Dii

MENA Energy Outlook 2026

Renewables, Hydrogen and Energy Storage developments in the MENA region

Contents

Executive Summary

For over 16 years, Dii Desert Energy has served as a driving force for the Middle East and North Africa (MENA) region's energy transition. Our mission includes enabling clean energy projects and infrastructure, fostering market creation and partnerships, as well as providing secure information systems to ensure the integrity and efficiency of the energy transformation. To this end, Dii maintains a unique proprietary database tracking all relevant physical assets along the clean energy value chain.

The energy transformation in the MENA region is moving at a pace that puts it well ahead of even recent predictions. This 2026 Outlook serves as a critical update to our previous report, reflecting the speed of market evolution over the last 12 months.

As of end-2025, the region's operational renewable capacity has surged to 43.7 GW, marking a record addition of 13.4 GW (+44%) in just 12 months. This expansion is primarily driven by Solar PV, which reached 34.5 GW, followed by 7.4 GW of Wind capacity and approximately 1.8 GW of Concentrated Solar Power (CSP). At the same time, this growth is accompanied by a strategic rationalization of targets in certain countries.

As we close 2025, the region's actual project pipeline has surged to 202 GW, a figure that not only exceeds our previous 'Conservative' baseline but has already surpassed the 'Balanced Transition' scenario we forecasted just one year ago (165 GW). This volume now nearly matches the region's aggregated 2030 national ambitions of 235 GW, significantly narrowing the implementation gap. Crucially, this pipeline is maturing: 38 GW is now officially under construction.

Consequently, this 2026 Outlook updates our scenario framework to reflect this new reality, projecting three distinct pathways for 2030: a 'Conservative' baseline of 165 GW, a 'Balanced' transition matching national targets at 235 GW, and a 'Green Revolution' scenario of 290 GW representing the region's full potential. The gap to this target has narrowed significantly, but bridging it will still require sustained momentum, supply chain resilience and the continued mobilization of capital.

The MENA region has experienced a decade of sustained growth in renewable energy investments, driven by the competitiveness of solar and wind technologies which continue to break record low costs. Levelized Costs of Electricity (LCOE) have dropped to 1.09 USD cents/kWh for solar PV and 1.33 USD cents/kWh for wind for the lowest cost projects. This economic advantage has fundamentally shifted the market landscape: giga-scale projects are becoming commonplace across the region. In this context, the Kingdom of Saudi Arabia (KSA) has assumed a leadership role, almost tripling its operational capacity in the last year, surpassing early pioneers like Jordan, Morocco or the UAE.

In contrast to the power sector, the early stage of hydrogen development faces a more complex reality. While the project pipeline has grown to 127 active projects, execution remains concentrated. Only 5 major projects have reached financial close or the construction phase, most notably the NEOM Green Hydrogen Project, which is more than 80% complete. However, the wider market faces a structural economic barrier. The challenge is not merely the cost of green molecules, but rather that fossil-based energy remains artificially cheap, failing to reflect the true cost of its emissions.

Consequently, low-emission hydrogen cannot yet compete on a level playing field without significant support or meaningful CO2 pricing. While official 2030 production targets of approximately 10 Mtpa for the MENA region have not changed, the pace of execution has not matched ambition, making these goals increasingly hard to reach under current conditions. Many promising announcements have not translated into concrete actions due to persistent hurdles: regulatory uncertainty, the absence of workable trade arrangements for green certificates, missing infrastructure and, most critically, the lack of secured offtake.

Emerging instruments like H2 Global are beginning to provide a template for securing offtake, but broader changes remain essential to unlock the sector's full potential. The coming months will be crucial as the region navigates these dynamics, balancing the continued acceleration of electrons with the necessary recalibration of molecules.

The MENA utility scale energy storage market continued its solid growth in 2025 with ~25 GWh operational today and the capacity projected to expand six-fold to 156 GWh by 2030, implying a 44% CAGR. The market has shifted from the traditional thermal energy storage systems (TESS) coupled with concentrated solar power plants (CSP), to battery energy storage systems (BESS) which now capture 50% of operational capacity. These BESS systems are being developed as standalone projects as well as co-located with solar PV (PV+BESS), at a scale of hundreds of MWh's to even GWh's. The market tipping point was when the cost of BESS plummeted by around 80% or more from a decade ago, and MENA storage demand rose due to increased renewable energy sources within the grid.

Highlights

Renewable Energy

- The deployment of renewable energy in the MENA region is accelerating at an unprecedented pace, driven by the competitiveness of solar and wind technologies. The region's operational capacity has surged to 43.7 GW, with 34.5 GW coming from solar PV and 7.4 GW from wind.
- The current project pipeline has surged to 202 GW, a figure that already exceeds the 165 GW baseline of our 'Conservative' scenario and nearly matches the region's aggregated 2030 ambition of 235 GW ('Balanced' scenario). While execution challenges remain, the massive volume of announced capacity means the implementation gap has narrowed significantly to just 33 GW. Under a "Green Revolution" scenario, the region has the potential to reach 290 GW by 2030.
- More record low prices achieved with projects awarded at prices below 1 EUR cent/kWh[1]: the Najran PV project was awarded at 1.09 USDcent/kWh. The Dwadmi Wind project in KSA was awarded at 1.33 USDcent/kWh, which represents the new world record for electricity generation from wind power.
- UAE continues to set global benchmarks, most notably by starting construction on a 5.2GW solar park coupled with 19 GWh of battery storage to deliver 1 GW baseload renewable power, developed by Masdar in partnership with EWEC. The UAE has grown its operational capacity to reach 7.5 GW (from 6.2 GW in 2024), a momentum reinforced by a newly increased national target of 22 GW by 2031.
- The Kingdom of Saudi Arabia (KSA) has emerged as the regional leader, having tripled its installed capacity in just one year to reach 11.7 GW. With a massive pipeline of projects currently under construction and development, the Kingdom is reshaping the region's energy transformation curve.
- Gigawatt-scale projects have become the new standard. Thanks to improved efficiency and established supply chains, developments are being announced with significantly larger capacities than in the past across multiple countries.
- A powerful new demand driver has emerged with the rise of AI. Data centers are positioning themselves as the region's "super offtakers," creating a symbiotic relationship where their massive, long-term energy requirements directly unlock financing and bankability for giga-scale renewable developments.

Hydrogen

- The initial surge of announcements has settled into a phase of rationalization. While the project pipeline has grown to 127 active projects, the pace of execution has slowed significantly. Only 5 major projects have reached financial close or the construction phase, most notably the NEOM Green Hydrogen Project.
- While official 2030 production targets of approximately 10 Mtpa remain in place, execution has not matched ambition. Many early-stage ventures face indefinite delays due to high financing costs, regulatory fragmentation and the absence of secured offtake.
- Infrastructure remains a primary bottleneck for bankability. Common User Infrastructure (CUI) is a potential solution to unlock giga-scale projects by developing shared assets and networks to de-risk investment and lower the upfront capital barrier for developers.
- Securing long-term demand remains the single biggest hurdle. While policy mechanisms like H2Global provide a useful template, broader market demand has been inadequate to unlock investments.

Energy storage

- From a base of approximately 25 GWh in 2025, the region's operational storage capacity is projected to expand six-fold by 2030, reaching over 156 GWh. This rapid scaling corresponds to an estimated 44% compound annual growth rate (CAGR). A key driver is the fact that national grids are being prepared for large % of renewable energy over the coming years.
- Battery technologies have emerged as the dominant energy storage solution, currently capturing 50% of the operational market, followed by Thermal Energy Storage (TESS) at 37% and Pumped Hydro (PHES) at 13%. This trend is set to accelerate: by 2030, Battery Energy Storage Systems (BESS) are projected to increase their share to 73% of the region's total capacity.
- Saudi Arabia is turning into one of the top 10 energy storage markets globally. In 2025, it successfully commissioned and put into operation four standalone BESS projects totalling 10,400 MWh. KSA also established a new global benchmark for battery capital costs, with latest contract values implying a BESS cost range of USD 73–75 per kWh.
- MENA energy storage market witnessed several first-of-a-kind projects in 2025. In Abu Dhabi (UAE), Masdar in partnership with EWEC began construction on the world's first gigascale 24/7 renewable energy project, integrating a 5.2 GW solar plant with a 19 GWh battery storage system; the largest and most technologically advanced system of its kind globally. By providing baseload renewable power at a globally competitive tariff for the first time, this project is a model for clean energy reliability, designed to be replicated in other major markets around the world. Furthermore, in Dubai, DEWA commenced operations of the 250 MW / 1,500 MWh Hatta PHES project. In Oman, a Masdar-led consortium has been awarded the development and PPA of the country's first utility-scale solar and battery project, Ibri III, which combines a 500 MW PV plant with a 100 MWh BESS. The scope of the project includes design, construction, ownership, financing, operation and maintenance of the plant.

Global positioning

- The MENA region is well positioned to become a global powerhouse for clean energy exports. Leveraging the world's lowest-cost solar and wind energy - the region's "new green currency" - nations are positioning themselves not just as energy suppliers, but as competitive hubs for energy-intensive industries like data centers and green manufacturing.
- The SoutH2 Corridor agreement has been signed in early 2025 by Germany, Italy, Austria, Algeria and Tunisia. This strategic partnership formalizes the development of a 3,300 km dedicated hydrogen pipeline connecting North Africa to Central Europe, positioning it as the region's primary export artery for the coming decade.
- Notable progress on the electrical interconnections between MENA and Europe includes the ELMED interconnection, a 600 MW HVDC submarine cable linking Tunisia and Italy, which recently secured substantial funding and approval.
- Initiatives such as ZETA[2] can help MENA to develop a transparent market for liquid low-emission products in the region, while effectively interacting with the emerging net-zero world markets. This will foster sustainable growth, attract investment and position MENA as a leader in the global transition to clean energy.
- The UAE – India subsea cable link, a study Dii has performed already in 2017 together with the GCCIA and State Grid is now an official part of IMEC, the India Middle East Europe Economic Corridor.
- New electrical interconnections are under execution, e.g. with the ready KSA – Iraq link to be energized in the coming months and further interconnections in more advanced planning stage.

Introduction

The Middle East and North Africa (MENA) region is uniquely positioned to spearhead the global transformation towards cleaner energy. Its combination of vast land availability and the world's lowest renewable energy costs, combined with an established energy industry in many countries, offers a strategic competitive advantage that few other regions can match.

Dii Desert Energy, an international industry alliance, continues to act as a primary catalyst for this transformation. Through its comprehensive Renewable Energy (RE) Database, the MENA Hydrogen Tracker and the Energy Storage projects database, Dii Desert Energy monitors utility-scale across the region, providing valuable insights into emission-free energy projects and their operational, construction, and planned asset base, serving as a critical resource for understanding the region's trajectory in the energy transformation. For this edition, our coverage has been significantly expanded to include a comprehensive project pipeline from Iraq.

In this report, we leverage this data to map the status of the renewable energy, hydrogen, and storage projects as of end 2025, outlining the potential scenarios and pathways that will define the MENA energy transition through 2030.

Methodology

For the purposes of this report, the MENA region is defined as comprising the following countries: Algeria, Bahrain, Egypt, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, the State of Palestine, Saudi Arabia (KSA), Sudan, Tunisia, the United Arab Emirates (UAE) and Yemen.

To accurately track market maturity, projects in the Renewable Energy Database are categorized into four distinct phases:

- **Operational:** Projects that have been fully commissioned and are connected to the grid.
- **Construction:** Projects that have reached Financial Close (FC) and where physical site works have officially commenced.
- **Under Development:** Projects that have secured a specific site and advanced status (e.g., tender awarded, Power Purchase Agreement signed), but have not yet reached financial close.
- **Announced / MoU:** Early-stage initiatives, including Memoranda of Understanding (MoU) or strategic government declarations, where binding contracts or specific technical details are yet to be finalized.

Renewable energy

The landscape of renewable energy in the MENA region is very different today from 2009, when the Desertec 1.0 vision was first launched. At the time the renewable energy take-off was barely foreseen, and now the MENA region has evolved into a dynamic, multi-gigawatt market. Beyond national targets, powerful new demand drivers are reshaping the market. The exponential rise of Artificial Intelligence (AI) has positioned data centers as the region's "super offtakers". Their massive, 24/7 energy requirements are creating a symbiotic relationship that directly unlocks financing for giga-scale renewable developments. Parallel to this utility-scale surge, the decentralized market is gaining momentum with the expansion of retail rooftop PV and Electric Vehicles (EVs).

Nevertheless, the pace of this evolution remains uneven across the region. We observe a distinct acceleration in the Gulf Cooperation Council (GCC) countries, particularly Saudi Arabia, where bold announcements are rapidly translating into execution. In contrast, other markets, especially in North Africa, continue to navigate a more complex implementation environment. Analyzing these project-level dynamics and status updates is the first step to defining the current context of the MENA energy transition but they are part of the MENA Hydrogen Tracker.

Renewable projects in the MENA region

The RE database continues to expand its coverage of utility-scale projects (exceeding 5 MW) across the MENA region. At the end of 2025, the total number of tracked assets has risen to more than 800, covering projects at various stages of development (Table 1). This figure includes renewable installations related to standalone photovoltaic (PV) solar, solar-thermal (CSP) and wind projects. Hydrogen-related installations are not included in this database.

The region has crossed a significant milestone with 508 projects now fully operational. Furthermore, 61 projects are under construction, 106 are in the development phase and an additional 116 have been announced. Israel (193), Egypt (69), and Jordan (65) continue to host the largest numbers of operating plants. Looking ahead, the development pipeline highlights a shifting competitive landscape. Morocco is advancing the higher number of projects through development, however KSA is set to dominate the future in terms of gigawatts delivered.

TABLE 1: OVERVIEW OF RENEWABLE ENERGY PROJECTS BY STATUS IN THE MENA REGION

	Total	Operational	Construction	Development	MoU/Announced	On hold/Cancelled
Algeria	**47**	24	17	4	1	1
Bahrain	**21**	3	2	5	11	
Egypt	**100**	69	10	12	8	1
Iraq	**18**	1	3	6	8	
Israel	**193**	193				
Jordan	**70**	65	1		4	
KSA	**82**	32	14	19	17	
Kuwait	**19**	5			14	
Lybia	**6**			3	2	1
Mauritania	**15**	7			7	1
Morocco	**82**	38	2	23	10	9
Oman	**32**	11	4	9	8	
Qatar	**4**	3			1	
Sudan	**12**	3		9		
Tunisia	**58**	15	4	9	19	11
UAE	**51**	36	3	7	5	
Yemen	**5**	3	1		1	
Total	**815**	**508**	**61**	**106**	**116**	**24**

In 2025 several projects started commercial operations. For example, in KSA, Ar Rass 2 and Al Shuaibah 2 added 2,000 MW and 2,030 MW respectively to the national capacity. Notably, both Oman and Qatar more than doubled their installed capacity this year. Oman successfully commissioned both Manah 1 and Manah 2 (1 GW combined) increasing the country's installed capacity to 1.7 GW. In Qatar, with the simultaneous commissioning of the Ras Laffan Industrial City (470 MW) and Mesaieed Industrial City (410 MW) solar plants in April 2025, the Gulf state effectively doubled its renewable portfolio.

The UAE continued their rapid deployment at the Mohammed bin Rashid Al Maktoum Solar Park (MBR), where Phase VI developed by DEWA and Masdar began delivering power: 1 GW is already operational with now an overall of approx. 4 GW, the remaining 800 MW expected to come online in the next year. In Egypt, the new installed capacity was driven mainly by wind developments, with commissioning of Amunet (505 MW) and the completion of the Red Sea Wind Energy (RSWE) project, which added 344 MW in 2025 to reach its full capacity of 650 MW.

