

ERF Policy Brief

Direction of Energizing Change: The Potential of Tunisian SMEs in the Energy Transition

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About the authors

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In a nutshell

- Tunisia's energy transition is delayed due to economic challenges, slow reforms, and the dominance of fossil fuels, thereby hindering progress toward employing renewable energy (RE).
- Micro, small, and medium-sized enterprises (MSMEs) are vital to Tunisia's economy but struggle with energy efficiency and market reach, limiting their impact on the energy transition.
- While MSMEs are aware of solar and wind energy, they lack an understanding of broader energy concepts, highlighting the need for targeted education.
- The adoption of RE in Tunisia presents barriers like regulatory and financial challenges, requiring tailored strategies and collaboration.
- The energy transition offers economic opportunities for marginalized groups, particularly youth and women, through targeted programs that promote inclusion and empowerment.

Introduction

The energy transition in Tunisia represents a strategic shift toward sustainable growth and climate change mitigation. The country aims to reduce energy demand, increase renewable energy (RE) production, and decrease greenhouse gas emissions. This demonstrates a proactive effort to enhance environmental protection and foster an ecological transition. However, the transition involves broader economic and sociopolitical shifts, not just changing energy sources. Tunisia's energy sector is currently facing two contrasting narratives. On the one hand, it emphasizes resource exploitation for export. On the other hand, it advocates for a just, inclusive, democratic, and community-centered approach to energy projects. This dichotomy presents challenges when making decisions in the face of competing interests.

Tunisia is currently facing economic challenges due to fluctuating growth rates, which have been worsened by the COVID-19 pandemic. Despite proactive energy management since the 1980s, energy consumption patterns remain inefficient, particularly in the micro, small, and medium-sized enterprises (MSMEs) sector due to limited investment in energy efficiency. Progress toward a sustainable energy landscape is hindered by bureaucratic inertia, limited investment, and a complex international context.

The country is committed to sustainable development agendas such as Agenda 2030, and its ambitious nationally determined contributions (NDCs) aim to combat climate change, both internationally and regionally. To achieve these goals, substantial investments in the energy sector are necessary, as this sector is crucial in promoting energy efficiency and the adoption of renewable sources. Tunisia has integrated climate considerations into its planning, as demonstrated by strategies such as the National Strategy for Low Carbon Development and Resilience to Climate Change.

This policy brief examines Tunisia's energy transition dynamics with a focus on MSMEs. It is based on the research that combines quantitative and qualitative approaches to analyze the role of MSMEs in Tunisia within the clean energy transition context. The quantitative data, sourced from an Economic Research Forum (ERF) survey, covers 300 SMEs across 17 sectors in various Tunisian regions, forming part of a broader study in six MENA countries. For qualitative insights, interviews were conducted with 34 key stakeholders, including experts, banking professionals, NGO representatives, government officials, and

MSME representatives. This diverse sample ensures comprehensive insights into the challenges and opportunities faced by MSMEs in promoting inclusive and equitable growth.

A delayed energy transition

The energy transition in Tunisia is experiencing significant delays due to economic, energy, and social challenges. The country's economic recovery slowed down in the first half of 2023, mainly due to severe drought, uncertain financing conditions, and slow government reforms. The agricultural sector in particular experienced a nine percent contraction in value-added due to persistent below-average rainfall. In the first half of 2023, the Tunisian economy grew by only 1.2 percent in real terms, indicating a modest recovery compared to previous years.

Additionally, primary energy resources decreased by five percent by the end of November 2023, primarily due to a decline in the domestic production of crude oil and natural gas. Despite this decline, domestic oil and gas production still represents a significant share of Tunisia's primary energy resources. The share of RE resources in the total primary energy supply remains low at only one percent, despite policy declarations favoring increasing these shares. At the same time, the demand for primary energy decreased by six percent between the end of February 2023 and the end of February 2024. Natural gas demand decreased by 13 percent, while petroleum product demand increased by two percent.

However, despite Tunisia's vast oil and gas reserves, the country has been facing energy shortages since the late 1990s. To address this issue, the transition toward clean energy is gaining momentum and urgency. Currently, only 59 percent of the nation's energy demands are being met, leading to increased energy imports and rising energy bills. Although efforts have been made to promote RE, fossil fuels continue to dominate Tunisia's power industry. This transition to cleaner energy sources is particularly hindered by the strong market power of fossil fuel monopolies.

