

# ERF Policy Brief

## Empowering MSMEs in Jordan: Driving Sustainable Economic Growth through the Renewable Energy Transition

Ibrahim Saif and Ahmad Awad

### About the authors

*Ibrahim Saif is the CEO of Jordan Strategy Forum. He is also a Policy Affiliate at ERF.*

*Ahmad Awad is the founder and director of the Phenix Center for Economic and Informatics Studies, based in Amman, Jordan.*

### In a nutshell

- *Micro, Small, and Medium Enterprises (MSMEs) constitute over 99% of Jordan's enterprises and employ 60% of its workforce. Despite their economic significance, MSMEs face challenges such as limited access to finance and regulatory hurdles. This policy brief examines how MSMEs can contribute to and benefit from Jordan's renewable energy (RE) transition.*
- *Jordan's renewable energy sector has grown from less than 1% of the energy mix in 2014 to 21% by 2021, with a target of 31% by 2030. MSMEs are strategically positioned to play a key role in this transition by engaging in decentralized energy production, leveraging innovation, and contributing to job creation.*

#### Opportunities:

- *MSMEs can benefit from technologies like solar PV and small wind turbines, producing energy locally, reducing costs, and enhancing energy security, especially in underserved areas.*
- *MSMEs can develop energy-efficient technologies, energy storage solutions, and green consulting services, fostering economic growth and competitiveness.*
- *The RE sector offers opportunities for MSMEs in installation, maintenance, and manufacturing, contributing to economic diversification and reducing dependence on fossil fuels.*

#### Challenges:

- *MSMEs struggle with high upfront costs of RE projects and limited access to affordable financing.*
- *Complex and inconsistent regulations make it difficult for MSMEs to engage in the RE sector.*
- *MSMEs face a shortage of skilled labor and technical knowledge in renewable energy technologies.*

#### Recommendations:

- *Enhance access to affordable green financing.*
- *Simplify regulatory processes for RE projects.*
- *Invest in technical training and infrastructure to support MSMEs' transition to renewable energy.*

## Introduction

Micro, small, and medium-sized enterprises (MSMEs) form the backbone of Jordan's economy, representing over 99 percent of the total number of enterprises and employing approximately 60 percent of the workforce. These enterprises, which are critical to the Kingdom's economic fabric, operate across various sectors, including manufacturing, services, and trade. In Jordan, MSMEs are typically defined as firms employing fewer than 100 people and generating less than one million Jordanian dinars (JOD) annually.<sup>1</sup> Despite their significant contributions to the economy, MSMEs face a range of challenges, including limited access to finance, regulatory burdens, and weak linkages with larger firms.

As Jordan embarks on a transition toward renewable energy (RE), MSMEs have a crucial role to play. The Kingdom has made considerable progress in increasing the share of RE in its energy mix, growing from less than one percent in 2014 to 21 percent by 2021, with ambitions to reach 31 percent by 2030.<sup>2</sup> However, large-scale RE projects are constrained by the limitations of Jordan's electrical grid, which struggles with capacity and efficiency issues. With Jordan importing nearly 93 percent of its energy, the country is highly vulnerable to global energy price fluctuations and faces significant energy security concerns.

MSMEs, with their widespread distribution across Jordan, are well-positioned to contribute to a more decentralized and resilient energy system. By engaging in decentralized energy production and storage, MSMEs can not only support Jordan's green energy transition but also reduce their operational costs and carbon footprint.

This policy brief explores the developmental context of MSMEs in Jordan, emphasizing their potential synergy with clean energy initiatives. It aims to provide a comprehensive framework for understanding how MSMEs can drive inclusive and sustainable economic growth in Jordan, particularly within the context of the broader Middle East and North Africa (MENA) region's RE transition.

<sup>1</sup> Central Bank of Jordan (2023). Green Finance Strategy 2023-2028.

<sup>2</sup> Jordan Ministry of Energy and Mineral Resources (n.d.). Jordan's Energy Sector Strategy, 2020-2030.

## Opportunities for MSMEs in RE

The RE transition in Jordan presents significant opportunities for MSMEs to innovate, grow, and enhance their competitive edge both locally and globally. As Jordan advances its energy goals, MSMEs are strategically positioned to benefit from and contribute to this transformative shift, leveraging opportunities across decentralized energy production, technological innovation, job creation, economic diversification, and cost reduction.