Construction activity across the region remains robust, with major capacity additions scheduled for 2026 (Table 2). In Algeria, the results of the 2023 2GW tender are beginning to materialize: Tendla - M'Ghair (220 MW) and Laghrous - Biskra (200 MW) solar plants are set to be the first projects commissioned from this program. Saudi Arabia has expanded its active construction portfolio following the recent financial close of 15 GW of new capacity. This includes Bisha and Humaij solar PV clusters (3 GW each), as well as the Starah (2 GW) and Shaqra (1 GW) wind farms.

These giga-projects join the ongoing NREP Round 4 developments, where the 1,100 MW Al Henakiyah solar plant and the 400 MW Tabarjal facility are expected to reach commercial operation in early 2026. Meanwhile, Egypt is advancing significant hybrid capacity, with the 1,000 MW Abydos 2 and the Obelisk project (combining over 1.1 GW across two phases) incorporating Battery Energy Storage Systems (BESS) to enhance value to the grid. In the UAE, a new milestone for the country is the start of construction on Masdar's groundbreaking 'round-the-clock' renewable energy project. This 5.2 GW solar PV and 19 GWh battery storage (BESS) complex is set for completion in 2027, representing a new global standard for clean baseload power.

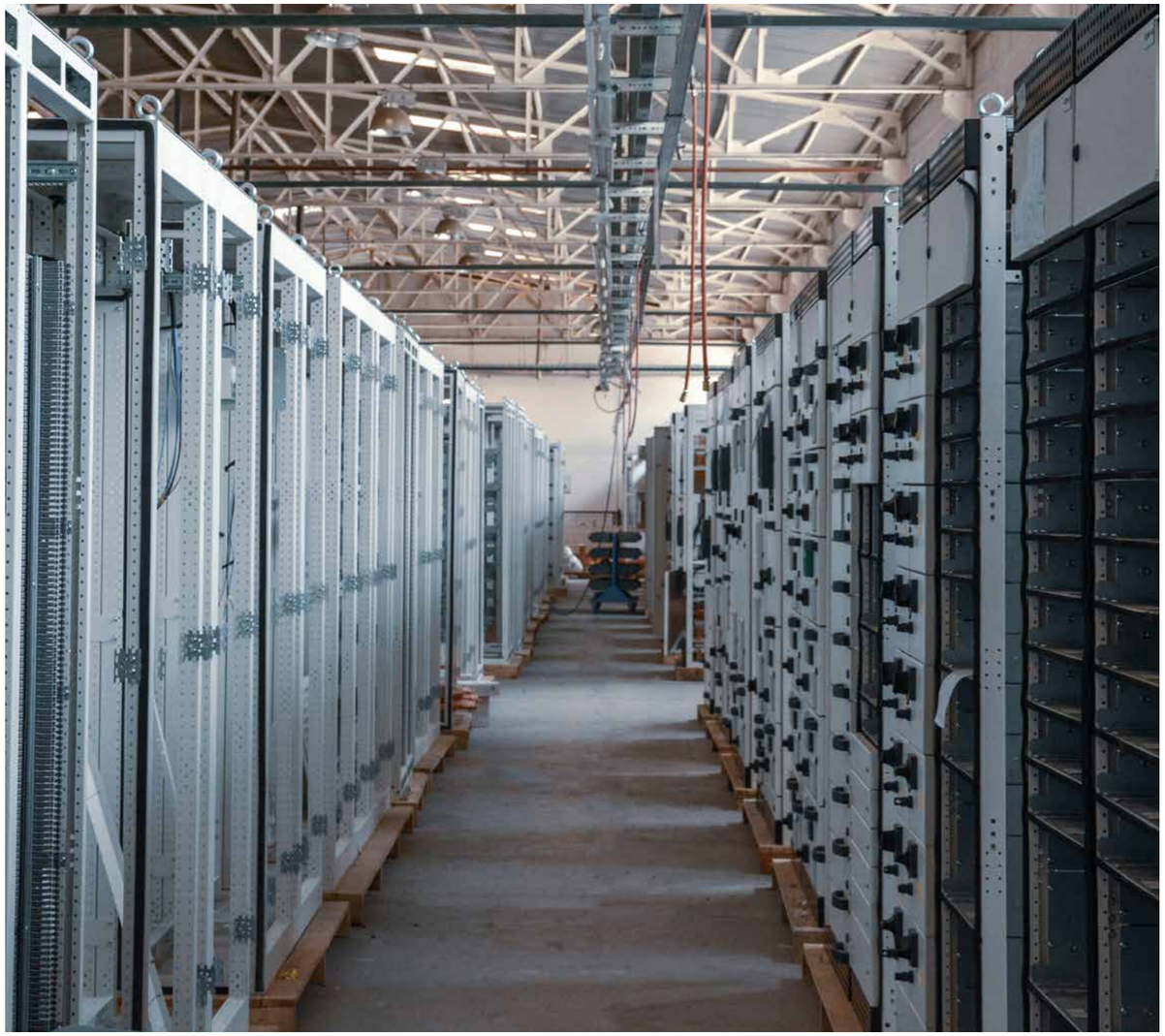
TABLE 2: SUMMARY TABLE OF SELECTED MAJOR PROJECTS UNDER CONSTRUCTION IN THE MENA REGION

Country	Project	Capacity (MW)
Algeria	**Tendla – M'Ghair PV**	220
Algeria	**Laghrous – Biskra PV**	200
Bahrain	**Bahrain Steel**	100
Egypt	**Obelisk 1&2 PV + BESS**	1,125
Egypt	**Abydos 2 PV + BESS**	1,000
KSA	**Bisha PV**	3,000
KSA	**Humaij**	3,000
KSA	**Starah Wind**	2,000
KSA	**Shaqra Wind**	1,000
KSA	**Al Henakiyah PV**	1,100
KSA	**Tabarjal PV**	400
Oman	**Riyah 1 Wind**	100
Oman	**Riyah 2 Wind**	100
Tunisia	**Kairouan PV**	100
UAE	**Masdar-EWEC PV + BESS**	5,200

The trajectory of the energy transformation accelerated sharply in 2025, driven by a wave of gigawatt-scale announcements. KSA launched Round 7 of the National Renewable Energy Program (NREP), tendering over 5 GW of capacity, including the 1,300 MW Bilghah wind project. Other notable projects that are currently tendering in Saudi Arabia include the As Sdawi 2 and Al Leeth solar PV projects (3 GW each), Muwayh 2 and Handen 2 solar PV projects (2 GW each). In the UAE, the next major expansion at the MBR Solar Park is officially underway, with the development of Phase VII that will bring another 2 GW +1.4 GW BESS. Egypt added the 2,000 MW South Hurghada wind development to its pipeline, and Morocco signalled a technological leap with the announcement of a 1,000 MW offshore wind project, which would be the first-of-a-kind for the region if realized.

TABLE 3: SUMMARY TABLE OF SELECTED MAJOR PROJECTS ANNOUNCED IN THE MENA REGION

Country	Project	Capacity (MW)
Bahrain	**Bahrain PPP PV**	150
Egypt	**South Hurghada Wind**	2,000
KSA	**As Sdawi 2 PV**	3,000
KSA	**Al Leeth**	3,000
KSA	**Muwayh 2 PV**	2,000
KSA	**Haden 2 PV**	2,000
KSA	**Bilghah Wind**	1,300
Kuwait	**Dabdaba PV**	250
Morocco	**Morocco Offshore Wind**	1,000
UAE	**MBR Solar Park VII + BESS**	2,000
UAE	**Zarraf**	1,500



Renewable installed energy capacity

The MENA region has reached a total renewable energy installed capacity of 43.7 GW at the end of 2025, marking a record increase of 13.4 GW in just one year. This growth highlights an accelerating trend, with capacity having almost tripled over the last five years and increased by almost 50% just in 2025 (Figure 1). The data reveals a decisive momentum for solar PV as the technology of choice with a 55% increase in comparison to last year. In country rankings, Saudi Arabia emerged as the region's top growth engine with a staggering 160% capacity increase.

FIGURE 1: RENEWABLE OPERATIONAL CAPACITY 2024 VS 2025

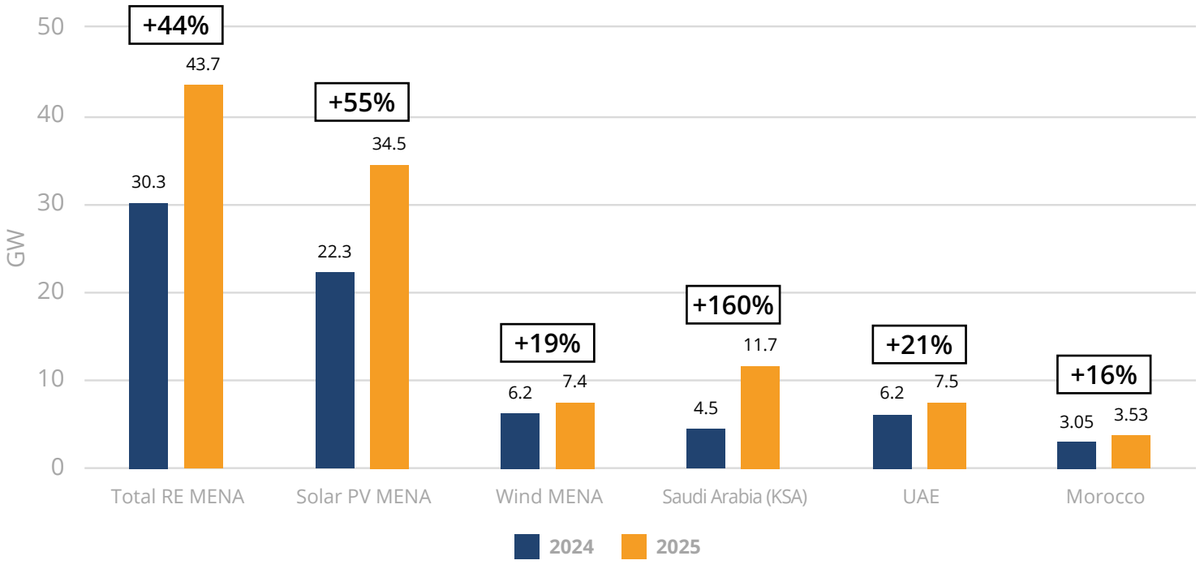
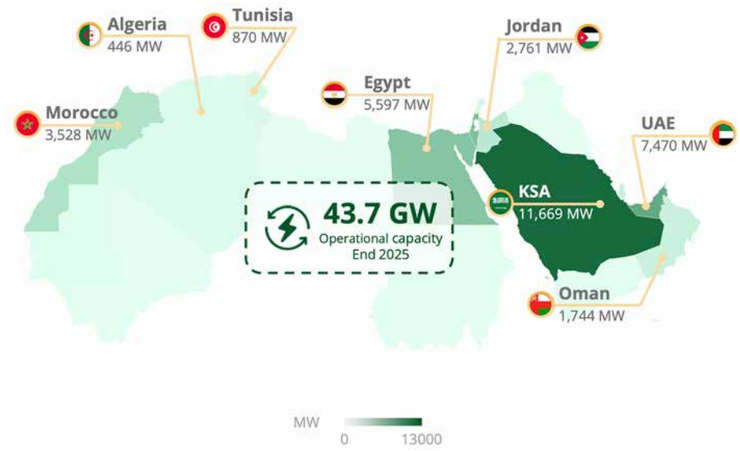
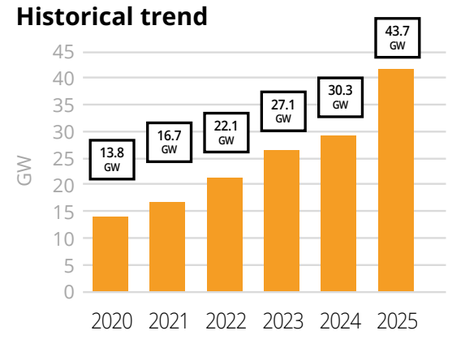


Figure 1: A comparison of renewable energy operational capacity across leading markets, highlighting the year-on-year percentage growth.

Looking at the regional distribution (Figure 2), 2025 marked a turning point: the Kingdom of Saudi Arabia (KSA) emerged as the leader with 11.7 GW of installed capacity. This represents a massive leap from the previous year (4.5 GW in 2024), driven by the commissioning of several gigawatt-scale projects. The UAE follows in second place with nearly 7.5 GW, while Egypt ranks third with 5.6 GW. Other notable markets include Morocco (3.5 GW) and Jordan (2.7 GW).

FIGURE 2: RENEWABLE ENERGY OPERATIONAL CAPACITY





+13.8 GW
From end of 2024

Figure 2: Overview of the Renewable Energy operational capacity in the region as of November 2025. *Source: IRENA database 2024, Dii Database*

RE Energy operational capacity has almost tripled in the last five years

Solar PV

The installed solar PV capacity in the MENA region surged to 34.5 GW by the end of 2025 (Figure 3), marking a robust increase from previous years.

For the first time, KSA has reached to the top regional spot, with over 11.1 GW of installed capacity. This exponential growth was driven by the commissioning of several gigawatt-scale projects in 2025, including Al Shuaibah 2 (2,030 MW), Ar Rass 2 (2,000 MW), and Al Kahfah (1,420 MW). The UAE follows with nearly 6.6 GW of installed capacity.

The Mohammed bin Rashid Al Maktoum Solar Park (MBR) continues to be a cornerstone of this success, having added another 1,000 MW to the grid through the first stage of Phase 6.

Oman more than doubled its capacity since last year, reaching nearly 1.7 GW of capacity following the successful commercial operation of the Manah 1 and 2 projects (1,000 MW combined).

Looking ahead to the construction phase, the scale of development has reached new heights.

The pipeline is headlined by the Masdar project in partnership with EWEC in the UAE, a colossal 5,200 MW facility now under construction. Saudi Arabia maintains its momentum with multiple giga-scale projects breaking ground, including Haden (2,000 MW), Muwayh (2,000 MW), and Al Khushaybi (1,500 MW). Meanwhile, Egypt continues to expand with the 1,000 MW Abydos 2 project moving forward.

FIGURE 3: SOLAR PV (ON GRID) OPERATIONAL CAPACITY

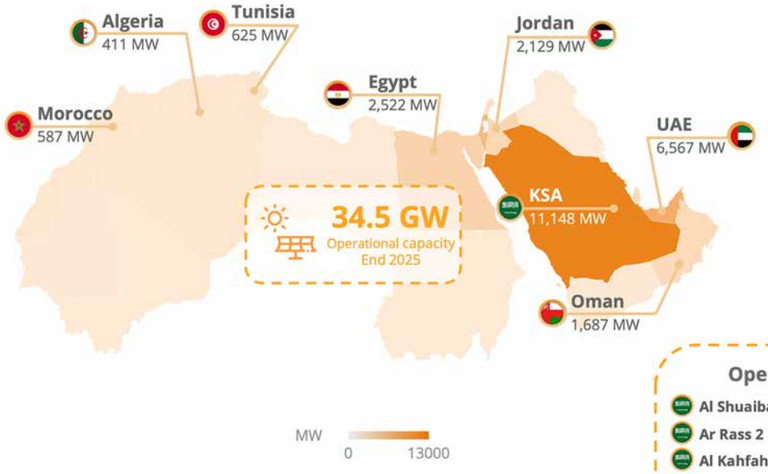
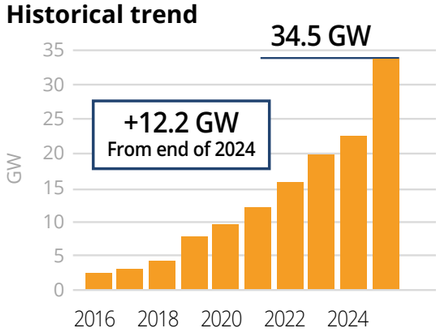


Figure 3: Overview of the Solar PV (on-grid) energy operational capacity in the region as of November 2025.
Source: IRENA database 2024, Dii Database

Historical trend



2025-2026 major projects

Operational		Construction	
Al Shuaibah 2	2,030 MW	Masdar-EWEC	5,200 MW
Ar Rass 2	2,000 MW	Haden	2,000 MW
Al Kahfah	1,420 MW	Muwayh	2,000 MW
Saad 2	1,125 MW	Al Khushaybi	1,500 MW
MBR Solar Park VI (stages 1&2)	1,000 MW	Al Ajban	1,500 MW
Manah 1&2	1,000 MW	Al Henakiyah	1,100 MW
		Abydos 2	1,000 MW

Wind

The total operational wind energy capacity amounts to 7.4 GW (Figure 4). Egypt is leading the way, having crossed the 3 GW milestone with 3,055 MW installed, while Morocco follows with 2,402 MW.

