects. EWEC currently has a total of four operational RO plants including Taweelah RO, the world's largest low-carbon intensive RO desalination plant. It is also progressing through the development of three additional RO plants including Mirfa 2 RO, Shuweihat 4 RO, and Saadiyat Island RO.

By 2031, EWEC forecasts nearly emissions-free water production, with RO accounting for 95 per cent of total installed water capacity by 2030. Furthermore, EWEC expects a reduction of water production emission intensity from 11.5 kilograms per cubic metre (kg/m³) in 2019 to less than 0.6 kg/m³ in 2030, a remarkable 94 per cent reduction.



EWEC's Generation Plants

EWEC partners with **28** plants for the supply of water and electricity across the UAE (16 current and 12 in the future).



Shuweihat S1 455,000 m³/day 1.5GW	Mirfa 1 239,000 m³/day 1.6GW	Taweelah A1 382,000 m³/day 1.6GW	Fujairah F1 591,000 m³/day 760MW	Barakah 5.2GW
Shuweihat S2 455,000 m³/day 1.5GW	Future Mirfa 2 546,000 m³/day	Taweelah B 727,000 m³/day 2GW	Fujairah F2 591,000 m³/day 2GW	Future Saadiyat Island RO 273,000 m³/day
Shuweihat S3 1.6GW	Future Shuweihat 4 318,000 m³/day	Future Taweelah C 2.5GW	Future Fujairah F3 2.4GW	Future Khazna Solar PV 1.5GW
Umm Al Nar 429,000 m³/day 1.5GW	Noor Abu Dhabi 880MW	Taweelah RO 909,000 m³/day	Future Al Ajbah Solar PV 1.5GW	Future Zarraf Solar PV 1.5GW
Future BESS 400MW	UAE Wind Programme 100MW	Shams CSP 100MW	Future Al Sila Wind 140MW	Al Dhafra Solar PV 1.5GW
	Future Al Sila Wind 140MW	Future Madinat Zayed 1.5GW	Masdar PV 10MW	Future Al Dhafra OCGT 1GW

Renewable and Clean Power Plants

Al Dhafra Solar PV

The record-breaking Al Dhafra Solar PV plant reflects EWEC's commitment to supporting the UAE's energy transition. Inaugurated in 2023 by H.H. Sheikh Hazza bin Zayed Al Nahyan, Deputy Ruler of Abu Dhabi, the plant is the world's largest single-site solar power plant.

- 4 million crystalline, bifacial panels
- 1.5GW (AC)
- Electricity for over 160,000 households
- Carbon footprint reduction of 2.4 million metric tonnes per year
- One of the most competitive tariffs for solar power, set at AED 4.85 fils/kWh (USD 1.32 cents/kWh)

Noor Abu Dhabi

Noor Abu Dhabi was EWEC's first significant project that uses innovative solar technology, achieving a key milestone in the transformation of Abu Dhabi's energy sector and increasing the share of renewables in the country's energy mix.

- 3.2 million solar panels
- 880 megawatts (MW) (AC)
- Meeting the electricity demand for over 90,000 households
- Carbon footprint reduction of 1 million metric tonnes per year

UAE Wind Programme

Developed in partnership with Masdar, the UAE Wind Programme includes the country's first utility-scale wind farms. EWEC is procuring power from three wind farms located at Sila, Sir Bani Yas Island and Delma Island.

- 22 wind turbines standing at 95 metres high with a 155-metre wingspan
- Generation capacity of up to 100MW (AC)
- Meeting the electricity demand for over 22,000 households
- Carbon footprint reduction of 115,000 metric tonnes per year

Barakah Nuclear Energy Plant

The Barakah Nuclear Energy Plant is the first nuclear energy plant in the Arab World. It consists of four APR1400 nuclear reactors.

EWEC enabled the successful integration of nuclear power generation into its system. With the successful commercial operations of all four Units of the Barakah Nuclear Energy Plant, we have introduced over 5.2GW of nuclear energy to the grid.

Low-Carbon-Intensive RO Desalination Plants

Taweelah RO

Taweelah RO at the Al Taweelah Power and Water Desalination Complex in Abu Dhabi is a key pillar of EWEC's strategic initiative to decouple water and power generation. The plant is located approximately 50 kilometres to the north-east of the Emirate of Abu Dhabi.

