

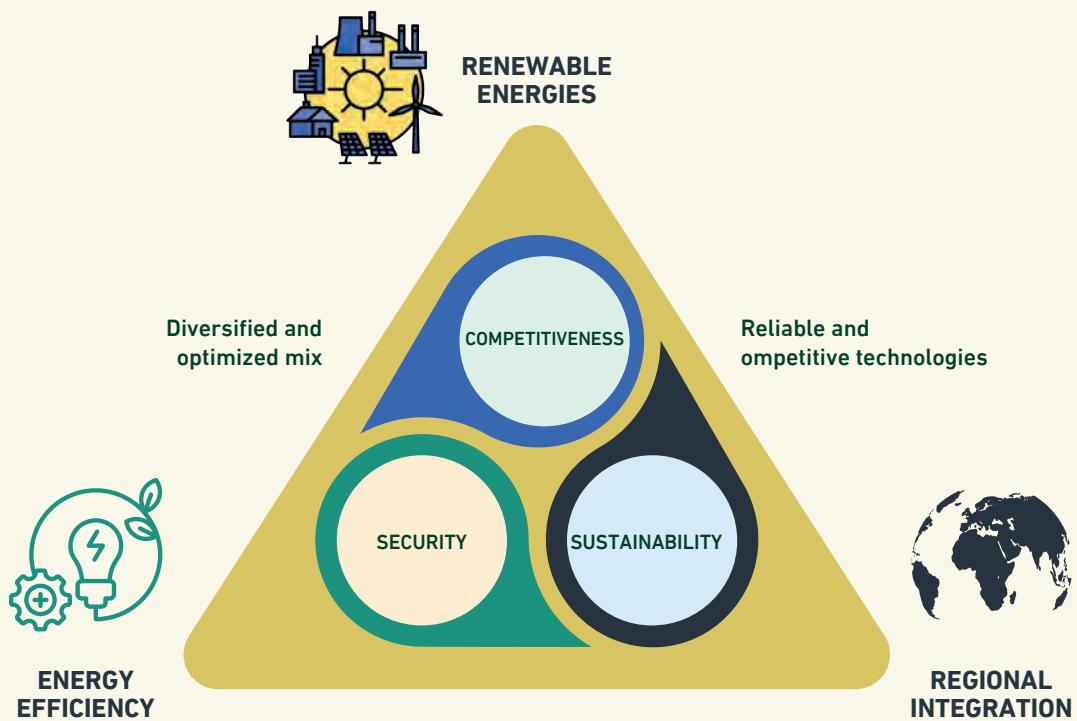


TOWARDS A SUSTAINABLE ENERGY TRANSITION IN MOROCCO



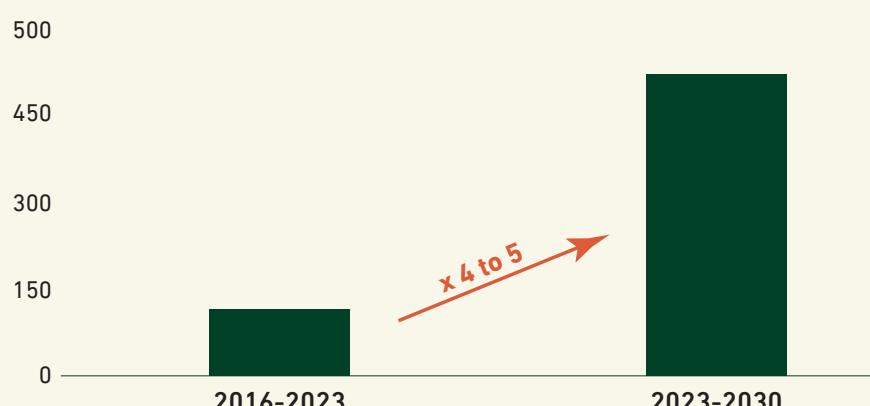
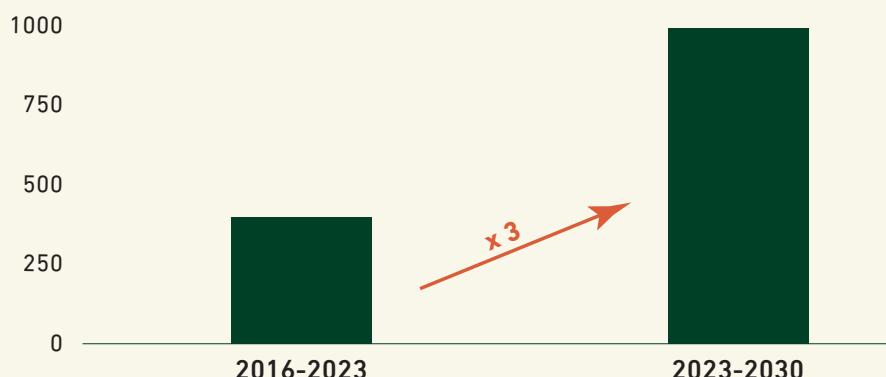
THE 3 PILLARS OF MOROCCO ENERGY STRATEGY