In 2025, the increase in capacity was driven by Egypt, which commissioned the Amunet project (505 MW) and completed the Red Sea Wind Energy (RSWE) II project that has a final capacity of 650 MW. Morocco completed the Dakhla Desalination wind farm (60 MW).

The outlook for wind energy in the MENA region remains positive, although at a slower pace with respect to solar, with several major projects currently under construction.

Saudi Arabia has added a massive pipeline of projects and some of the lowest renewable energy costs in the world. Notably, Starah (2 GW) and Shaqra (1 GW) reached financial close at the end of November 2025 and are expected to be operational between late 2027 and early 2028.

Egypt continues to drive development with the Suez Wind 1&2 (1,100 MW), Niat (500 MW) and Ras Ghareb (200 MW) projects.

In Oman, the Riyah 1&2 projects are adding 200 MW. Looking further ahead, Masdar has progressed its giga-scale pipeline by signing a land access agreement for a massive 10 GW onshore wind project in Egypt.

Additionally, Morocco reached a historic milestone with the announcement of its first offshore wind project: a 1,000 MW facility off the coast of Essaouira. Officially unveiled in June 2025 at the UN Ocean Conference, this project marks the first large-scale development of its kind in Africa and is supported by the Blue Mediterranean Partnership[3].

FIGURE 4: WIND ENERGY OPERATIONAL CAPACITY

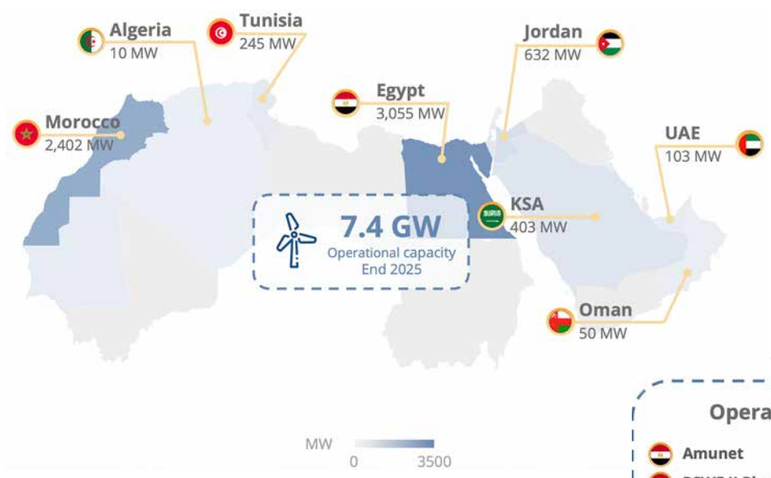
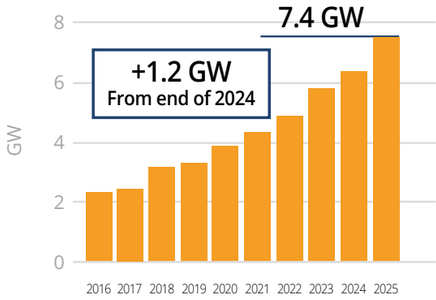


Figure 4: Overview of the wind energy operational capacity in the region as of November 2025.
Source: IRENA database 2024, Dii Database

Historical trend



2025-2026 major projects

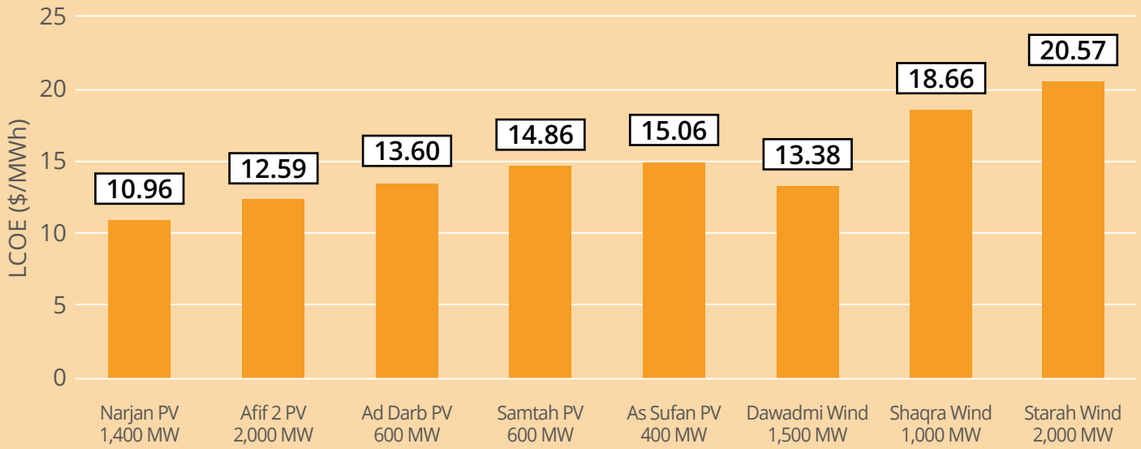
Operational		Construction	
Amunet	505 MW	Suez Wind 1&2	1,100 MW
RSWE II Phase 2	194 MW	Siemens Gamesa	500 MW
RSWE II Expansion	150 MW	Ras Ghareb	200 MW
Dakhla desalination	60 MW	Riyah 1&2	200 MW

Focus box: Saudi Arabia – The new global benchmark for Renewable Energy costs

In 2025, the Kingdom of Saudi Arabia's renewable energy Independent Power Producer (IPP) market achieved a significant milestone by setting global record low levelized costs of electricity (LCOE) for both photovoltaic (PV) and wind energy:

- **Solar PV:** 10.96 $/MWh
- **Wind:** 13.38 $/MWh

FIGURE 5: KSA SELECTED 2025 PV & WIND IPP PROJECTS AWARD LCOE



The selected awarded projects in Figure 5 demonstrate KSA's ability to leverage economies of scale to drive down costs through innovative procurement and advanced technology adoption. This achievement underscores the rapid progress and competitiveness of KSA's renewables sector, enabled by favourable policy frameworks, large-scale project deployment, principal buyer/offtaker (Saudi Power Procurement Co.) with high credit rating (A+ by Standard & Poor), PV and wind project sites with good energy yield, and consistent tendering strategies that attract local and international developers and investors.

The criteria applied in project selection and development in KSA have resulted in projects that are highly bankable. Reducing perceived risks and ensuring robust financial structures has attracted financiers, securing a highly competitive cost of capital. Lower financing costs translate into lower LCOEs, which in turn reinforce the viability of future projects.

These record-breaking LOCE underscore KSA's strategic commitment to diversifying its energy mix and reducing its reliance on fossil fuels. These record-breaking LCOE figures reflect a broader trend in the MENA region, where increasing investment, supportive regulatory environments, and the declining cost trajectory of renewables have positioned countries like KSA at the forefront of the energy transition.

Renewables forecast to 2030

The transition towards a sustainable energy future in the MENA region is accelerating beyond previous expectations. While countries continue to navigate unique paths with varying degrees of readiness, the collective momentum has shifted significantly over the last 12 months. Leveraging the latest insights from the Dii Desert Energy databases, we have recalibrated the pathways to 2030 to reflect a new reality: the region's actual project pipeline has already surpassed the 'Conservative' and 'Balanced' scenarios forecasted in our previous outlook, necessitating a revised baseline for 2030.

Current pipeline of projects

As a starting point, it is useful to analyse the expansion of the region's project pipeline (Figure 6). Should all projects currently under construction or development be successfully realized, the total capacity would surge to 202 GW, up from the 131 GW identified just one year ago. This growth is driven largely by solar PV, which now accounts for 130 GW of the pipeline. The remaining capacity comprises 65 GW of onshore wind, 4 GW of CSP, and an emerging 3 GW from offshore wind. Crucially, this pipeline is rapidly maturing: of this 202 GW total, 43.7 GW is already operational and a further 38 GW is officially under construction, leaving approximately 120 GW in the development and announcement stages.

FIGURE 6: PIPELINE COMPARISON BY TECHNOLOGY AND MATURITY

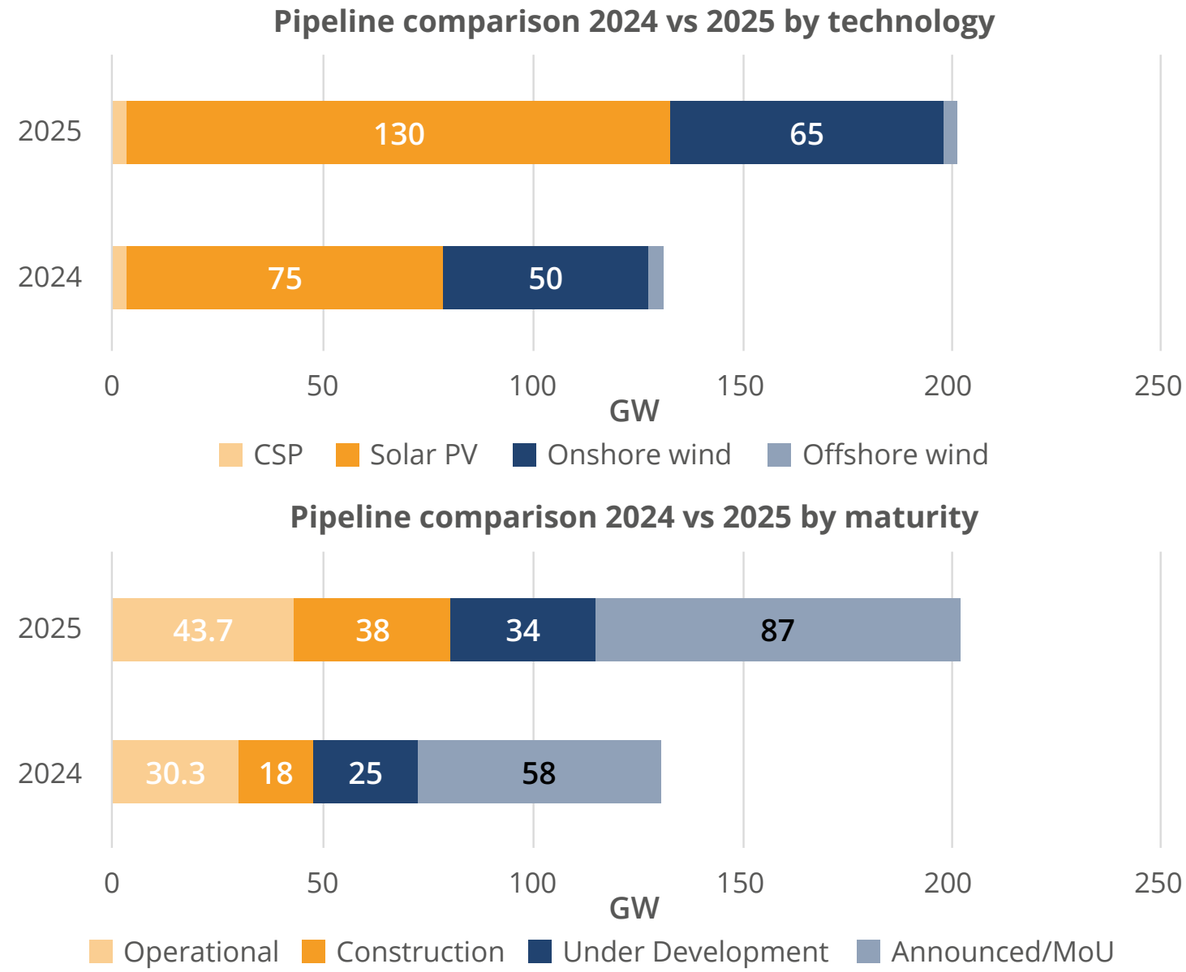


Figure 6: Pipeline comparison by technology and maturity. Top: the expansion of the 2025 pipeline to 202 GW, led by Solar PV (dark orange) and Onshore Wind (dark blue). Bottom: the acceleration of project delivery, highlighting the increase in operational capacity and the 38 GW currently under construction.

Targets and ambitions

The aggregated 2030 national ambitions for renewable energy in the MENA region have remained stable at 235 GW (Figure 7 and Figure 8). However, one should note that behind this figure, a regional rebalancing between new entrants and strategic recalibrations is materializing.

In terms of positive adjustments, a novelty for this edition is the introduction of Iraq's targets of 12 GW by 2030 and Israel's targets of 16 GW by 2030. This update also reflects the increased ambition for the UAE, which now plans to reach 22 GW by 2031. Furthermore, we have adopted a target of 125 GW for Saudi Arabia (within its 100-130 GW range), given the accelerated pace of developments and announcements registered throughout 2025. In our previous outlook, we had utilized the more conservative lower bound of 100 GW.

These upward revisions were counterbalanced by strategic recalibrations in Algeria, Egypt, Sudan and Kuwait. Algeria adjusted its long-term goal from 22 GW to 15 GW by 2035, from which, we derived an interim target of approx. 7 GW by 2030. Similarly, Egypt rationalized its declared ambitions to a target of 21 GW for 2030. Furthermore, targets for Kuwait (4.5 GW), Sudan (2 GW) have been refined to reflect official declarations and consolidated policy data.

Since many of these national targets are technology-neutral, an analysis of the active project pipeline is crucial to understand how the region intends to meet this 235 GW ambition. Overall, with a current pipeline of 202 GW, the 'implementation gap' has narrowed to just 33 GW.

The data reveals a decisive preference for solar PV. The current solar project pipeline has surged to 130 GW. This capacity alone covers more than half of the region's total renewable energy target, confirming that solar is the primary engine of the transition. If the current momentum continues, solar deployment will likely drive the region to exceed its aggregate goals.

Onshore wind plays a critical supporting role, with an active pipeline of 65 GW. While substantial, this pipeline is more concentrated than solar, relying heavily on specific giga-projects, such as the 20 GW of wind capacity planned in Egypt. Consequently, realizing this contribution depends entirely on the successful execution of these few huge projects.

The remainder of the pipeline comprises CSP, expected to reach 4 GW, although given the rapid decline in PV costs, it is likely that they will not materialize. Similarly, the offshore wind, projected to reach 3 GW, represent a nascent frontier. Realizing this capacity will require navigating complex, first-of-a-kind development challenges in the region.

