

The National Energy Strategy (NES), a strategic plan for energy transition in Morocco, was established in 2009 with ambitious objectives, aiming to diversify the energy mix and promote the development of renewable energy, and reduce the use of fossil fuels.

The integration of renewable energy resources (e.g., wind, solar, hydro, geothermal, biomass, and marine energy) into the grid presents a promising avenue, as these sources generate electricity without relying on fossil fuels. The associated costs of these technologies have significantly decreased over the past decade [11].

Beyond the advancement of renewable energy, Morocco's policy initiatives encompass energy efficiency measures in challenging-to-abate sectors, such as building insulation and the adoption of energy-saving light bulbs. The overarching objective is to achieve a 20% reduction in overall energy consumption by 2030.

As a net energy importer seeking to improve its energy security, Morocco has stepped up initiatives to achieve a level of domestic energy sovereignty. This includes following guidelines for transitioning to cleaner energy sources, with an emphasis on diversification.

Morocco is looking to increase the share of renewables in its power generation from around 20 percent today to 52 percent in 2030 and 80 percent by 2050. Four factors are the primary drivers for such ambitious plans. Morocco Needs to Import Energy. Unlike many other countries in the MENA region, Morocco is not an oil- or gas-producing country.

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Morocco's energy efficiency strategy includes an efficiency target of 20 percent by 2030, including specific energy consumption reduction targets and to implement development plans for transportation (-24%), industry (-22%), construction (-14%), and public lighting (-13%).

Engineering strategy in the building sector include (i) passive solutions, (ii) active solutions, (iii) renewable energy generation, and (iv) home energy management systems, in the Moroccan context. The literature review on passive solutions in Morocco boasts a wealth of research articles.

Furthermore, the study delves into Morocco"s advancements across these three pillars of the energy transition.
Key words: Climate resilience / Energy transition / Grid decarbonation / Energy efficiency / Energy sobriety / Kaya equation / Morocco

The model-based analysis shows that Morocco can explore its large renewable energy potential to decarbonize its economy, diversify the energy mix, eliminate inefficient energy subsidies, and plan towards a cost-effective energy system transformation, ensuring compatibility with Paris goals.

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