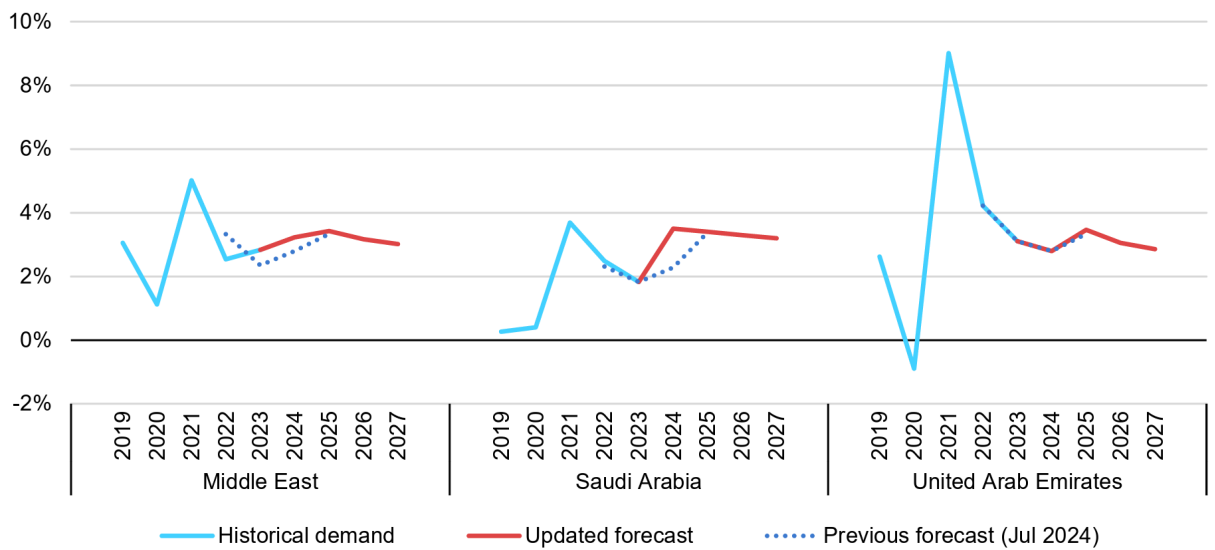


MENA Region and Global Context

The Middle East and North Africa (MENA) region is accelerating the shift toward renewable energy and sustainable infrastructure, driven by rising electricity demand, climate goals, and economic diversification strategies. The **Gulf Cooperation Council (GCC) countries** have been investing in renewable energy as part of broader efforts to transition away from fossil fuels. **Saudi Arabia** has set an ambitious target to generate 50% of its domestic power from renewable sources by **2030**. This is backed by investments in solar and wind energy projects, with **ACWA Power** already securing **\$2.6 billion** in financing for 3 major solar projects in Saudi Arabia. The **United Arab Emirates (UAE)** is also advancing aggressively in this domain, with plans to invest **\$54 billion by 2030** and a broader commitment of **\$160 billion by 2050** to support its net-zero emissions target. The country also announced a battery storage projects of over **\$6 billion** in Abu Dhabi**. ** These efforts are crucial in light of the region’s surging electricity demand, which grew by **3.2% in 2024** and is projected to continue its upward trend in the years ahead (Figure 1).

Year-on-year percent change in electricity demand, Middle East, 2019-2027



IEA. CC BY 4.0.

Note: Data for 2025-2027 are forecast values.

Figure 1: (International Energy Agency: Electricity 2025 Report)

Grid Infrastructure and Energy Storage Technology

To enable the integration of renewable energy sources, countries in the region are modernizing their grid infrastructure and advancing **battery and energy storage technologies**. In the UAE, **Masdar** and **EWEC** announced the launch of the world's first large-scale uninterrupted solar and battery storage project in Abu Dhabi with a **cost of around \$6 billion**. In Saudi Arabia, **ACWA Power** and **Saudi Aramco** signed an agreement to explore the efficiency and durability of **vanadium flow battery** technology for long-term energy storage in Saudi Arabia's climate. Vanadium does not degrade over time, ensuring long-term performance, and its electrochemical properties enable reliable energy storage. This stability, combined with enhanced transmission networks, is critical to accommodate the fluctuating supply from solar and wind power. In this regard, **Oman's** unique geography provides a strategic advantage—its mountainous terrain offers ideal conditions for **pumped hydro storage** (*pumping water to higher elevations during periods of excess renewable energy power and releases it when energy is needed*). In February, **DEWA** announced that Hatta's **AED1.421 billion hydroelectric power plant**, which has a storage capacity of 1,500 megawatt-hours, would begin delivering clean energy to Dubai in April of 2025.