FIGURE 7: CURRENT PIPELINE OF PROJECTS VS 2030 AMBITIONS

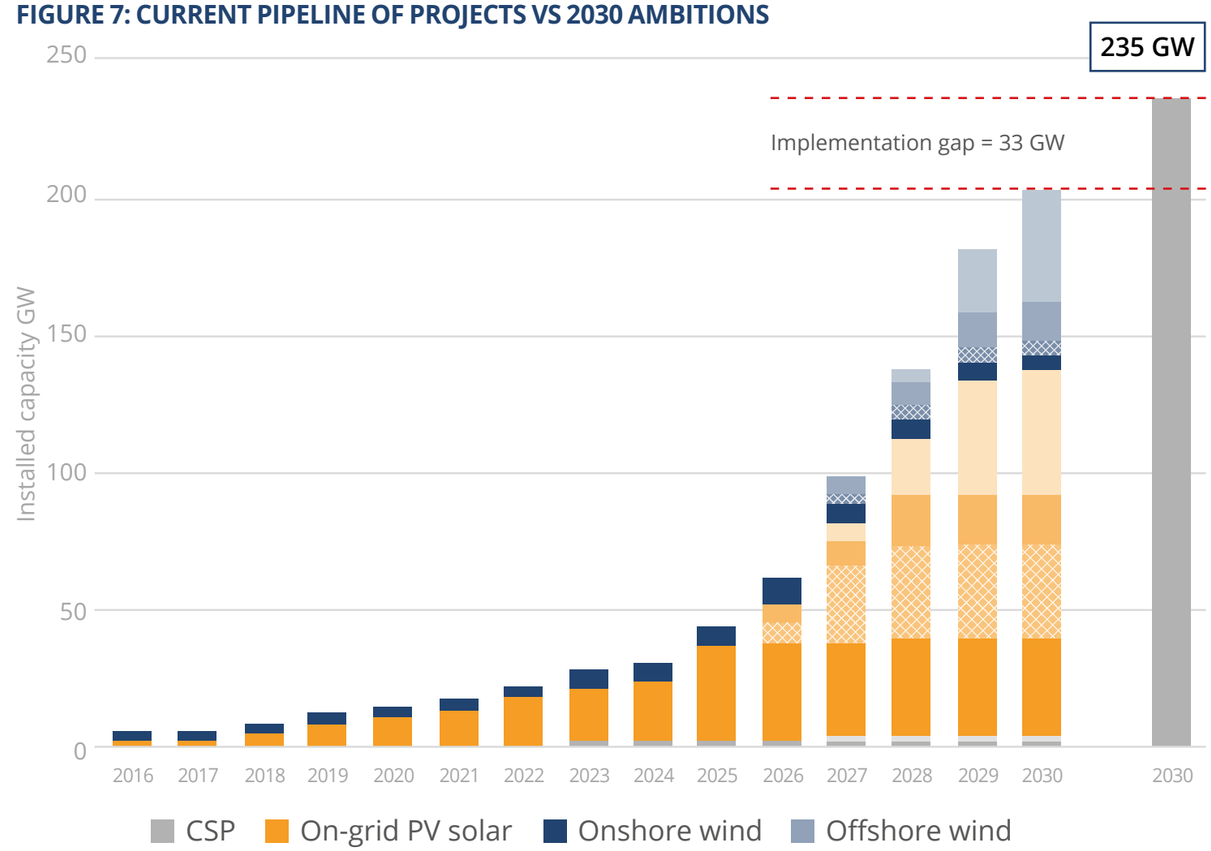
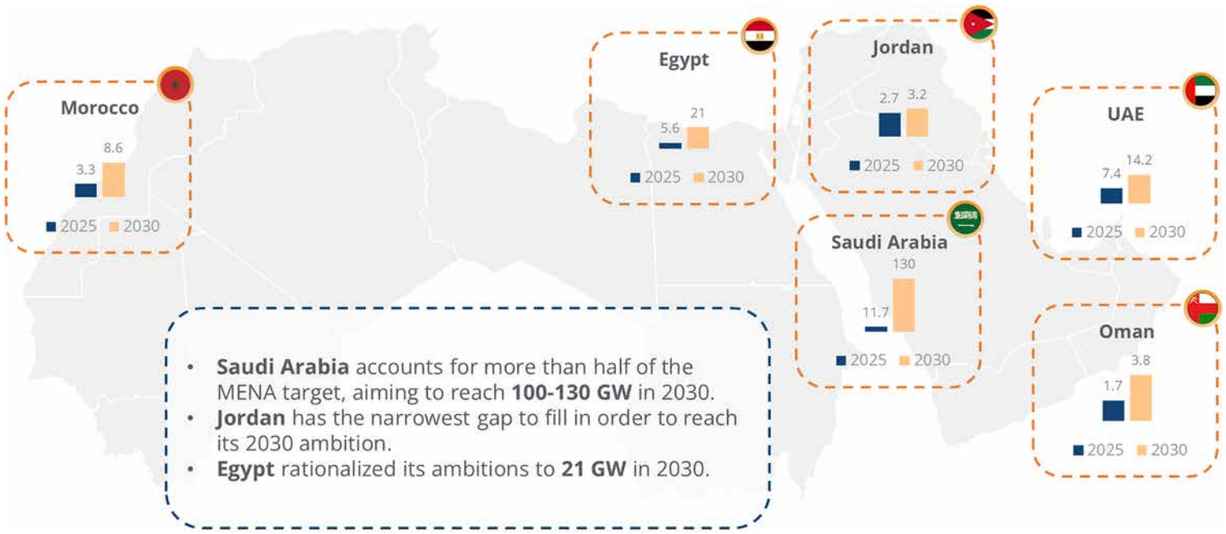


Figure 7: Current pipeline of projects vs 2030 ambitions. Dark colours indicate operational projects, dashed colours represent projects under construction, light colours represent announced projects.

FIGURE 8: TARGETS FOR INDIVIDUAL COUNTRIES IN THE MENA REGION



Focus box: Data centers – the new super offtakers of clean energy

As highlighted in Dii Desert Energy's recent publication, "Data Centers: The New Super Offtakers of Clean Energy"[4], the exponential growth of artificial intelligence (AI) and cloud computing is creating a "dual crisis" of power availability and sustainability for the global data center industry. As traditional hubs in Europe and North America face grid congestion and permitting delays, the Middle East is emerging as a prime location for clean data centers, leveraging its unique combination of vast available land, rapid execution capabilities, and the world's lowest-cost solar and wind energy.

While the region offers abundant clean energy potential, securing financing for giga-scale renewable projects often requires guaranteed demand. Data centers are stepping into this role as "super offtakers." By committing to long-term Power Purchase Agreements (PPAs), hyperscale data centers provide the stable cash flows necessary to de-risk multi-billion-dollar investments.

Driven by national development agendas like Saudi Vision 2030 and UAE Vision 2031, the Middle East's data center capacity is projected to more than double by 2028, rising from approximately 850 MW today to over 2 GW (Figure 9). This surge is a catalyst for the deployment of new clean energy infrastructure, from grid-connected solar parks to fully autonomous "Off-Grid Net-Zero Islands" powered by co-located renewables and long-duration energy storage, including hydrogen.

This trend is already materializing in concrete projects across the region:

- **Igoudar Dakhla 500 MW (Morocco)[5]:** this data center is designed to run entirely on a dedicated solar and wind hybrid plant, positioning Morocco as a new hub for AI and cloud computing.
- **SoleCrypt 60 MW (Tunisia)[6]:** SoleCrypt has secured land in Tozeur to develop a solar PV project specifically to power sustainable AI data centers, demonstrating how decentralized digital infrastructure can unlock renewable potential even in smaller markets.

FIGURE 9: PROJECTED GROWTH OF DATA CENTER INSTALLED CAPACITY

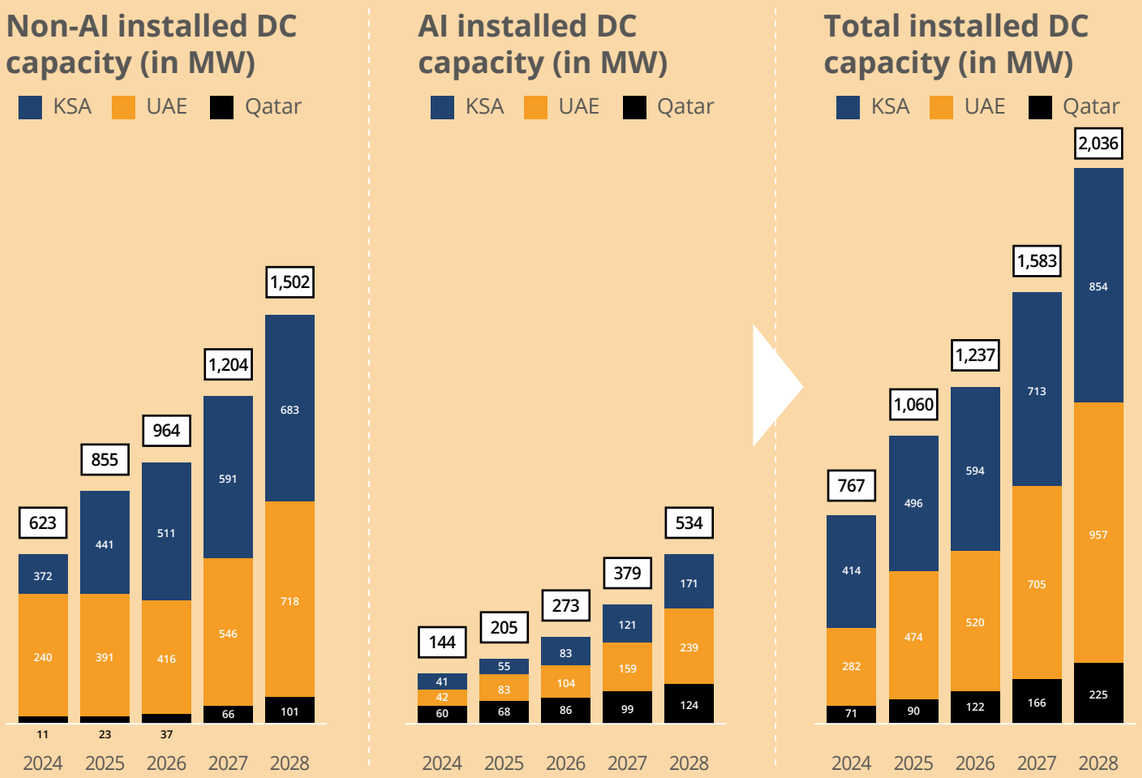
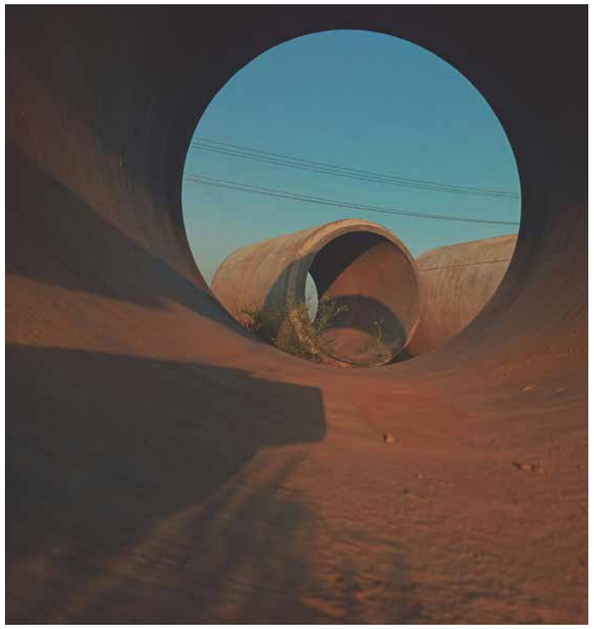


Figure 9: Projected growth of data center (DC) installed capacity in megawatts (MW) for Saudi Arabia (KSA), the UAE, and Qatar from 2024 to 2028, with a breakdown of AI vs. Non-AI workloads. *Source: Roland Berger*

Scenarios to 2030



The pace of the energy transition in the MENA region has accelerated beyond previous forecasts, necessitating a revision of our outlook scenarios. In our 2024 report, we projected a 'Balanced Transition' of 165 GW by 2030. At the end of 2025, however, the region's project pipeline has already surged to 202 GW, although this includes 87 GW of projects that still need to move to the development phase. Furthermore, historical trends in the region caution against assuming a 100% realization rate, particularly for early-stage announcements in markets with complex regulatory environments. Starting from this context, the scenarios have been recalibrated for this edition (Figure 10):

- **Conservative transition:** This scenario projects an installed capacity of 165 GW by 2030. Notably, this figure corresponds to the "Balanced transition" forecast from our previous report, illustrating how the baseline has shifted upwards due to the acceleration of project delivery and announcements witnessed through 2025. This scenario takes the existing pipeline of 202 GW as a starting point and applies a discount to account for execution risk in specific jurisdictions. Historical patterns in the region show projects that underwent re-tendering, cancellation and delays, as well as waves of announcement that never turned into concrete plans. By discounting approximately 35 GW from the announced pipeline, we account for those high-risk, early-stage capacity projects, providing a prudent floor for the region's outlook.
- **Balanced transition:** In this scenario, the region successfully bridges the remaining implementation gap to fully meet its official targets. It assumes that governments follow through on their strategies and that new tenders are launched to cover the 33 GW difference between the current pipeline and the aggregated national targets. Saudi Arabia plays a pivotal role on this, with its national target (130 GW upper bound) accounting for more than half of the region's total target. By 2030, this scenario foresees the installation of 235 GW, representing a 5x scale-up from current installed capacities.

Green revolution: this optimistic scenario envisions a landscape where the region accelerates beyond its domestic grid targets to realize its full resource potential. All ambitions will be met and even surpassed, ensuring a significant boost in renewable energy deployment and the realization of a true green revolution in the MENA region. This scenario projects the installation of 290 GW of renewable capacity in the MENA region by 2030. Notably, this figure remains unchanged from our previous outlook, confirming that the region's ultimate potential remains robust despite some strategic recalibrations.

FIGURE 10: SCENARIOS TO 2030

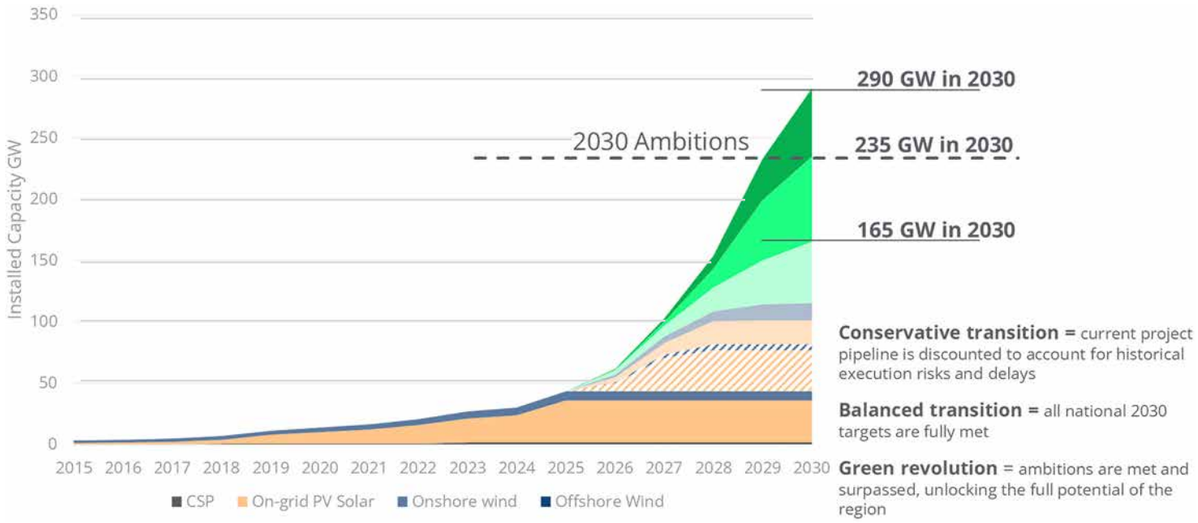


Figure 10: Proposed scenarios for renewable energy deployments in MENA region to 2030.

Hydrogen developments in the MENA region

The hydrogen narrative in the MENA region has changed significantly since the first projects were announced in 2018. The momentum accelerated quickly with a flow of announcements in the region, but it is lately facing challenges that induced some delays and stalled projects progress.

The initial surge of interest has entered a phase of visible rationalization. While the project pipeline continues to grow reaching 127 projects at the end of 2025 (Figure 11), the pace of new additions has slowed significantly compared to previous years (rising from 75 projects in 2023 to 117 in 2024). Although very few projects have been officially cancelled, it is highly likely that several early-stage initiatives have been silently abandoned or indefinitely paused.

This trend is partly driven by the implementation of selection processes in key jurisdictions. As countries like Oman and Morocco transitioned from early MoUs to formal frameworks (such as the Hydrom auctions or the Morocco Offer), legacy projects that could not adapt or failed to secure awards under these new rules have effectively been superseded. Reflecting this market consolidation, we have removed legacy projects in Oman from our tracker that were not awarded in the auction process.