Private companies in Tunisia are collaborating with international investors and local stakeholders to invest in RE solutions, such as solar and wind power generation, in order to reduce dependence on fossil fuels. There are also government efforts to upgrade the energy infrastructure and foster research and development in clean energy technologies, with the aim of utilizing advanced technologies to harness renewable resources



and improve energy efficiency. To finance these projects, partnerships with private banks—including the Sustainable Use of Natural Resources and Energy Finance (SUNREF) credit line—have been established. However, challenges remain due to existing regulatory frameworks that require transparency and alignment with investor interests. Private sector engagement is crucial for Tunisia’s transition to sustainable energy despite the obstacles.

On the other hand, the varied social impacts of the energy transition call for a new social contract that guarantees the fair distribution of benefits, employment impacts, and access, in addition to fostering social cohesion. While the shift toward RE has the potential to generate employment opportunities and empower communities, it also presents challenges in bolstering local development and reducing regional disparities. Regulatory frameworks and implementation issues are hindering private sector involvement in RE projects, despite the sector’s potential to drive innovation and investment.

Are MSMEs the drivers of the energy transition?

Tunisia’s economy relies heavily on very small enterprises (VSEs) that make a significant contribution to the GDP and employment. VSEs, however, face challenges in terms of energy efficiency and economies of scale. The sectoral distribution of MSMEs highlights diverse industrial engagement, with sectors such as agriculture, textiles, and construction playing vital

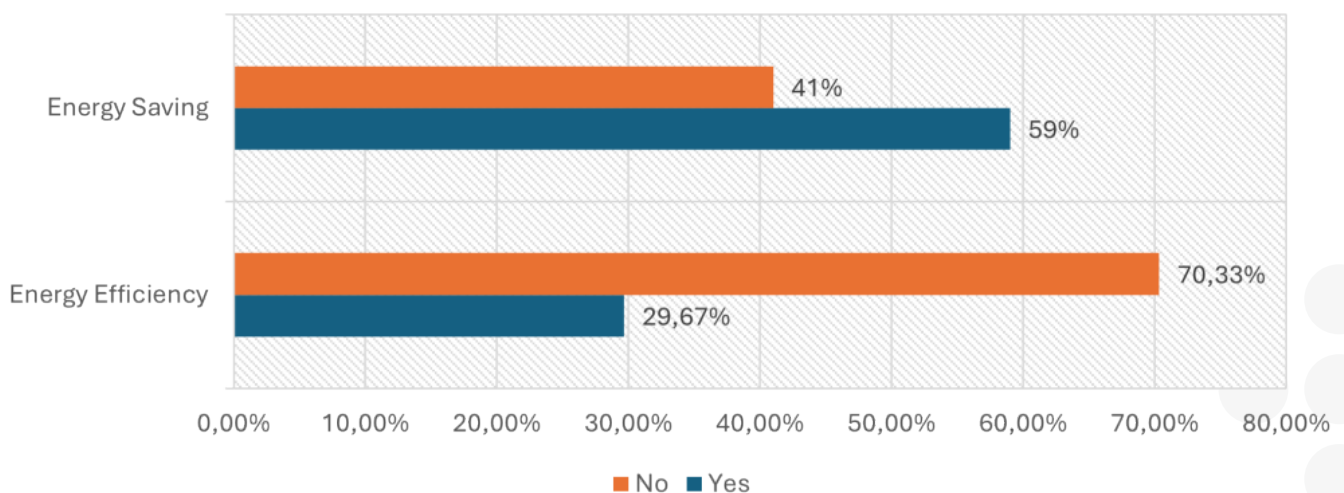
roles. Nevertheless, their growth is hindered by limitations in market reach and energy efficiency. Economically, there is a concentration of activity in the coastal regions, which leads to disparities with the interior regions. The workforce is biased toward VSE structures, which has implications for investment capacity and operational flexibility. Demographically, MSMEs employ a significant proportion of young workers, but their potential is limited by constraints in resource availability and adequate infrastructure. Gender disparities are also evident in ownership, leadership, and employment, indicating obstacles to inclusive growth.

MSMEs’ awareness of the energy transition

The level of awareness of the concept of energy varies among MSMEs. While they are knowledgeable about RE, they lack an understanding of other important energy concepts such as clean energy, energy efficiency, and energy intensity. Targeted educational programs are crucial for bridging knowledge gaps and equipping MSMEs with the necessary tools to innovate and compete in a green-oriented global marketplace. Strengthening the knowledge base of MSMEs is essential for promoting sustainability and positioning Tunisian businesses as leaders in the sustainable energy transition that foster economic growth while respecting the environment.