Electric Vehicles

Parallel to developments in renewable energy, the **electric vehicle (EV) sector** in the region is experiencing rapid expansion. This growth is being driven by a combination of government incentives, infrastructure development, and private sector innovation. In **Oman**, a strategic partnership between **EV Technology** and **GO TO-U** is set to restructure the national EV charging ecosystem. The collaboration, aligned with **Oman Vision 2040** and the nation's net-zero carbon goal by **2050**, will deploy smart charging platforms and **establish a charger assembly factory**—key steps toward building a robust EV infrastructure and promoting sustainable mobility. SOMA believes this development has the potential to serve as a supply source for the broader MENA region, beyond Oman's borders. **Jordan** is also advancing quickly in EV adoption, with approximately **120,000 electric vehicles** on the road, accounting for **5–7% of all vehicles**. The UAE follows closely behind, with **EV sales rising from 4% to 18%** of total vehicle sales within just three years. These figures underscore a broader regional commitment to decarbonizing the transportation sector and reducing dependency on oil.

Hydrogen

Oman is further distinguishing itself through its leadership in the green hydrogen sector. The country aims to operationalize **five of the ten largest low-carbon hydrogen plants in the Middle East by 2030**. At the center of these efforts is the **Duqm Special Economic Zone (SEZAD)**, which leverages Oman's abundant and low-cost renewable energy resources to attract international investment. Key projects—such as the **ACME Duqm Hydrogen Project Phase 2** and the **POSCO Consortium Duqm Hydrogen Project**—are expected to significantly expand the country's green hydrogen production capacity. Unlike blue hydrogen, which relies on natural gas, **green hydrogen** is produced using renewable energy, placing Oman at the forefront of the global push toward net-zero emissions.

SOMA believes Oman is strategically positioned to become a cornerstone of the hydrogen market, while simultaneously expanding its renewable energy capabilities. A critical factor in the region's energy transition is storage capacity, which has become increasingly important given the recent proliferation of renewable energy projects. The success of these initiatives will depend on the region's ability to effectively store and utilize this energy. This evolution represents a shift in renewable energy integration, particularly in addressing the persistent challenge of intermittency. The scale and sophistication of current projects indicate that we have reached a pivotal moment where renewable energy is becoming more reliable and increasingly capable of meeting baseload power demands. Looking ahead through 2025, SOMA anticipates that battery energy storage will emerge as a dominant theme in renewable energy discussions.

UAE Developments

Clean Energy Infrastructure

One of the most notable developments is the UAE's focus on expanding its clean energy infrastructure. The **Dubai Electricity and Water Authority (DEWA)** is set to begin exporting clean energy from the Hatta power plant to **Dubai** in April 2025. This pumped-storage **hydroelectric power plant**, the first of its kind in the GCC region, boasts a production capacity of 250 MW and a storage capacity of **1,500 megawatt-hours**. The project, which cost **1.4 billion AED**, supports **Dubai's Clean Energy Strategy 2050** and **Net Zero Carbon Emissions Strategy 2050**, aiming for 100% clean energy by 2050. The plant's trial operation was scheduled for the first quarter of 2025, highlighting the UAE's commitment to sustainable energy solutions. **The Mohammed bin Rashid Al Maktoum Solar Park** also continues to expand, with DEWA inviting international developers to submit bids for its 7th phase. This phase will include **photovoltaic solar panels** and a 1,000MW battery energy storage system, with a total storage capacity of 6,000MWh. The expansion will increase the solar park's production capacity from 5,000MW to 7,260MW, raising Dubai's clean energy share from **27% to 34% by 2030**. Similar developments in Abu Dhabi include the battery storage project mentioned earlier in this report, expected to deliver 1 gigawatt of uninterrupted clean power and begin operation in 2027. Such initiatives underscore the UAE's dedication to renewable energy and its role as a leader in the region's energy transition.