For Morocco, we currently retain some earlier announcements due to scarce public information regarding their status, but it is anticipated that some will be removed in future updates as the market consolidates.

This consolidation has been accompanied by high-quality strategic expansions. A prime example in 2025 was Saudi Arabia's announcement of the Yanbu Green Hydrogen Hub. Developed by ACWA Power in partnership with Germany's EnBW (for the first phase), this giga-scale facility targets the production of 2.2 Mtpa of green ammonia by 2030, which is double the capacity of the flagship NEOM project. With 4 GW of electrolysis capacity planned, the hub is explicitly designed as a key export node to supply the European market, reinforcing the Kingdom's leadership despite the broader market slowdown.

The region's official ambitions remain largely unchanged, with national strategies still collectively targeting a production of approximately 10 Mtpa by 2030. However, a widening gap has emerged between these high-level targets and on-the-ground implementation. Progress has not kept pace with announcements, and most projects are struggling to reach Final Investment Decision (FID). The primary bottlenecks remain the lack of secured offtake agreements and persistent regulatory uncertainties.

Furthermore, the scale of infrastructure required for giga-projects has become a major barrier to bankability. To overcome this, the region is increasingly shifting towards a Common User Infrastructure (CUI) model. Instead of individual developers building isolated facilities, governments and developers are moving to establish shared utility corridors and facilities to de-risk projects and accelerate the path to Final Investment Decision (FID).

FIGURE 11: HYDROGEN PROJECT ANNOUNCEMENTS IN MENA

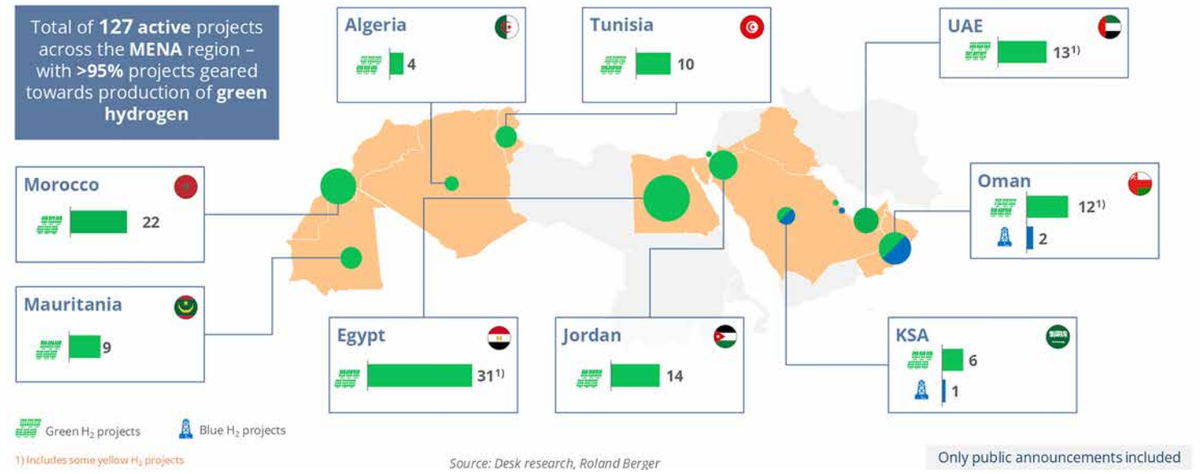


Figure 11: Overview of hydrogen projects announcements in the MENA region. Countries with only one project announced are represented by a single dot on the map. This includes Israel, Iran, Qatar, and Bahrain.

Currently, in the MENA region only two pilot projects are operational:

- **DEWA Green Hydrogen Pilot 1 Plant in UAE** that utilizes a 1.25 MW PEM electrolyser
- **Masdar-Emirates Steel pilot project in UAE** that produces green steel using green hydrogen.

At the end of 2025, only five projects reached financial close and are either under construction or set to start soon:

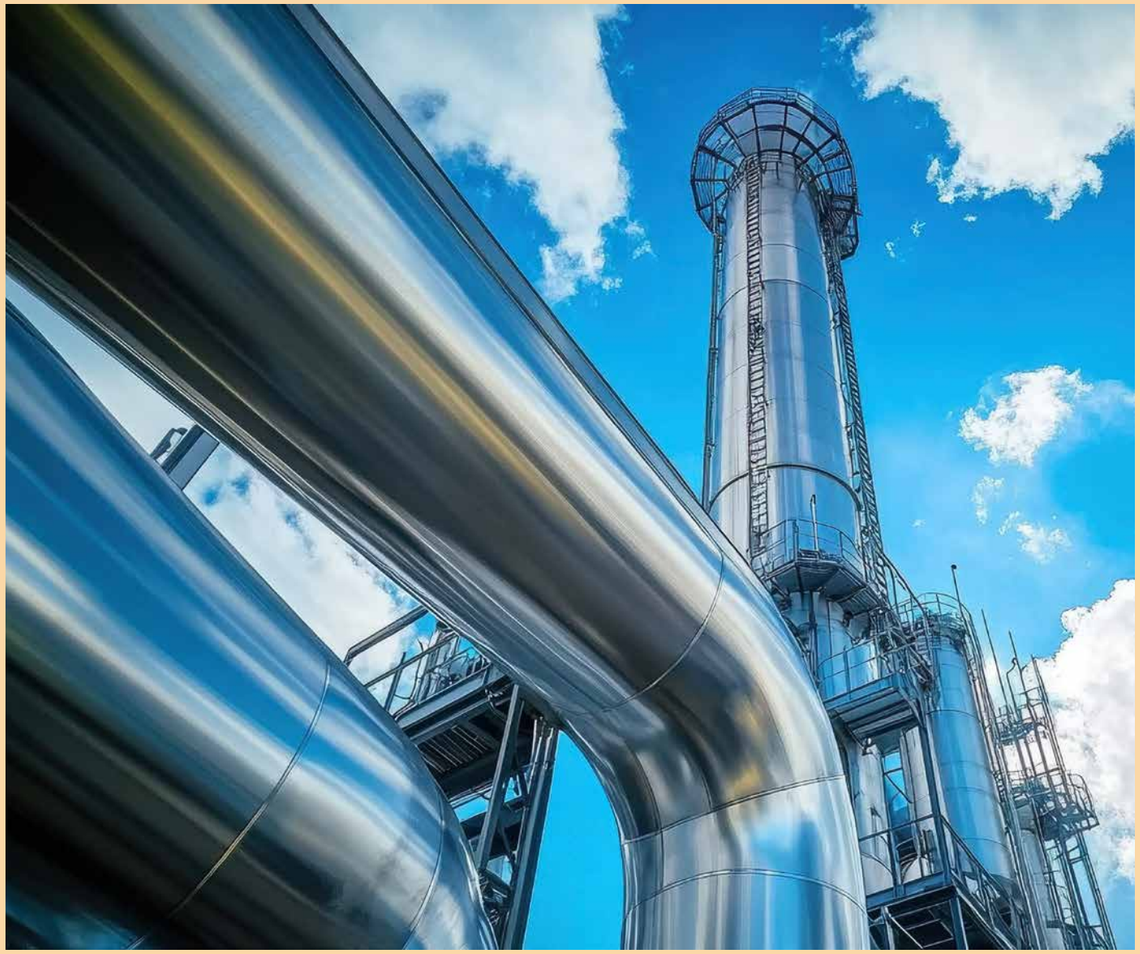
- **DEWA Green Hydrogen Pilot 2 Plant in UAE** that will utilize a 2.5 MW Alkaline electrolyser
- **NEOM Green Hydrogen project in KSA:** it achieved financial close at the end of December 2022 and it is currently under construction with estimated commissioning by Q1 2027. This world's largest project is 80% complete. A 4GW of dedicated renewable energy (solar and wind) will power the hydrogen-ammonia plant, set to produce 1.2 mtpa of green ammonia using 2.2 GW overall capacity of electrolyzers.
- **ENOWA's Hydrogen Innovation and Development Center (HIDC) demonstration plant in KSA:** it will produce green methanol (0.045 mtpa) and gasoline by end of 2025 for mobility and off-grid energy.
- **ACME Green Project in Oman:** it reached final investment decision (FID) in 2023 and secured a loan for the first phase of a Green Hydrogen and Ammonia Project. It is expected to produce 100 ktpa of ammonia, eventually expanding to 1.2 mtpa.
- **Ammonia-7 in Qatar:** developed by QatarEnergy Renewable Solutions and QAFCO, it reached FID in 2022. The facility is set to produce 1.2 mtpa of blue ammonia and started the construction phase in November 2024. However, the CCS unit has not been awarded yet.

Note: Since our last report, the TA'ZIZ Ammonia project has been excluded from the blue hydrogen category as it no longer meets the criteria of the MENA Hydrogen Tracker. Additionally, the Energy Green Pilot in Egypt has been decommissioned as the project transitions to its larger 100 MW development phase.

Focus box: Blue hydrogen struggling to implement CCS

Blue hydrogen projects are also facing significant headwinds. A prime example is the TA'ZIZ low-carbon ammonia project in the UAE. While construction has commenced on the initial 1 million tonne per annum (mtpa) facility, the project is currently designated as "lower carbon" rather than "blue". In fact, the integration of carbon capture equipment is not part of the immediate scope and the final investment decision for the full 'blue' upgrade remains conditional on firm offtake commitments[7].

As such, this project no longer qualifies as 'blue' under our current criteria and has been excluded from the MENA Hydrogen Tracker. Similarly, in Qatar, the Ammonia-7 project is under construction but faces potential delays in its low-carbon certification. It may commence operations as a conventional ammonia plant, as the specific contract for the Carbon Capture and Storage (CCS) units has not yet been awarded. Unlike the TA'ZIZ project, Ammonia-7 currently remains in the MENA Hydrogen Tracker, though it is subject to close monitoring regarding the timely deployment of its capture infrastructure.



Electrolyzer capacity planned

Public disclosures regarding renewable inputs and electrolyzer specifications remain vague. Current estimates place the region's total planned electrolyzer capacity between 200 and 230 GW (Figure 12). However, this volume is heavily concentrated: the 17 largest developments (those exceeding 2 GW) alone account for approximately 118 GW of this capacity. Crucially, the data reveals a trend towards rationalization, where early-stage 'giga-projects are being rightsized for feasibility. A prime example of this adjustment is Project Megaton Moon in Mauritania. Initially announced with a massive 35 GW scope, it has been revised down to 6 GW.

FIGURE 12: LARGEST KNOWN H2 PROJECTS BY ELECTROLYZER CAPACITY (GW)

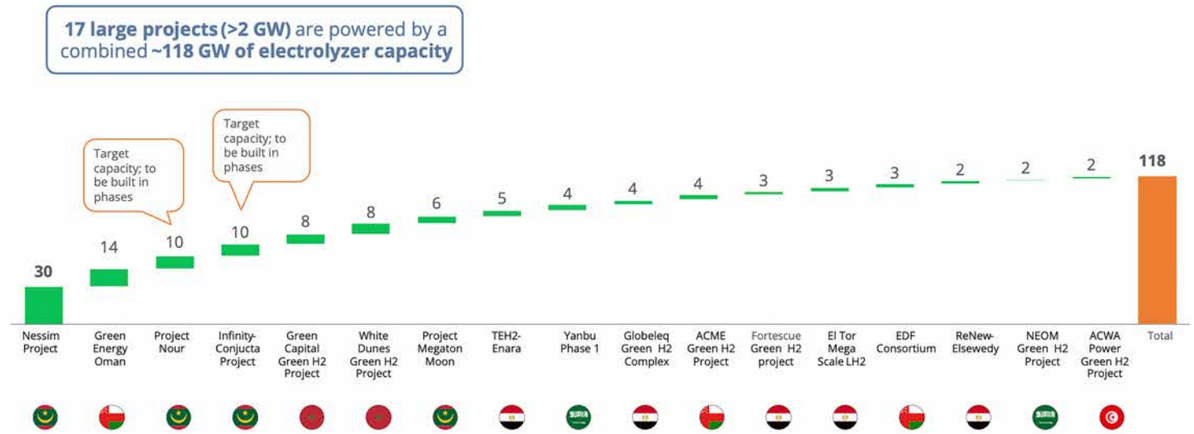


Figure 12: Electrolyzers capacities for hydrogen projects planned in the MENA region.

Green hydrogen ambitions to 2030

Despite the headwinds facing project execution, the region's high-level strategic goals remain largely unchanged from our previous report. With no official updates to published national strategies, the official hydrogen targets in the MENA region aim to produce a total of approximately 10 Mtpa by 2030 (Figure 13). Most of this volume is expected to be green hydrogen. However, another year has passed with no significant progress towards reaching these targets. While the ambition remains fixed on paper, the lack of Final Investment Decisions (FIDs) and construction starts over the last 12 months means the timeline to achieving this 10 Mtpa volume is becoming increasingly compressed.

The stability of the targets now stands in contrast to the slow pace of implementation, widening the gap between national strategies and on-the-ground reality. This increasing disparity between ambition and reality is a global phenomenon, not just a regional one.

According to the IEA's Global Hydrogen Review 2025[8], the global pipeline of announced projects has contracted for the first time, dropping from 49 Mtpa in previous estimates to 37 Mtpa, as developers deal with inflation and regulatory uncertainty. More critically, the IEA notes that only approx. 4 Mtpa of low-emission capacity has reached FID globally.

FIGURE 13: 2030 AMBITIONS

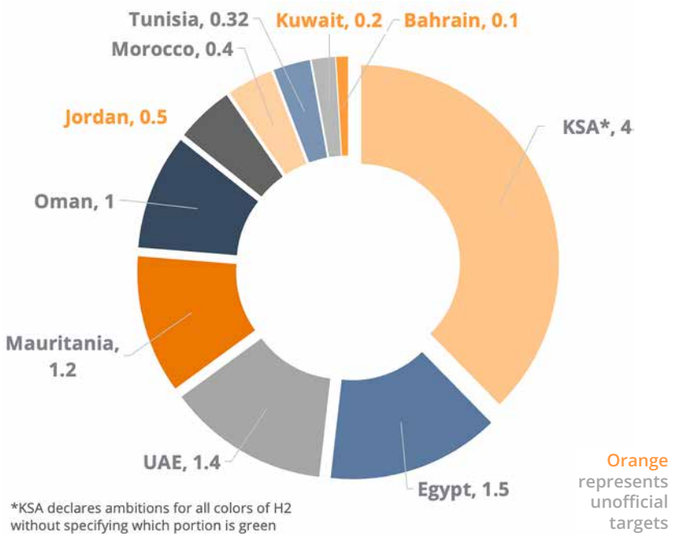
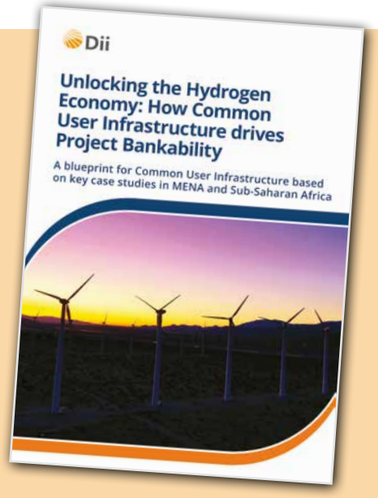


Figure 13: Declared ambitions for hydrogen production in the MENA region by 2030. Data labels for unofficial targets i.e. not part of an official strategy, are reported in orange.

Focus box: The strategic role of Common User Infrastructure (CUI) to unlock bankability



The transition from national hydrogen strategies to operational reality faces a critical barrier: bankability. Giga-scale projects require immense upfront capital for infrastructure (pipelines, desalination, transmission), creating a risk profile that often deters private investment.