Solar and wind energy are widely known due to their prominence in the RE sector. However, other renewable sources such as hydropower, geothermal,

Figure 1. Comparative awareness of “energy efficiency” vs “energy savings” among SMEs



Source: Ben Youssef et al. (2024).



green hydrogen, and biomass are less recognized. This indicates a need to broaden the focus of RE education. Although MSMEs are aware of the immediate benefits of clean energy, they need to deepen their understanding of the broader impacts and benefits, including global environmental concerns. By improving MSMEs' understanding of all aspects of RE, Tunisia can enable businesses to make informed decisions that contribute to both local economic development and global sustainability goals. This would ultimately enhance the sector's competitiveness and sustainability.

Advantages and challenges of the use of renewable energies

The analysis of economic and environmental factors related to RE deployment in Tunisia reveals varying perspectives from different professional fields. This highlights both the benefits and challenges associated with the adoption of RE. Although most survey respondents acknowledge the economic benefits of RE, such as financial advantages, improved competitiveness, a cleaner environment, and the importance of sustainability and green wealth creation, concerns persist regarding the practicality of integrating RE into existing energy systems, dealing with high upfront costs, and the need for strategic planning. Perspectives on the deployment of RE in Tunisia differ across sectors. Researchers, experts, NGOs, government officials, and MSMEs each offer unique insights shaped by their operational realities and priorities.

The adoption of RE is impeded by various obstacles, such as regulatory, financial, institutional, technological, skill shortage, bureaucratic, and awareness-related challenges. Tailored and collaborative strategies are necessary to overcome the financial constraints faced by small and medium-sized enterprises (SMEs) in adopting RE technologies, as each sector faces unique challenges reflective of its specific context.

Assessment of energy transition progress

The evaluation of Tunisia's energy transition provides a nuanced perspective on the obstacles and possibilities of promoting RE adoption. There is sluggish advancement, with professionals expressing apprehension about the absence of resolute political backing, clear policies, and effective implementation. It is widely agreed across various sectors that significant improvements are needed in energy transition efforts. There is significant expenditure on electricity among businesses, with a notable number allocating a substantial percentage of their operating costs to energy expenses. This

fragment highlights the economic challenges that firms encounter and the importance of addressing energy costs through sustainable solutions. Furthermore, government support is not satisfactory and delays the energy transition process.

The comprehensive assessment of Tunisia's energy policy reveals widespread concerns about the lack of a clear strategy, policy clarity, and stakeholder involvement. There is a need to review and improve energy policies to effectively address energy and environmental requirements. The consensus across sectors highlights the significance of a collaborative and inclusive approach to policy design and implementation while considering the diverse perspectives and needs of stakeholders.

Strategies and commitment to the energy transition

The evaluation of institutional strategies and dedication to the energy transition in Tunisia offers insights into the diverse landscape of involvement across different sectors. Some institutions demonstrate proactive engagement and the strategic integration of energy transition goals into their operational frameworks, while others show a lack of commitment or are in the early stages of engagement. In the banking and finance sector, institutions have varying levels of engagement with RE projects; some actively invest in these initiatives, while others only demonstrate superficial commitment. Similarly, non-governmental organizations (NGOs) also display different degrees of commitment to climate change and sustainability goals; some align their activities with energy transition initiatives, while others may not prioritize them.

There is a clear dichotomy in engagement among MSMEs, with some companies actively pursuing energy transition strategies, while others show little to no involvement. This disparity in engagement levels can be attributed to challenges such as financial constraints, limited resources, and a lack of clear strategies. While some companies have adopted RE technologies and integrated them into their operations, others cite barriers such as financial constraints, operational limitations, and infrastructure challenges. However, there is a growing trend toward sustainable practices, with a significant proportion of survey respondents reporting active use of RE.

The adoption and use of RE in Tunisia are influenced by various drivers and barriers, reflecting the complex dynamics of each sector. Institutions committed to the



energy transition and specific technologies are more likely to adopt RE, while others face challenges such as financial constraints, operational limitations, and external market exposure issues.

Support mechanisms and energy savings

The evaluation of support mechanisms for adopting clean energy and committing to the energy transition in Tunisia indicates a consensus among various professional actors regarding the necessity of more robust and integrated support systems. However, the nature and extent of the improvements required vary across sectors, highlighting the multifaceted challenges on the path to sustainable energy adoption. Financial constraints also hinder the impact of initiatives such as the National Agency for Energy Management (ANME) and the Program for Energy Efficiency and Substitution (PEESE). Furthermore, there is a call for a more holistic approach that extends support beyond financial aspects to include technical and policy support.