Circularity

The UAE's efforts extend beyond energy production to include sustainable practices in various sectors. The UAE **Circular Packaging Association (CPA)** elected a new board to align packaging innovation with the UAE Circular Economy Policy 2031 and support the country's Net Zero by 2050 commitments. The CPA aims to strengthen policy engagement, expand partnerships, and advocate for effective circular business model regulations, providing businesses with the tools and knowledge for best practices. The CPA's membership expanded in 2023, welcoming companies like **Al Bayader International, Chalhoub Group, Danone, Hotpack, Mars, Mondelez, L'Oreal and Talabat**. Key achievements included partnering with **Rebound** to establish recycled content standards and collaborating with **Nadeera** to launch a consumer recycling education campaign. Although the CPA engaged in multiple workshops, hosted webinars, and created a robust partnership with several ministries, our analysis indicates

that the CPA lacks sufficient empowerment from its members to effectively drive circular impact through member initiatives or federal policy engagement. We believe members need to commit more resources to the CPA, as achieving meaningful sectoral change in circularity requires substantial funding and proof of commitment.

Supporting Long-Term Sustainability Contribution

The UAE launched its **Blue Visa Initiative**, which awards a **10-year residency visa to environment advocates** who have made exceptional contributions to protecting the environment. This initiative aims to encourage sustainability efforts and recognize thought leaders and innovators in the field. This strategic policy aims to attract and retain professionals in the environmental sector within the UAE. SOMA believes this reflects the UAE's recognition of the importance of **maintaining and developing domestic expertise in this sector**.

The UAE's partnerships further bolster its net-zero transition. **Ignite Energy Access**, a pan-African leader in Distributed Renewable Energy and a **recipient of the Zayed Sustainability Prize at COP28**, announced plans to **establish of its global headquarters in Abu Dhabi**. This move, supported by the **Abu Dhabi Investment Office**, will enable **Ignite** to expand solar solutions across Africa and introduce advanced solar technologies to the UAE. The relocation is expected to create over 200 high-skilled jobs in Abu Dhabi, emphasizing the UAE's role as a hub for innovation and sustainability. Along with creating jobs, Ignite will introduce a **comprehensive knowledge transfer program** in collaboration with Abu Dhabi universities to provide **internships, targeted training, and opportunities** for industry partnerships to cultivate local talent. It will also collaborate with Abu Dhabi's broader renewable energy sector to help advance the emirate's energy transition goals.

Saudi Arabia Developments

Renewable Energy Sources

A key development in this period was the expansion of **E-FILL**, Saudi Arabia's leading EV charging network. E-FILL announced the installation of new fast-charging stations in major cities such as **Riyadh, Jeddah, and the Eastern Province**. These stations, equipped with advanced DC chargers, can charge electric vehicles to **80% in under 30 minutes** through the E-FILL mobile app. This expansion supports the national agenda of promoting sustainable mobility and reducing carbon emissions, encouraging the adoption of electric vehicles across the Kingdom.

ACWA Power has advanced renewable energy projects both domestically and internationally. The company secured **\$2.6 billion** in financing for 3 major solar projects in Saudi Arabia, with a combined capacity of over **4 gigawatts**. These projects are set to utilize advanced PV technology and energy storage systems to ensure high efficiency and stable power supply in desert conditions. ACWA Power's international endeavors include its **entry into China's renewable energy market**, where it launched its **first overseas Innovation Center** in Shanghai, focusing on research in renewables, energy storage, and desalination. The initiative aligns with the environmental goals of both Saudi Arabia and China.

In addition to solar energy, Saudi Arabia is exploring other renewable sources, such as **geothermal energy**. **EDF Saudi Arabia** and **TAQA Geothermal Energy Company** signed a Memorandum of Understanding to collaborate on geothermal energy technologies, including **power generation and HVAC applications**. Geothermal energy offers protection against energy price volatility and provides a stable energy source unaffected by climatic changes, helping to diversify Saudi Arabia's energy mix. SOMA believes this represents another step in the region's diversification away from fossil fuels. Gulf countries are demonstrating growing sophistication in their energy transition strategies by moving beyond single solutions to embrace a diverse portfolio of renewable technologies. This comprehensive approach—which now includes nuclear, solar, and geothermal power—a diversification away from any single alternative energy production technology.