Common User Infrastructure (CUI) is the indispensable strategic key to overcoming this hurdle. By pooling capital-intensive assets into a shared backbone (Figure 14), CUI dramatically lowers the investment threshold for individual developers and fosters a competitive market. However, implementing shared infrastructure introduces new layers of difficulty.

To navigate this, Dii Desert Energy's latest study "Unlocking the hydrogen economy: How Common User Infrastructure drives project bankability"[15] presents a framework that deconstructs the complexity of CUI into three distinct categories of risk, offering a roadmap for structuring financeable projects:

1. Traditional Risks: Standard challenges inherent to any large infrastructure project for which legal precedents and banking solutions are already well-established.

2. Complex Risks: Known risks that are amplified by the multi-user nature of hydrogen hubs. The most critical is "project-on-project risk," where the delay or failure of one developer could jeopardize the throughput and revenue of the entire shared system.

3. Novel Risks: Unique, hydrogen-specific challenges that require bespoke legal frameworks.

By addressing these categories systematically, CUI transforms from a mere efficiency measure into a powerful de-risking engine, turning the promise of a hydrogen economy into a tangible, bankable reality.

FIGURE 14: COMMON USER INFRASTRUCTURE AND THE CORE PRODUCTION FACILITIES

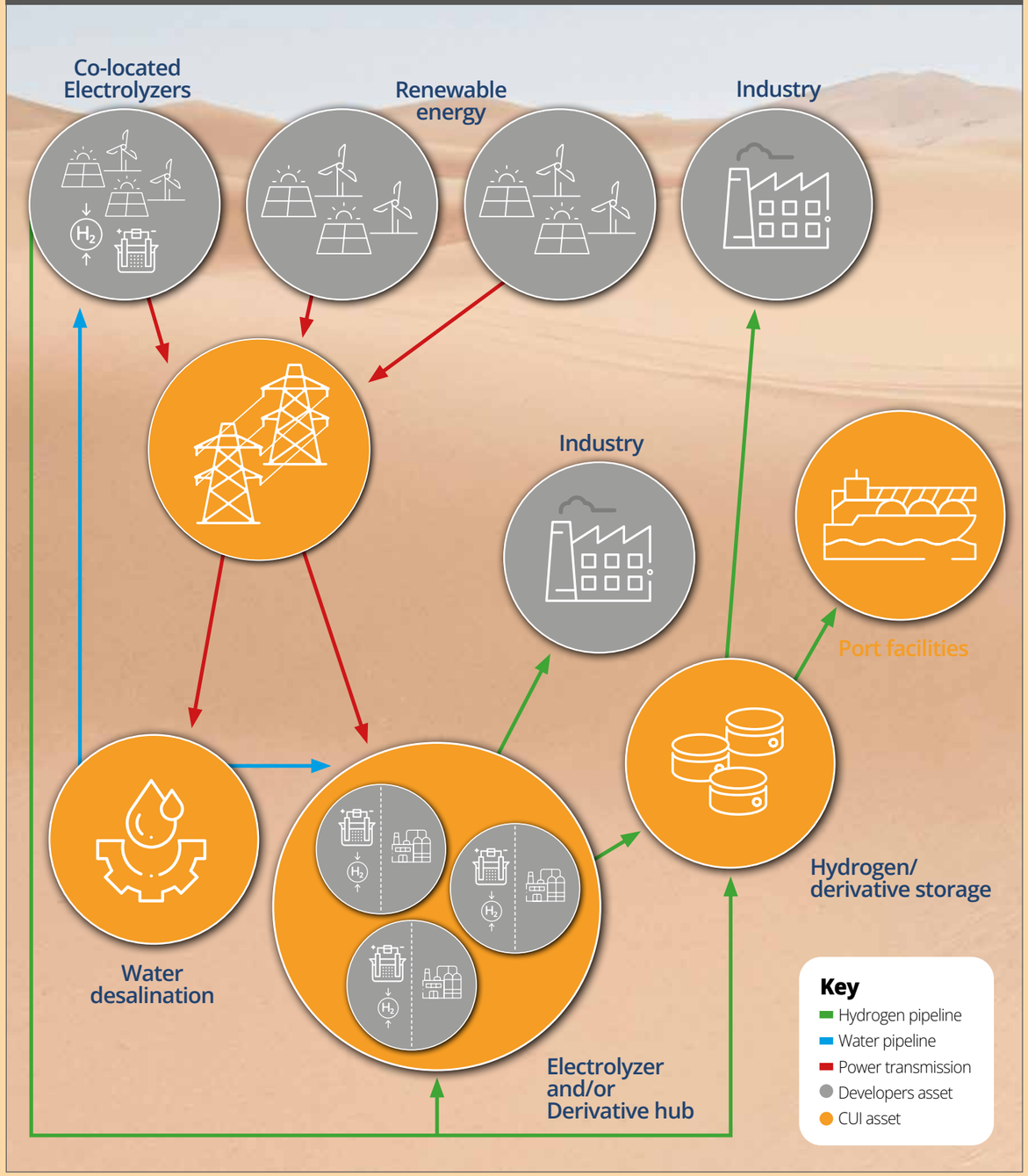


Figure 14: Overview of assets typically developed as Common User Infrastructure (CUI) (shown in color) and the core production facilities that remain within the scope of individual project developers (shown in grey). The diagram also visualizes different hub configurations. For example, renewable energy can be transmitted over long distances via a shared grid ("moving electrons") to a central production hub, or hydrogen can be produced at co-located renewable sites and transported via a common pipeline ("moving molecules") for final processing.

eSAF: The nexus of green fuels, EU Regulation, and MENA investment

The transport sector, a cornerstone of global connectivity and economic activity, faces a profound challenge: reducing emissions. With the fuel demand in the aviation and marine transport sectors projected to rise, the industry must transition to Sustainable Aviation Fuel (SAF), a certified drop-in fuel that can be used in existing aircraft and infrastructure with significant reductions in lifecycle greenhouse gas (GHG) emissions. SAF is a broad term for any jet fuel that replaces fossil fuels, while eSAF (electro-sustainable aviation fuel) is made from renewable electricity, water, and captured or biogenic carbon dioxide. eSAF is produced through synthetic pathways like Power-to-Liquid (PtL), whereas other SAFs are made from renewable sources like used cooking oil, animal fats, or agricultural waste. Electro-fuels, or eSAF, represent a particularly promising pathway due to their potential for scalability and near-zero carbon footprint.

THE MULTIFACETED BENEFITS OF GREEN FUELS

The shift to renewable fuels such as renewable methanol, green ammonia, SAF and eSAF offers a host of environmental, economic, and strategic benefits that extend far beyond simple carbon reduction.

- **Environmental Imperative:** The primary benefit of green fuels is its substantial reduction in lifecycle GHG emissions, which can be up to 80% compared to fossil-based fuel (eSAF can reachup to 90%).
- **Economic advantages:** The development of a robust green fuels industry stimulates economic growth and diversification. It creates new high-skilled jobs in manufacturing, engineering, and logistics.
- **Energy security and strategic autonomy:** By diversifying the source of aviation and maritime fuels, green fuels enhance energy security. A crucial aspect is resilience: Resilience for MENA countries to supply their own needs and to build up ecosystems and value chains in their countries and increasing resilience in Europe via production of last mile fuels, i.e. chemicals and eSAF with eMeOH produced in the MENA region.

THE EUROPEAN UNION: A CATALYTIC OFF-TAKER MARKET

The European Union has emerged as a global leader in creating a regulatory framework that mandates the transition to green fuels. For the aviation and maritime sectors, the key drivers of this demand are the ReFuelEU Aviation[9] and FuelEU Maritime[10] regulations, core components of the EU's "Fit for 55" climate package[11].

For **aviation,** the regulation sets a clear and escalating timeline for all fuel suppliers at EU airports:

- SAF blending mandate; a minimum share of 2% from 2025, rising to 6% by 2030, and a substantial 70% by 2050.
- Synthetic fuels (eSAF) sub-mandate: a specific requirement for synthetic fuels starting at 1.2% in 2030 and increasing to 35% by 2050.
- Projected e-SAF demand: This translates into a demand for eSAF in the EU of
  - 2030: 600,000 tons
  - 2035: 2.3 million tons
  - 2040: 4.6 million tons.

To put these numbers into perspective, the 2030 demand equals twice the hydrogen production of the NEOM Green Hydrogen Project, a USD 8.4 billion investment.

THE MENA REGION: AN IDEAL PRODUCTION HUB FOR GREEN FUELS

The convergence of the EU's demand for green fuels and the MENA region's natural advantages presents a compelling case for strategic investment. The MENA region possesses key ingredients for scalable green fuels production: Abundant and affordable renewable energy, available land and strategic location, and investment capacity and existing infrastructure.

Energy storage in the MENA region

The MENA utility scale energy storage market maintained its robust upward trajectory in 2025, building on the momentum established in the previous year. In 2024, the sector experienced a significant turning point, marking a transition from reliance on established thermal energy storage systems (TESS) paired with concentrated solar power (CSP) plants, towards the adoption of battery energy storage systems (BESS). BESS deployment has accelerated to gigawatt-hour scales, with new developments focusing on standalone batteries and hybrid PV+BESS solutions, which deliver significantly higher grid value than solar alone.

However, CSP coupled with TESS may still have future potential in long duration energy storage of 8+ hours (e.g. the operational Dubai DEWA phase IV comprising PV 250 MW, CSP 700 MW and TESS 5,907 MWh).

This transformation was driven by a convergence of supply and demand factors that made BESS increasingly attractive.

- On the supply side, the cost of battery energy storage has dropped dramatically, by approximately 90% over the last decade, driven by technological advancements, economies of scale and intensified global competition (Figure 15). This steep decline has fundamentally altered the economics of energy storage, making large-scale deployments financially viable for utilities and investors across the MENA region.
- On the demand side, the rapid integration of solar and wind in the region has created a critical need for reliable storage solutions to balance variable generation and maintain grid stability. As renewables become a larger share of the energy mix, the need to store excess generation and dispatch power during periods of low production will fuel the rapid expansion of energy storage capacity.

FIGURE 15: 2010-2024 TOTAL INSTALLED BATTERY ENERGY STORAGE PROJECT COST (GLOBAL)

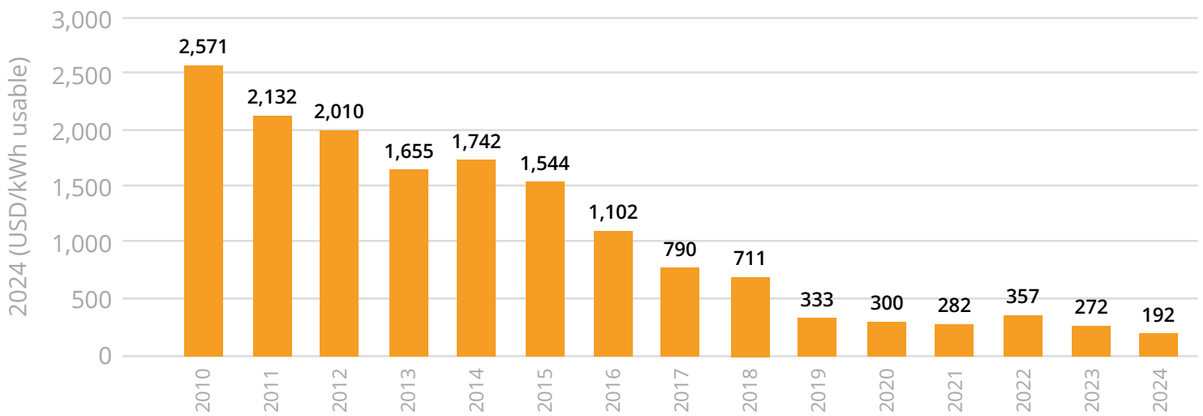


Figure 15: Historical development of Battery Energy storage costs, as of November 2025. *Data Source: IRENA Renewables Cost Report 2025.*

Geographically, the GCC region is currently leading MENA's energy storage development, with the Kingdom of Saudi Arabia and the UAE at the forefront. However, the landscape is broadening and by 2030, North African countries like Egypt and Morocco are expected to increase their share of energy storage projects. Underlying these developments is the MENA region's broader energy transition, driven by ambitious national targets, growing private sector participation, and evolving regulatory frameworks. Governments have recognised the strategic importance of diversifying their energy portfolios, reducing dependence on fossil fuels, and enhancing energy security. The adoption of BESS is central to this strategy, providing the flexibility required to integrate renewable energy at scale and support emerging clean energy markets. As costs fall and demand for low-carbon baseload grows, the region's utility scale energy market is poised for transformative expansion by 2030. In 2025, the MENA cumulative operational energy storage capacity reached 25,220 MWh, comprising 21 utility scale projects. These spread across three technologies: 50% BESS, 37% TESS and 13% pumped hydro energy storage (PHES). The MENA 2025 energy storage operational capacity is summarized in Figure 16.

FIGURE 16: MENA 2025 OPERATIONAL ENERGY PROJECTS

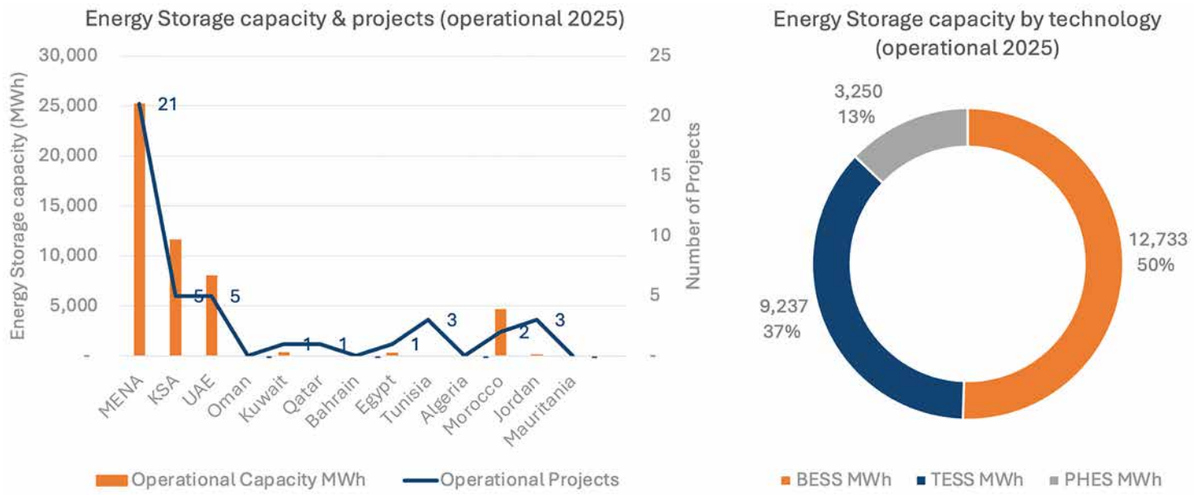


Figure 16: MENA 2025 operational Energy Storage projects by capacity, projects and technology as of November 2025.

Looking ahead to 2030, the cumulative operational energy storage capacity in MENA is estimated to reach 156,424 MWh, comprising 60 utility scales projects. These projects are spread across three technologies: 73% BESS, 6% TESS and 21% PHES. That is an impressive more than six-fold increase from current 2025 operational energy storage capacity. This means there is an expected compound annual growth rate of about 44%. The MENA 2030 energy storage estimated total cumulative capacity is summarized in Figure 17.