MSMEs identify inefficiencies, lack of clarity, operational barriers, and bureaucratic challenges as major obstacles to accessing support mechanisms. Current mechanisms are insufficient in meeting the changing and varied requirements of the transition to and deployment of clean energy. Access to information is a critical aspect of support mechanisms, with many SMEs lacking the necessary operational information for energy management and planning. Improving information dissemination to facilitate informed decision-making regarding energy efficiency initiatives is also essential. Moreover, the data indicate that there are varying levels of engagement in energy efficiency measures among Tunisian MSMEs, with a significant number not actively pursuing energy savings through efficiency. This is due to a lack of understanding of energy efficiency practices and minimal training in energy conservation, which further compounds the challenges faced by these enterprises.

The optimal future of the energy transition in Tunisia

The future of the energy transition in Tunisia shows great potential, with regional cooperation being a key driver. Collaborating with neighboring North African and Mediterranean countries offers numerous advantages, including resource sharing, technological expertise, and cost reduction. By leveraging its geographical location, Tunisia can engage in cross-border energy projects, facilitating the exchange of RE resources such

as solar and wind power. Such collaborations can also help address common challenges in the energy transition, such as regulatory frameworks and infrastructure development, while fostering innovation and research. It is crucial for Tunisia to set ambitious objectives in its energy transition journey. The country plans to increase RE production to 35 percent by 2030 and 50 percent by 2035, aiming to stimulate green energy projects through substantial investments and international calls for tenders. Efforts to reduce dependence on gas and diversify the energy mix toward sustainable sources are vital, as RE currently represents only a small fraction of Tunisia's energy production.

However, political instability poses significant constraints to Tunisia's energy transition efforts. High turnover in the Tunisian Ministry of Industry, Energy, and Mines and inconsistent policies have hindered reforms and foreign investment. Despite recent initiatives to develop a comprehensive energy strategy for 2035, challenges persist. These include resistance from stakeholders such as unions and the Tunisian Electricity and Gas Company (STEG).

Yet, the Tunisian energy sector offers many opportunities for economic growth and innovation, spurred by initiatives such as the European Green Deal and increased connectivity with Europe. To attract foreign investment and achieve sustainable energy goals, it is essential to strengthen infrastructure for petroleum products, promote RE investments, and reform energy governance. By assessing economic, environmental, and social factors, feasibility studies and change agents play a crucial role in informing Tunisia's energy transition. These studies guide decision-making and ensure that energy policies prioritize sustainability, equity, and community participation. Moreover, they can identify opportunities for investment and technological innovation in RE projects. The government, civil society organizations, the private sector, and educational institutions all play pivotal roles in driving Tunisia's energy transition. By enacting supportive policies, raising public awareness, fostering innovation, and nurturing future leaders, these agents can collectively drive Tunisia toward a sustainable energy future.

Additionally, the country is currently undergoing a significant transformation in its technological landscape, with the emergence of advanced technologies such as artificial intelligence, blockchain, and robotics, and substantial investments are being made. However, there are concerns about the direction of these technologies, particularly in the context of the energy transition and climate technology. Historical precedents show that certain technologies have been developed to maintain



the dominance of specific firms or countries. The country recognizes the potential of technologies such as CO₂ sequestration, green hydrogen, and battery advancements in addressing climate change and achieving sustainability goals. Therefore, active participation in shaping their development is necessary. Tunisia aims to balance the adoption of emerging technologies with their ecological impact to facilitate a meaningful ecological transition. The country is also pursuing collaborations with international partners and strategic investments in key areas.

Building new jobs and skills for the energy transition

The energy sector in the Middle East and North Africa (MENA) region is experiencing a significant shift toward green energy sources, such as solar and wind power. This transition is motivated by factors such as cost reduction, resource potential, favorable financing conditions, and economies of scale. Despite the promising growth in green energy, the sector remains male-dominated, with women representing a small fraction of the workforce, particularly in technical and managerial roles.

RE projects in Tunisia, particularly in solar power, are generating employment opportunities in the manufacturing, installation, and innovation of energy storage and grid management technologies. Furthermore, investments in wind energy projects along the coastline are creating job prospects for skilled workers in turbine installation and maintenance. The commitment to sustainability extends to energy efficiency and environmental conservation efforts, creating roles for energy auditors, sustainability consultants, and conservation specialists.

While there is optimism about the creation of new job opportunities, there are also concerns about workforce readiness and the need for specialized skills. The transition is expected to reshape the labor market, with an increasing demand for green jobs in RE, energy efficiency, waste management, and sustainable mobility. However, there are challenges related to workforce reallocation and the evolution of existing sectors that require supportive policies and educational initiatives. Regarding social inequalities and gender issues, survey respondents have different opinions on the impact of the energy transition. While some express uncertainty, others anticipate a positive effect on reducing inequalities, including gender disparities. However, there is also skepticism about whether the transition will directly address the systemic issues that cause

social inequalities. Some survey respondents emphasize the necessity of targeted action, such as affirmative programs, to address gender disparities in the energy sector.