In 2009, the Kingdom of Morocco launched its energy strategy: deployment of renewables, promotion of energy efficiency and regional integration. This visionary strategy enabled the country to become one of the renewable energy leaders in the region.



ACCELERATION OF THE COUNTRY'S INVESTMENT PACE FOR THE TRANSITION

Need to continuously invest over \$1 billion per year in the sector for business as usual (generation and transmission).



NEED FOR FLEXIBILITY, STORAGE AND STRENGTHENED GRID

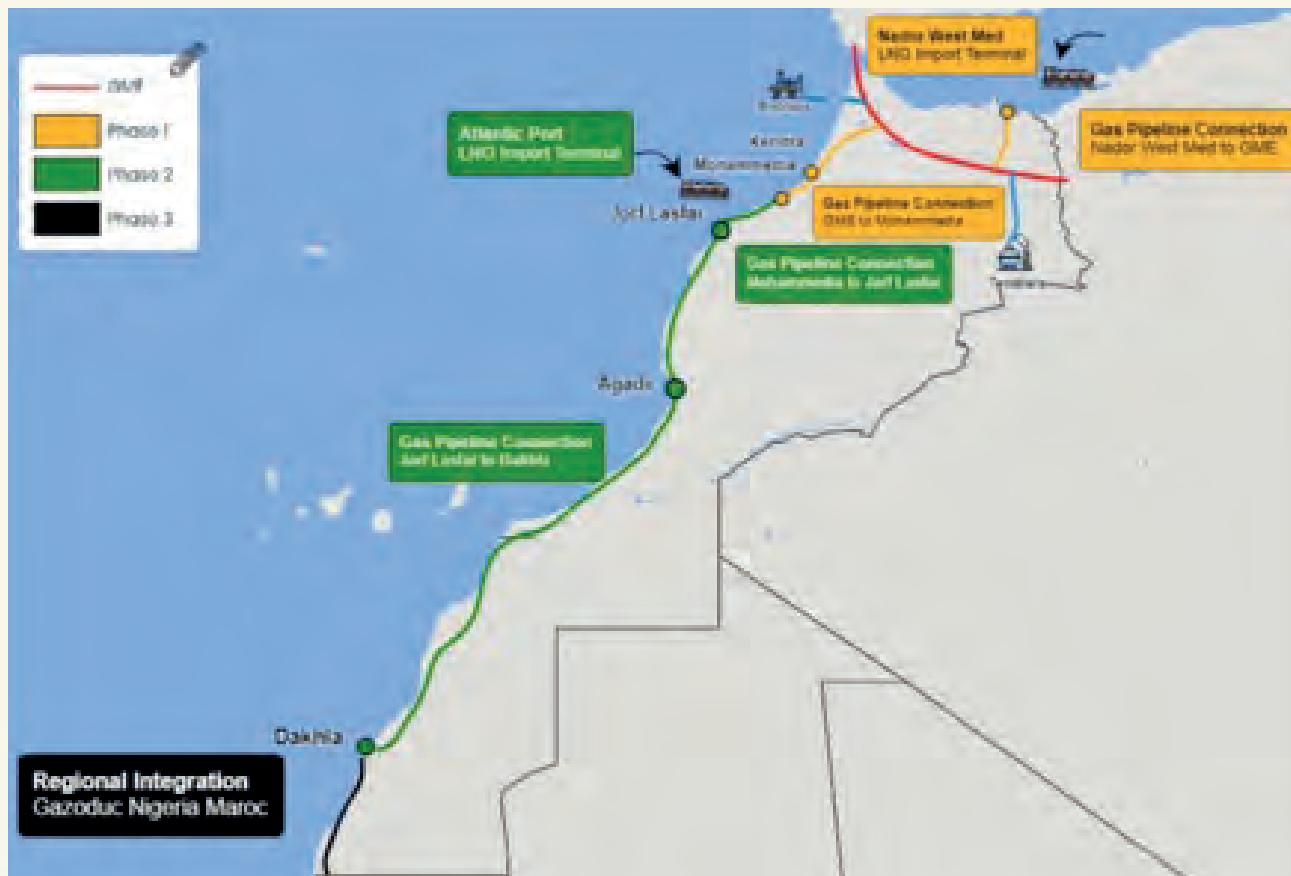
- **Natural Gas as a transition fuel:** development of additional gas power plants (CCGTs and OCGTs) to manage the intermittency of renewables.
- **Storage:** Morocco is developing Pumped-storage hydroelectricity and is also looking at large-scale Battery energy storage systems (BESS).
- **Grid:** Renewable energy dispatching, transmission network strengthening and development of new regional interconnections.