FIGURE 17: MENA 2030 OPERATIONAL ENERGY PROJECTS

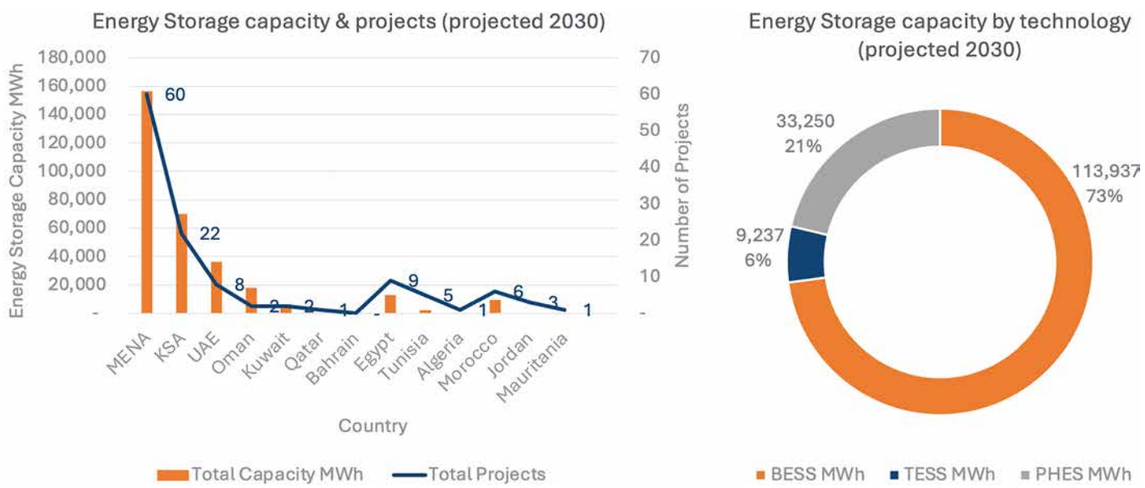


Figure 17: MENA 2030 projected Energy Storage projects by capacity, projects and technology.

Pumped Hydro (PHES): Strategic Long-Duration Storage

Pumped Hydro is emerging as one of the most viable options for medium to long duration energy storage (6-20 hours) in the region. PHES offers a wide range of benefits including energy shifting, grid services and inertia, reserve capacity and backup power. One of the latest PHES projects is UAE's Hatta 1,500 MWh project (6 hour), that was inaugurated in 2025. Activity is progressing elsewhere: Oman is assessing significant potential, with a recent study identifying up to 11 PHES sites[12], capable of hosting upto 1,000 MW / 18,000 MWh. Other key PHES projects include Morocco's Abdulmoumen 350 MW project, Tunisia's STEG Tabarka 400 MW, and Egypt's Attaqa Mountain 2,400 MW project.

Looking beyond 2030 since these projects would normally require 6 to 7 years to reach commercial operations date (COD) from final investment decision (FID) date, the KSA's NEOM PHES initiative by Enowa stands out as particularly remarkable. The initiative comprises four phases and with reported capacities at 2,200/3,000/1,000/3,000 MW. The first phase, project Nestor, is rated at 2,200 MW and 23,100 MWh (~ 11 hours) and is expected to be procured under the build, own, operate, and transfer (BOOT) model with a 40 years offtake term.

2025 MILESTONES: FIRST-OF-A-KIND (FOAK) PROJECTS

In 2025, the MENA energy storage market witnessed several first-of-a-kind (FOAK) noteworthy projects:

- In the UAE, global clean energy leader Masdar, in partnership with EWEC, broke ground on a 5.2 GW solar PV project integrated with 19 GWh of BESS, the largest and most technologically advanced of its kind in the world. This will deliver 1GW baseload renewable power for residences, businesses, industry and the AI revolution. The scale and application are unprecedented and a global first of a kind.
- Also in the UAE, the Dubai utility DEWA invited prequalified IPP bidders to submit proposal for MBR Solar Park Phase 7 project, a 2,000 MW PV project coupled with 8,400 MWh BESS storage. Once operational, this BESS project is expected to rank in the top 3 globally by project capacity at single site.
- Additionally, in the UAE, the Dubai utility DEWA commenced operations of the 250 MW / 1500 MWh Hatta pumped hydropower energy storage (PHES) project. This is the first operational PHES project in the GCC.
- In KSA, BESS projects with combined capacity of 10,400 MWh were commissioned and put into operation. This total capacity comprises four standalone BESS projects each with 2,600 MWh capacity. These projects were realized using EPC based procurement and were the first utility GWh scale in the country. Through this project, KSA now occupies the 3rd place as the largest capacity operational single site BESS project globally. The first place is the 3,300 MWh Sanborn project (USA) and second place is the 2,700 MWh Bachuxian project (China).
- In KSA, REPDO initiated the tendering process for four major standalone BESS projects, each with 500 MW / 2000 MWh capacity. These projects are realized using novel Independent Storage Provider (ISP) based procurement and are expected to come online in 2027-2028.
- In Oman, a Masdar-led consortium has been awarded the development and PPA for Ibri III, a 500 MW PV project coupled with 100 MWh BESS storage. This is the first major utility scale solar + BESS project in the country.
- Moreover, in Egypt, project developer AMEA Power commissioned the Abydos BESS project, a 300 MWh BESS facility coupled with a 500 MW PV plant. This is the first major operational utility scale BESS project in the country.
- In Morocco, ACWA Power was awarded Noor Midelt II and Midelt III PV coupled with BESS projects with total 800 MW PV and 1,204 MWh BESS. These are the first major utility scale BESS projects in the country.
- Furthermore, in Morocco, ONEE (national utility) commenced an EPC project procurement for 10 BESS sites totalling 1,600 MWh capacity. These are expected to come online in 2026. This a first for such scale and procurement type.
- In Mauritania, project developer Ewa Green Energy signed an offtake agreement with Somelec for 220 MW hybrid renewable energy (160 MW PV + 60 MW Wind) coupled with 370 MWh BESS project. This is the first utility scale BESS project in the country.

Saudi Arabia: The regional BESS powerhouse

Saudi Arabia has established itself as the largest BESS market in the MENA region by capacity. This dominance is driven by a strategic combination of multi-year public sector initiatives and consistent annual tenders. The Kingdom is accelerating deployment by utilizing a dual procurement strategy, using a mix of EPC and Independent Storage Provider (IPP/ISP) methods. Considering the timeline 2025-2030, KSA's BESS market attributes foresee strong growth (Table 4 and Figure 18):

TABLE 4: KSA BESS MARKET SNAPSHOT AS OF NOVEMBER 2025

Category	Key metric
Operational BESS status (2025)	**5 projects (11,625 MWh)**
Committed BESS pipeline	**22 projects (69,915 MWh)**
Under development/tender BESS capacity	**58,290 MWh**
Growth trajectory (2025-2030)	**~6 fold increase (43% CAGR)**

FIGURE 18: KSA 2025-2030 BESS MARKET STATUS

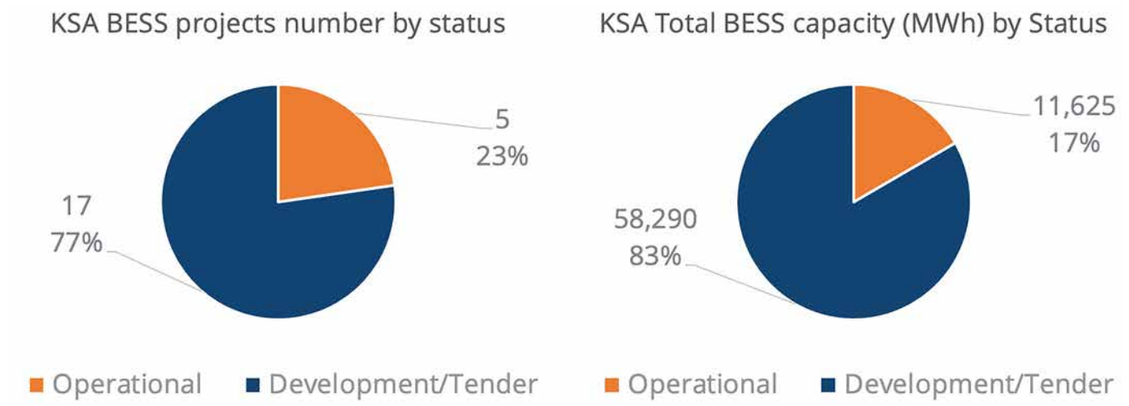


Figure 18: KSA 2025-2030 BESS Market status by number of projects and capacity

Looking forward to 2026 and beyond, the MENA region is expected to see continued growth across BESS, and PHES technologies as countries accelerate their energy transition efforts. However, caution is advised due to market uncertainties and inherent risks.

Supply chain disruptions and raw material price variability, which may arise from geopolitical tensions or global economic volatility, can affect the timely delivery of critical components such as batteries and inverters, impacting project costs and financial viability.

Additionally, evolving regulatory frameworks and policy changes within the region may introduce delays or alter the investment landscape.

Furthermore, grid integration challenges, including the need for upgraded transmission infrastructure and effective management of variable renewable energy sources, could impede the smooth scaling of storage capacity. Finally, the availability of skilled workforce and the capacity of local institutions to support rapid deployment and operation of new projects remain potential bottlenecks, albeit with varying scale and impact across MENA.

Country focus

Egypt

The current total installed RE capacity in Egypt is about **5.6 GW** at the end of 2025, and approximately **3.5 GW** is under construction (Table 5).

Looking ahead, the pipeline remains massive on paper: nearly 11 GW of projects are under development and a staggering 28 GW of additional capacity has been announced via MoUs. However, the conversion of these announcements into operational assets is facing a period of reassessment.

Following recent leadership changes in key ministries, the government has adopted a more pragmatic approach to execution timelines. This shift has led to a recalibration of the country's long-term vision. The initial ambitious target of 58% renewable energy by 2040 was revised downward to 40% in October 2024. Similarly, recent declarations have confirmed the rationalization of interim targets, with the country now aiming at reaching only 21 GW of renewables by 2030[11].

TABLE 5: OVERVIEW OF RENEWABLES CAPACITY BY STATUS IN EGYPT

Technology	Operational (MW)	Construction (MW)	Under development (MW)	Announced / MoU (MW)
Solar PV	2,522	2,195	3,840	530
CSP	20			250
Onshore wind	3,055	1,300	7,400	27,600
Total	**5,597**	**3,495**	**11,240**	**28,380**

Hydrogen: Egypt continues to lead the volume of announcements with 31 projects (Table 6), largely driven by the momentum generated during COP27. However, the conversion of these announcements into active developments has been slow, and the country now faces the most significant disconnect between ambition and realized infrastructure.

Recently, the Ministry of Electricity and Renewable Energy has indicated that several international firms have postponed implementation indefinitely[13]. Consequently, we expect to reflect this shift through a downward adjustment in the MENA Hydrogen Tracker in the coming months.

Most projects announced are strategically concentrated in the Suez Canal Economic Zone (Ain Sokhna), designed to leverage cost savings and efficiency gains through shared services such as desalination facilities and transmission corridors.

TABLE 6: OVERVIEW OF HYDROGEN STATUS IN EGYPT

H2 projects announced	2030 H2 target	Primary hub	Key offtake
31	1.5-3.2 Mtpa	Suez Canal Economic Zone (SCZONE)	Export (Green Ammonia and e-Methanol), Bunkering

Jordan

The country's total installed capacity amounts to **2.7 GW** from PV and wind projects at the end of 2025 (Table 7).

Renewables already account for approximately 27% of Jordan's electricity generation. The Ministry of Energy and Mineral Resources has recently confirmed that the previous target of 31% renewable energy by 2030 is set to be achieved ahead of schedule, likely between 2027 and 2028.

The ultimate target for the country is to reach 50% of electricity generated by renewables in future years. Utility-scale development faced a major bottleneck in 2019, when the government imposed a moratorium on new projects exceeding 1 MW to address grid stability challenges. This regulatory freeze was officially lifted in September 2024 with the launch of a new interconnection framework. This change has unlocked a new wave of investments, resulting in a project pipeline of **800 MW** for Solar PV and more than **2 GW** for wind energy.

TABLE 7: OVERVIEW OF RENEWABLES CAPACITY BY STATUS IN JORDAN

Technology	Operational (MW)	Construction (MW)	Under development (MW)	Announced (MW)
Solar PV	2,129	5		800
CSP				
Onshore wind	632			2,100
Total	**2,761**	**5**		**2,900**

Green hydrogen is regarded as a key priority of the Jordan's economic strategy outlined in the Economic Modernization Vision (2023-2033). As a result, the government has signed several agreements (Table 8). To overcome geographical constraints, notably the country's limited access to the sea, the Ministry of Energy and Mineral Resources (MEMR) is working toward a large-scale Green Hydrogen Hub in the Aqaba Special Economic Zone, setting up shared desalination, storage and export facilities.

TABLE 8: OVERVIEW OF HYDROGEN STATUS IN JORDAN

H2 projects announced	2030 H2 target	Primary hub	Key offtake
14	0.5 Mtpa	Aqaba Special Economic Zone	Export (Green Ammonia)

Morocco

The country's total installed capacity is **3.5 GW** at the end of 2025 and **150 MW** under construction (Table 9).

Morocco maintains its strategic target of reaching 52% renewable installed capacity by 2030. Future plans include about **2.9 GW** projects under development. In terms of announced capacity, alongside **1,052 MW** for Solar PV and **900 MW** for onshore wind, Morocco has also announced **1,000 MW** of offshore wind. Morocco remains a renewable energy leader in North Africa, leveraging its strength in wind energy and concentrated solar power (CSP), while finally increasing its portfolio more towards photovoltaic (PV).

While the overall pace for new utility-scale projects remains slow, OCP Group is emerging as a major accelerator of the transition. In 2025, OCP Group commissioned 202 MW of solar capacity, including the largest operational solar plant in the country (105 MW in Oulad Farès). The objective is to scale towards 1.2 GW of renewables by 2027.

TABLE 9: OVERVIEW OF RENEWABLES CAPACITY BY STATUS IN MOROCCO

Technology	Operational (MW)	Construction (MW)	Under development (MW)	Announced (MW)
Solar PV	586		1,613	1052
CSP	540			
Onshore wind	2,402	150	718	900
Offshore wind				1,000
Total	**3,528**	**150**	**2,331**	**2,952**

The Moroccan government in March 2024 published the "Morocco Offer", a strategic initiative aiming to position the country as a global competitor in green hydrogen. Working towards implementation, in March 2025 the steering committee has selected five consortia to develop six hydrogen projects.

These six projects are in addition to the Chbika project (TotalEnergies) and an OCP-ENGIE project, whose agreements were signed in 2024. As the selection process for the Morocco offer is ongoing, we continue tracking projects that were announced in previous years and are working toward formal application under this new framework (Table 10). Overall, the progress could be faster also here.

TABLE 10: OVERVIEW OF HYDROGEN STATUS IN MOROCCO

H2 projects announced	2030 H2 target	Primary hub	Key offtake
22	0.4 Mtpa	Guelmim-Oued Noun and Dakhla	Export to Europe (Ammonia and derivatives)

Oman

The country's total installed capacity is more than **1.7 GW** at the end of 2025, and **345 MW** under construction (Table 11).

With the connection of the Manah 1 and Manah 2 Solar IPPs (1,000 MW combined) to the grid, the contribution of renewables to the Sultanate's total electricity generation more than doubled to reach 11.5% by May 2025, surpassing the national target of 11% originally set for the year in the Vision 2040 Oman. The next target is to increase the renewables share in electricity generation to 30% by 2030. For this next phase, Oman is bringing wind power to the forefront, with **920 MW** currently under development. Future developments include also more than 800 MW in Solar PV.

Regarding the longer-term pipeline, additional projects have been announced, including **2.1 GW** for Solar PV, **200 MW** for onshore wind and **600 MW** for CSP.

TABLE 11: OVERVIEW OF RENEWABLES CAPACITY BY STATUS IN OMAN

Technology	Operational (MW)	Construction (MW)	Under development (MW)	Announced (MW)
Solar PV	1,687	111	826	2,081
CSP	7			600
Onshore wind	50	234	920	200
Total	**1,744**	**345**	**1,746**	**2,881**

Green hydrogen developments (Table 12) in Oman are being orchestrated by Hydrom, with an initial aim of meeting a production target of 1-1.25 Mtpa of green hydrogen by 2030. Through two rounds of auctions, Hydrom has awarded eight large-scale projects: five in the Duqm area and three in Salalah. A third round was announced in December 2024 and is currently in progress, with the final award announcement scheduled for mid-2026. In late 2025, two significant developments - the BP Duqm project and the POSCO-ENGIE project - were cancelled by mutual agreement due to evolving market conditions and offtake challenges.