- 909,000 cubic metres per day (m³/day)
- The largest RO plant in the world

Key Upcoming Projects

World's First 24/7 Solar PV and Battery Energy Storage System Giga Project

Launched in partnership with Masdar, the 'Round the Clock' renewable project is the world's first large-scale 24/7 solar PV and Battery Energy Storage System (BESS) mega project.

- Project launched in the presence of the UAE President, His Highness Sheikh Mohamed bin Zayed Al Nahyan
- Combines 19 gigawatt-hours of BESS with a 5.2GW (DC) solar PV plant
- Will deliver up to 1GW of continuous clean energy 24/7

Khazna Solar PV

Khazna Solar PV will be located in the Al Khazna area of the Emirate of Abu Dhabi. It is a greenfield solar PV plant that will be strategically significant for Abu Dhabi and the UAE's energy transition.

- 1.5GW (AC)
- Electricity for over 160,000 households
- Carbon footprint reduction of 2.4 million metric tonnes per year

Al Ajban Solar PV

Al Ajban Solar PV will be located in the Ajban area of the Emirate of Abu Dhabi. It is a greenfield solar PV plant that will be fundamentally important to Abu Dhabi and the UAE's sustainability strategy.

- 1.5GW (AC)
- Electricity for over 160,000 households
- Carbon footprint reduction of 2.4 million metric tonnes per year

Zarraf Solar PV

Zarraf Solar PV will be located in the Al Dhafra region, in the Al Zarraf area of the Emirate of Abu Dhabi. It is a greenfield solar PV plant that will significantly increase Abu Dhabi's solar power capacity.

- 1.5GW (AC)
- Electricity for over 160,000 households
- Carbon footprint reduction of 2.4 million metric tonnes per year

Battery Energy Storage System (BESS)

EWEC is commissioning the development of an independent greenfield BESS power project to enhance the flexibility and stability of Abu Dhabi's energy network.

- 400MW of one-hour depth of storage
- Will provide up to 800 megawatt-hours of storage capacity

Al Sila Wind

Al Sila Wind will be located in close proximity to the existing utility-scale wind farm in Al Sila. The project aligns with EWEC's strategic approach to increasing Abu Dhabi's wind power capacity to 2.6GW by 2035.

- Generation capacity of up to 140MW
- Power for 36,000 households
- Carbon footprint reduction of 190,000 tonnes per year

Shuweihat 4 RO

Shuweihat 4 RO will further expand low-carbon-intensive water desalination production and significantly enhance the security of water supply in the Emirate of Abu Dhabi.

- 318,000 m³/day
- Operational in Q2 2026

Mirfa 2 RO

Mirfa 2 RO will desalinate seawater using low-carbon-intensive RO technology. It is set to enhance production efficiency, maximise resilience, and reduce carbon emissions.

- 546,000 m³/day
- Operational in Q4 2025

Saadiyat Island RO

Saadiyat Island RO consists of a greenfield RO seawater desalination plant to be located on Saadiyat Island. It will contribute significantly to the decarbonisation and resilience of the sector.

- 273,000 m³/day
- Operational in Q3 2027

Other Plants

Fujairah F3

The Fujairah F3 Combined Cycle Gas Turbine (CCGT) is the UAE's largest independent thermal power plant and the most efficient combined cycle plant in the region.

- 2.4GW (AC)
- Meeting the electricity demand for over 380,000 households

Madinat Zayed

The Madinat Zayed project is an Open-Cycle Gas Turbine (OCGT) plant located in the Madinat Zayed area, approximately 120 kilometres southwest of Abu Dhabi City. Gas-fired plants are key to ensuring a reliable energy supply as the UAE transitions to a renewable and clean energy system.

- Up to 1.5GW (AC) of backup generation capacity
- Operational in Q3 2027

Taweelah C

The Taweelah C project is a carbon-capture-ready CCGT plant located in the Al Taweelah Power and Desalination Complex, approximately 50 kilometres to the north-east of the Emirate of Abu Dhabi. The plant will primarily provide transitional capacity to support the integration of large-scale renewable energy.

- Generation capacity of up to 2.5GW (AC)
- Operational in Q3 2028

Al Dhafra OCGT

The Al Dhafra OCGT project will support the achievement of the UAE National Strategy for Artificial Intelligence 2031 and is being developed alongside the giga-scale 'Round the Clock' project.

- Generation capacity of 1GW (AC)