GAS INFRASTRUCTURE STRATEGY

• CONTEXT

- > Consolidating the Kingdom's energy independence.
- > Contribute to the decarbonization of the Moroccan electricity system by using natural gas as a transitional energy source (phasing out fuel oil and reducing coal consumption).
- > Fostering the development of "decarbonized" domestic industry.
- > A flexible infrastructure that can be used in the long term to transport and/or de-risk green hydrogen.



- **ROADMAP**

Phase 1: Short term (2024-2026)

- Domestic production: construction of pipelines to connect the Tendrara and Anchois production projects to the Gazoduc Maghreb Europe pipeline.
- New LNG entry points:
 - > **Port Component:** tender, construction and commercial operation start of an LNG regas terminal at the port of Nador West Med (NWM).
 - > **Pipeline Component:** tender, construction and commercial operation start of natural gas pipelines from NWM Port to the GME and from the GME to Mohammedia.
 - > Module 3: update of pre-feasibility study of an LNG regas terminal on the Atlantic coast.

Phase 2: Medium term (after 2030)

- Module 3: delivery of the Atlantic coast LNG regas terminal.
- Module 4: development of an LNG regas terminal at Dakhla Atlantic port.
- Module 5: construction of further pipelines to connect the gas network.

Phase 3: Long term

- **Regional integration:** connection to the Mauritanian and Senegalese gas networks through the African Atlantic pipeline
- **Green hydrogen expansion:** harness synergies with green hydrogen and by-products



MOROCCO'S GRID INVESTMENT PROGRAM - BUILDING A MODERN ELECTRICAL GRID FOR THE ATLANTIC CORRIDOR

- **Strengthening the 400 kV Network to support Renewables integration:** the total investment for ONEE's transmission power grid from 2024 to 2030 is estimated at approximately USD 3 bn, excluding the 3 GW South-Center transmission project.
- **South-Center 1400 km transmission line (3GW):** open to private operators in a PPP model (estimated Capex of USD 2bn).

- Strengthening of 400 kV AC power grid from southern to central regions to transmit RE generation: 2 100 km of 400 kV AC transmission lines.
- Expansion of the 400 kV network to enhance and secure electricity supply across various regions of Morocco, supporting the rapid growth of renewable energy production and rising electricity consumption: 5,000 km of 400 kV AC transmission lines.
- Establishment of new 400/225 kV injection points and reinforcement of existing substations, resulting in a total capacity increase of approximately 13,500 MVA.