A diverse skillset is essential to underpin Tunisia's transition to RE in the future. Proficiency in RE technologies, adaptability to changing dynamics, the presence of cross-cultural communication skills for collaboration, and a comprehensive understanding of regulatory frameworks and energy policies are all essential skills for individuals to contribute to propelling Tunisia toward a sustainable energy future and driving change within the sector and beyond.

Recommendations

This policy brief outlines a number of practical recommendations, which are detailed below:

Adopt accountable government policies: Governments should adopt policies that prioritize accountability in addressing climate change and promoting RE projects. This entails establishing transparent mechanisms for monitoring and evaluating governmental actions related to environmental initiatives. By holding governments accountable, stakeholders can ensure that decisions align with sustainability goals and foster trust among citizens and businesses.

Implement industry-specific mechanisms: It is important to recognize the diverse challenges faced by different industries and implement industry-specific mechanisms to address them. This involves conducting a thorough analysis of each sector's requirements and tailoring policies accordingly. By customizing solutions, policymakers can maximize effectiveness and ensure that no sector is left behind in the transition to RE.

Advance STEG's RE capabilities and streamline procedures: Prioritizing RE in STEG is a crucial step in advancing a sustainable energy framework in Tunisia. Stakeholders' emphasis on the need for STEG to become a leader in RE highlights the company's pivotal role in the transition, reflecting the necessity of significant investments in infrastructure, technology, and workforce development tailored to RE. Additionally, simplifying procedures within STEG and improving project development efficiency are key to supporting a smoother energy transition.

Introduce market competition: Ending STEG's exclusive rights to sell electricity would invigorate the energy sector with competition and innovation. Increased competition stands to increase market dynamics and efficiency,



thereby driving the development of innovative solutions. Digitize administrative processes: The digitization of administrative processes would increase efficiency and reduce bureaucratic time in the implementation of energy projects. Developing digital platforms, training staff, and converting existing procedures to digital formats are essential steps in this medium-term strategy.

Improve access to finance for MSMEs: Enabling MSMEs to access finance for energy transition projects is critical. The creation of public-private partnerships and green investment mechanisms plays an important role in providing the necessary financial support for large-scale energy transition projects. This would foster new financial collaborations and infrastructures. Such financial support is critical to launching and sustaining RE projects, facilitating the participation of a wide range of business entities in the energy transition.

Promote energy efficiency and sectoral technological innovation: The transition to energy-efficient buildings and the adoption of advanced technologies across sectors are critical components in the medium term. This transition requires an overhaul of building practices and the integration of cutting-edge technologies. This strategy reinforces the importance of taking immediate action to achieve long-term sustainability goals.

Improve education and public awareness: Developing comprehensive education and awareness initiatives about environmental and energy challenges is essential to fostering a societal ethos that embraces sustainable energy practices. This long-term effort would help change attitudes and cultivate a supportive culture for energy transformation.

Create dedicated RE subsidy programs: The establishment of a special subsidy program for MSMEs that are transitioning to RE is essential. This would reduce the financial burdens associated with adopting green technologies, with the consensus among survey respondents being: “Subsidy programs need to be tailored to help businesses manage the upfront costs of adopting RE.”

Promote the broader participation of all groups and stakeholders: Encouraging inclusive participation would avoid structuring the transition as a top-down process and make it a collaborative societal project. This medium-term recommendation is intended to accelerate technological advancement and efficiency in the energy transition. As one survey respondent from the financial industry suggests, “By stepping back, the government can pave the way for private sector ingenuity and

drive in the RE sector,” recognizing the indispensable contribution of the private sector to the energy transition. Incentivize clean energy adoption: Educating businesses about the incentives and benefits of adopting clean energy is a critical strategy that would highlight the economic and environmental benefits and motivate businesses to become more actively involved in the transition. Moreover, the provision of tax incentives would present a medium-term financial strategy that would increase the attractiveness of the sector.

Promote inclusive economic opportunities for marginalized groups: To ensure that the economic benefits of the energy transition are inclusive, it is essential to create targeted programs aimed at empowering marginalized groups, particularly youth and women. This can include offering training and skill development initiatives tailored to these groups, as well as providing financial incentives and support for their participation in the RE sector. By fostering entrepreneurship, leadership opportunities, and job creation in green technologies, these programs can help bridge economic disparities and ensure that the benefits of the energy transition are equitably distributed. Additionally, policies should encourage the active involvement of youth and women in decision-making processes related to energy projects, thereby promoting their empowerment and inclusion in the broader sustainability agenda.