Following these cancellations, seven large-scale projects are part of the active pipeline as well as other pilot and small-scale projects. Despite this consolidation, Hydrom has confirmed that the remaining portfolio is still on track to deliver the national target of approximately 1 Mtpa by 2030.

TABLE 12: OVERVIEW OF HYDROGEN STATUS IN OMAN

H2 projects announced	2030 H2 target	Primary hub	Key offtake
14	1-1.25 Mtpa	Duqm SEZ and Salalah FZ	Export (Green Ammonia & Steel), Local demand

The Kingdom of Saudi Arabia

The country's total installed capacity surged to **11.7 GW** at the end of 2025, and more than **22 GW** under construction (Table 13).

KSA has progressively increased its renewable energy targets over recent years. From an initial target of 54 GW by 2030 announced in 2012, the ambition was raised to 58.7 GW in 2019. In 2023, the Kingdom announced a strategic acceleration, aiming to add 20 GW of new capacity annually to reach a total of 100–130 GW by 2030.

Notably, this national target alone accounts for more than half of the entire MENA region's renewable energy ambition. These ambitious increases are part of a broader strategy to produce 45-50% of the country's power from renewable sources by 2030, as outlined in the Saudi Green Initiative as part of the Saudi Vision 2030. The scale of future developments is immense. The current pipeline includes nearly **8 GW** of Solar PV and **4.5 GW** of wind energy projects under development. Beyond this, an additional **22 GW** of capacity has been officially announced, setting the stage for a massive expansion of the Kingdom's renewable infrastructure.

TABLE 13: OVERVIEW OF RENEWABLES CAPACITY BY STATUS IN KSA

Technology	Operational (MW)	Construction (MW)	Under development (MW)	Announced (MW)
Solar PV	11,178	19,372	7,800	15,152
CSP	118			1,500
Onshore wind	403	3,000	4,500	5,500
Total	**11,696**	**22,372**	**12,300**	**22,152**

KSA is home to NEOM Green Hydrogen, a giga-project by the Public Investment Fund (PIF) that is pioneering global hydrogen innovation. Currently under construction and reaching 80% completion in 2025, NEOM Green Hydrogen aims at producing 1.2 Mtpa of green ammonia, powered by two dedicated 4GW solar and wind projects.

Beyond NEOM, Saudi Arabia significantly expanded its pipeline in 2025 with the announcement of the Yanbu Green Hydrogen Hub (Table 14). Developed by ACWA Power in partnership with Germany's EnBW (for the first phase), this giga-scale facility is targeting 2.2 Mtpa of green ammonia by 2030, which is double the capacity of the NEOM project.

The hub will feature 4 GW of electrolysis capacity and is explicitly designed as an export-oriented node to supply the European market.

TABLE 14: OVERVIEW OF HYDROGEN STATUS IN KSA

H2 projects announced	2030 H2 target	Primary hub	Key offtake
7	4 Mtpa*	NEOM, Yanbu (Green) Jubail (Blue)	Export (Ammonia) and Local Mobility

*the target includes also blue H2

United Arab Emirates

The country's total installed capacity is more than **7.4 GW** at the end of 2025, and **7.5 GW** are under construction (Table 15).

As the region's pioneer in climate commitments, the UAE was the first to ratify the Paris Agreement and adopt a net zero target. Its target for renewables deployment is 14.2 GW of installed capacity by 2030. The Mohammed bin Rashid Al Maktoum Solar Park, the largest single-site solar park in the world, remains a cornerstone of this strategy and has recently announced a 60% increase in target capacity for 2030, from 5 GW to 8 GW. The construction of Phase 6 is advancing, with the newly announced Phase 7 is set to add another 2 GW alongside massive battery storage.

Beyond solar, the UAE has started to diversify into wind power by leveraging advanced turbines designed for low wind speeds. The UAE Wind Program, developed by Masdar and operational in 2023, has already delivered **103 MW** across four strategic locations. In the commercial sector, regulatory barriers have been dismantled to unlock private investment. The D33 Solar PV Initiative by DEWA[14], effective since January 2024, removed the previous 1 MW cap on distributed generation introduced for Shams Dubai. Looking ahead, the project pipeline is substantial, with over **4.7 GW** of new capacity announced.

TABLE 15: OVERVIEW OF RENEWABLES CAPACITY BY STATUS IN UAE

Technology	Operational (MW)	Construction (MW)	Under development (MW)	Announced (MW)
Solar PV	6,567	7,500	157	4,609
CSP	800			
Onshore wind	103			140
Total	**7,470**	**7,500**	**157**	**4,749**

The National Hydrogen Strategy 2050 sets a target of 1.4 Mtpa by 2031, of which 1 Mtpa from green hydrogen and 0.4 Mtpa from blue hydrogen (Table 16). The UAE two pioneering pilot projects currently operational. The DEWA Green Hydrogen project launched in 2021 was the first facility in the region to use solar power for hydrogen production. In October 2024, Masdar and EMSTEEL announced the start of operations of a green steel pilot project. However, the 'blue' hydrogen pipeline faces challenges.

The TA'ZIZ low-carbon ammonia project has commenced construction, but without integration of carbon capture infrastructure. Consequently, the project has been reclassified from 'blue' to conventional ammonia and excluded from our tracker.

TABLE 16: OVERVIEW OF HYDROGEN STATUS IN UAE

H2 projects announced	2030 H2 target	Primary hub	Key offtake
13	1.4 Mtpa*	KIZAD, Abu Dhabi	Export (Ammonia) and Local Steel/SAF

*UAE has a 1.4 mtpa target by 2031, of which 1 mtpa from green H2 and 0.4 from blue H2.

The UAE is fast-tracking its low-carbon aviation leadership with projects advancing to implementation in late 2025. In Abu Dhabi, Masdar and Tadweer Group have formalized a Joint Development Agreement (JDA) for a landmark Waste-to-SAF facility utilizing waste gasification and green hydrogen. In Fujairah, MENA Biofuels has commenced implementation on the nation's first dedicated UCO-to-SAF refinery, a project expected to satisfy approximately 18% of the UAE's 2030 SAF target.

Emerging markets

ALGERIA

The country's total installed capacity is **446 MW** at the end of 2025, and approximately **2.6 GW** are under construction (Table 17).

Initially, the National Renewable Energy program aimed at installing 22 GW of renewable energy by 2030. However, recent strategic updates have recalibrated this ambition to a target of 15 GW by 2035, implying an interim target for 2030 of approximately 10 GW. The sector received a new momentum after a period of stagnation in 2021 when the "Solar 1,000 MW" was launched, and then in 2023 when a new 2 GW tender was announced. While implementation has been slow so far, the first two projects from these tenders are now advancing and are expected to become operational within the next year.

Future developments in Algeria's renewable energy sector see **600 MW** under development in PV, as many projects moved to construction phase in the last couple of years. An additional **1 GW** of wind energy has been announced. Given that the country currently has only 10 MW of installed wind capacity, this marks a pivotal step towards diversifying its renewable energy mix.

TABLE 17: OVERVIEW OF RENEWABLES CAPACITY BY STATUS IN ALGERIA

Technology	Operational (MW)	Construction (MW)	Under development (MW)	Announced (MW)
Solar PV	411	2,620	600	
CSP	25			
Onshore wind	10			1,000
Total	**446**	**2,620**	**600**	**1,000**

Following the launch of a National Hydrogen Strategy in 2023, setting a target of 40 TWh (1.2 Mtpa) by 2040, of which 30 TWh for export, the anticipated wave of new announcements has been slow to materialize (Table 18). In fact, only one new production initiative was officially announced in 2025. Beyond this, activity has largely focused on high-level international partnerships to establish the SoutH2 Corridor for future exports to Europe, rather than the launch of specific production facilities.

TABLE 18: OVERVIEW OF HYDROGEN STATUS IN ALGERIA

H2 projects announced	2030 H2 target	Primary hub	Key offtake
4	n.a. *	n.a.	Export via Pipeline (SoutH2 Corridor)

*Algeria has an H2 target starting from 2040

TUNISIA

The country's total installed capacity is **870 MW** at the end of 2025, and 120 MW are under construction (Table 19).

Despite a target of generating 30% of electricity from renewable energy, Tunisia has historically faced challenges in execution, with several large-scale projects remaining unrealized over the last decade. However, 2024 marked a turning point with the award of two Solar PV plants in the Gafsa and Tataouine governorates, alongside the first round of the concession regime program.

The current pipeline has nearly **1.2 GW** of projects under development and an additional **1.7 GW** announced. To sustain this progress, the government will need to continue addressing administrative constraints to attract developers and ensure these projects move effectively to completion.

TABLE 19: OVERVIEW OF HYDROGEN STATUS IN TUNISIA

Technology	Operational (MW)	Construction (MW)	Under development (MW)	Announced (MW)
Solar PV	625*	120	818	910
CSP				
Onshore wind	245		375	828
Total	**870**	**240**	**1,193**	**1,738**

*Most of the PV capacity is derived from the Auto Production program.

Tunisia is also moving its first steps in the hydrogen space with the National Strategy launched in 2023. According to the strategy, the country aims at producing 0.32 Mtpa by 2030. Since the strategy's launch, the project pipeline has expanded to include 10 projects, with one new development announced in 2025 (Table 20).

TABLE 20: OVERVIEW OF HYDROGEN STATUS IN TUNISIA

H2 projects announced	2030 H2 target	Primary hub	Key offtake
10	0.32 Mtpa	Gabès and South Tunisia	Export via Pipeline (SoutH2 Corridor)

IRAQ

The year 2025 marked a decisive turning point for renewable energy deployment in Iraq. The country has officially adopted a target of 12 GW by 2030 and witnessed a massive influx of new projects (Table 21). While operational capacity stands today at 22 MW, the execution pipeline has over **1.2 GW** is currently under construction, including the TotalEnergies Basra Solar Park. Furthermore, with nearly **2.8 GW** under development and an additional **8.9 GW** of announced solar and wind projects, Iraq is rapidly positioning itself as a major new market for utility-scale renewables.

Parallel to this, Iraq is reinforcing its strategic role in regional energy stability through the interconnection of its electricity grid with the Gulf Cooperation Council (GCC). This project marks the first time the GCC Interconnection Authority (GCCIA) has extended its network beyond the six member states. With commissioning planned for mid-2026, this critical infrastructure aims to supply southern Iraq with reliable power, reducing the country's dependency on costly imports and bolstering broader regional energy security.

TABLE 21: OVERVIEW OF RENEWABLES CAPACITY BY STATUS IN IRAQ

Technology	Operational (MW)	Construction (MW)	Under development (MW)	Announced (MW)
Solar PV	22	1,289	2,785	8,399
CSP				
Onshore wind				500
Total	22	1,289	2,785	8,899

Beyond MENA

CENTRAL ASIA

Renewable energy deployment in Central Asia - particularly in Azerbaijan, Kazakhstan and Uzbekistan - is gaining significant momentum, driven by strategic partnerships and international investment. Developers from the MENA region, including ACWA Power, Masdar and AMEA Power, are playing a pivotal role, exporting their expertise in gigawatt-scale project execution to unlock the region's vast wind and solar potential.

Azerbaijan is accelerating its transition with a target to generate 30% of its electricity from renewables by 2030. Masdar has emerged as a primary partner in this effort. Following the inauguration of the Garadagh Solar PV plant (230 MW) in 2023, the company officially broke ground in June 2024 on the Bilasuvar Solar PV (445 MW) and the Neftchala Solar PV (315 MW). The 240MW Absheron-Garadagh onshore wind project is also advancing and expected to start construction next year. Meanwhile, ACWA Power is awaiting commissioning of the Khizi Absheron 240 MW wind project and has been identified as the lowest bidder for a major new desalination plant in the country.

Uzbekistan remains the most active market for MENA developers, with a massive pipeline aimed at achieving 54% of of power from renewables by 2030. ACWA Power continues to lead with a portfolio exceeding 10 GW. The company successfully commissioned the Nukus 1 Wind Project (100 MW), which is now fully operational, while the Chirchiq Green Hydrogen project received its Provisional Commercial Operation Date (PCOD) certificate and has officially began delivering green hydrogen to the offtaker, Uzkimyosanoat (UKIE). Masdar inaugurated the Zarafshan wind farm (500 MW) in December 2024. The company is also developing the 1 GW wind farm in Mingbulak and a 300 MW / 600 MWh battery storage system. AMEA Power has recently signed an agreement to develop a 1 GW wind project in the Karakalpakstan region as well as a 200 MW / 800 MWh battery storage system.

Kazakhstan is targeting a 15% renewable energy share by 2035, attracting multi-gigawatt investments. TotalEnergies is advancing its Mirny project (1 GW wind + 600 MWh BESS), whose construction is set to begin in 2026. Masdar is developing 1 GW + 600 MWh BESS wind farm in the Jambyl region, with construction expected to start in 2026. Under a new agreement with Samruk-Kazyna (Kazakhstan's sovereign wealth fund), Masdar is also exploring a 24/7 renewable energy project providing up to 500 MW of clean baseload power, alongside a BESS system with a capacity of up to 2 GW.

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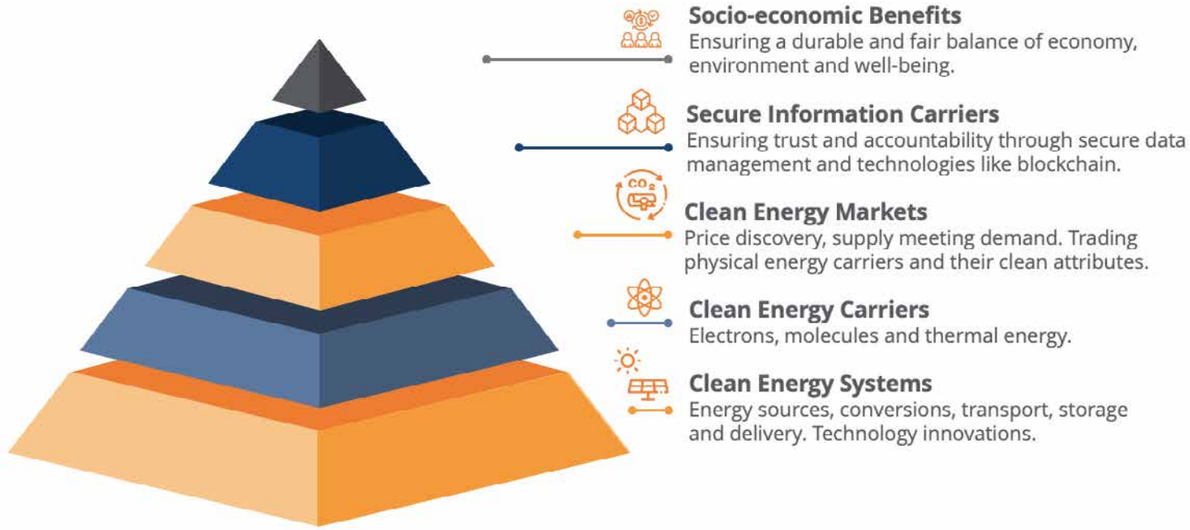
Dii Desert Energy

Dii Desert Energy is an independent think tank and international network paving the way for 'net zero emission' through secure and affordable energy from the deserts. Through Dii Desert Energy and their initiatives, MENA Hydrogen Alliance and Zero Emissions Traders Alliance, they connect over 120 companies from 36 countries with authorities and institutions to accelerate MENA's energy transition.

As part our vision and mission, Dii Desert Energy in collaboration with ZETA Global, provides impartial guidance to the development MENA as a clean energy 'Power House' for local benefits and for exporting into the global energy markets. Our Clean Energy Pyramid highlights the five fundamental building blocks of this vision.



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