The Kingdom is also making strides in carbon capture technology. **Aramco** and **Siemens Energy** unveiled Saudi Arabia's **first direct air capture (DAC) unit**, capable of extracting **12 tonnes of CO₂ annually**. This initiative supports Aramco's goal of achieving net-zero Scope 1 and Scope 2 greenhouse gas emissions by 2050. The DAC project is part of the broader Saudi Green Initiative, which targets **reducing carbon emissions by 278 million tonnes annually by 2030 and transitioning 50% of energy to renewables**.

Furthermore, **Red Sea Global** introduced **Sustainable Aviation Fuel (SAF) to Saudi Arabia**, aiming to reduce carbon emissions from air travel by up to 35%. Airlines at Red Sea International Airport now have access to SAF, with **a blend of 35% SAF and 65% traditional Jet A1 fuel**. This initiative is part of RSG's broader environmental efforts, which include the **installation of 400 MWp of solar panels** and mangrove restoration projects. In 2023, **Emirates Airlines** in Dubai completed a demonstration flight using an Airbus A380 with **one of its four engines powered by 100% SAF**. More than **450,000 flights have successfully operated using a blend of SAF and traditional fuels**, with over **50 airlines worldwide gaining operational experience with SAF**. This marks Saudi Arabia's participation in a sector actively pursuing Net Zero targets, representing progress for the region.

Egypt Developments

Renewable Energy

A major highlight of this period is the construction of Egypt's newest onshore wind power project, a **1.1 GW wind farm located in the Gulf of Suez region**. This project, which began construction in January 2025 and has a total **cost of over \$1 billion**. The wind farm, developed by **Suez Wind**—a joint venture between **ACWA Power** and **HAU Energy**—features 138 turbines supplied by China's **Envision Energy**. The project is expected to **reduce carbon emissions by 2.5 million tons annually** and is aligned with **Egypt's target of establishing 10GW of renewable energy capacity by 2028**. The involvement of international financing partners, including the **European Bank for Reconstruction and Development**, the **African Development Bank**, and the **OPEC Fund**, underscores the global interest in Egypt's renewable energy initiatives.

Egypt's renewable energy strategy is further supported by legislative reforms and infrastructure upgrades. The ***Renewable Energy Law No. 203 of 2014*** encouraged private sector involvement in renewable energy projects through competitive bids, BOO projects, and feed-in tariffs. Subsequently, ***Egypt's Electricity Law No. 87 of 2015*** set the **Electricity Utility and Consumer Protection Regulatory Agency (ERA)** as the regulatory body and created a structured framework for developing and regulating renewable energy sources. In 2024, the Egyptian Parliament ratified a **new bill to incentivize renewable energy projects focused on green hydrogen** and its derivatives, which is pending promulgation and implementation. These measures aim to optimize renewable energy sources, develop electricity distribution, and strengthen transmission networks, thereby enhancing economic integration and positioning Egypt as an energy link between Africa, Europe, and the Middle East.

Hydrogen

In addition to wind energy, Egypt is making investments in green hydrogen production. Plans are underway to develop a **400 thousands of tonnes/year green hydrogen** plant in South Sinai, with a total investment of **\$17 billion**. This ambitious project will be powered by **3.1 GW of solar power** during the day and pumped-storage hydropower at night, ensuring continuous operations. The first phase of the project includes the construction of a water desalination plant, a liquid hydrogen production facility, and a sea pier for exporting hydrogen to Europe. This initiative is part of Egypt's broader strategy to invest **\$60 billion** over the coming decades to become a global hub for green hydrogen and green ammonia, with a target of producing **5.6 metric tonnes/year of hydrogen by 2040**.

Electric Vehicles

Egypt also features initiatives to encourage the adoption of natural gas and electric vehicles. Egypt plans to convert **1.5 million vehicles to compressed natural gas**, potentially reducing diesel consumption by 50% and cutting reliance on subsidized petroleum products. This initiative is led by a joint task force from the **Ministries of Finance and Petroleum**, highlighting the government's proactive approach to reducing greenhouse gas emissions from the transportation sector, which currently contributes 25-30% of Egypt's total emissions.

Despite significant support and external investment, the domestic sectors have failed to demonstrate capability due to limitations in climate-related financing and governance structures. The country continues to grapple with a **fiscal deficit, reliance on the domestic banking sector for financing, and fluctuating foreign direct investment**. Additionally, Egypt's heavy reliance on hydrocarbons for exports and domestic needs, coupled with climate vulnerabilities like water scarcity, pose significant obstacles to its green transition.