### Decentralized energy production

A notable opportunity for MSMEs within Jordan's RE transition lies in decentralized energy production. Unlike large-scale energy projects often constrained by the national grid's capacity, decentralized systems allow for energy generation closer to consumption points, thereby reducing transmission losses and enhancing efficiency. With their extensive presence across Jordan, MSMEs can serve as critical nodes in this decentralized network.<sup>3</sup>

By utilizing technologies such as solar photovoltaic (PV) installations on rooftops or small wind turbines, MSMEs can produce their own energy, reducing reliance on the national grid and cutting energy costs. This localized energy production enhances energy security, particularly in areas with unreliable grid access, and allows MSMEs to act as prosumers, i.e., both producers and consumers of energy. By feeding excess energy back into the grid or sharing it within local microgrids, MSMEs can alleviate the load on the national grid during peak consumption periods.<sup>4</sup>

Moreover, decentralized energy production aligns with Jordan's broader goals of increasing energy access and reducing energy poverty, especially in remote and underserved areas. MSMEs in rural regions can utilize RE technologies to power their operations, contribute to local energy supply, and generate additional revenue by selling surplus energy, fostering inclusive economic development.

<sup>3</sup> International Renewable Energy Agency (IRENA) (2021). Renewable Readiness Assessment: The Hashemite Kingdom of Jordan.

<sup>4</sup> International Energy Agency (IEA) (n.d.). Renewable Energy Market Analysis: MENA 2020.



## Innovation and technological advancements

MSMEs are recognized as engines of innovation, particularly in emerging sectors like RE. The shift toward RE in Jordan offers a fertile ground for MSMEs to develop and deploy new technologies that cater to evolving market needs. As Jordan transitions away from fossil fuels, there is a growing demand for innovative solutions that enhance energy efficiency, reduce carbon emissions, and integrate renewable sources into existing energy systems.<sup>5</sup> MSMEs can drive innovation by developing energy-efficient technologies and services, such as advancements in solar PV systems, energy storage solutions, innovative grid technologies, and energy management systems. Additionally, MSMEs can provide energy audit services, helping other businesses and households identify areas for improving energy efficiency, thereby creating a new market for green consulting services.<sup>6</sup>

The RE transition also opens opportunities for MSMEs to innovate in energy storage, a critical component of any RE system. Energy storage technologies, such as batteries or pumped hydro storage, are essential for addressing the intermittent nature of RE sources like solar and wind. MSMEs can develop affordable, scalable energy storage solutions and explore innovative financing models, such as pay-as-you-go or leasing arrangements, to make these technologies more accessible.<sup>7</sup> Another opportunity for innovation lies in integrating RE technologies with existing infrastructure; MSMEs can develop hybrid systems that combine RE with traditional energy sources, ensuring a stable energy supply while reducing carbon emissions.

## Job creation and economic diversification

The RE transition presents a significant opportunity for job creation in Jordan, particularly within the MSME sector. As the country invests in RE infrastructure, there will be a growing demand for skilled workers in various fields, including engineering, construction, installation, maintenance, and project management. With their ability to adapt quickly and innovate, MSMEs are well-positioned to create new jobs and contribute to Jordan's economic diversification. These enterprises can directly

<sup>5</sup> IRENA (2021). Renewable Readiness Assessment: The Hashemite Kingdom of Jordan.

<sup>6</sup> IEA (n.d.). Renewable Energy Market Analysis: MENA 2020.

<sup>7</sup> SolarSME (2023). What is the Payback Period on a Solar Panel?

contribute to job creation through the installation and maintenance of RE systems, which often require skilled technicians. Additionally, the demand for components such as solar panels and wind turbines will boost the manufacturing sector, creating further employment opportunities. MSMEs can diversify their product and service offerings to meet the growing demand for green technologies, consequently stimulating job creation across related industries, such as construction and retail.<sup>8</sup>

Economic diversification is another critical benefit of the RE transition. By embracing RE, Jordan can reduce its reliance on imported fossil fuels, which are subject to volatile prices and supply disruptions. This shift would enhance energy security and free up resources that can be invested in other sectors of the economy. MSMEs can play a key role in promoting RE technologies tailored to the local market, fostering the growth of a green economy. The RE transition also provides MSMEs with opportunities to expand into new markets, both domestically and internationally. As global demand for RE technologies grows, MSMEs in Jordan can export their products and expertise to other countries in the MENA region and beyond, boosting Jordan's export revenues and positioning the country as a global RE market leader.<sup>9</sup>

## Maximizing efficiency

One of the most compelling opportunities presented by the RE transition for MSMEs is the potential for significant cost savings and job creation. Energy costs are a major component of operating expenses for many businesses, particularly in energy-intensive industries such as manufacturing and agriculture. Though many variables are at play, small-scale RE technologies generate electricity at a cost 10 percent lower than that of fossil fuel alternatives.<sup>10</sup> By adopting RE solutions, MSMEs can reduce energy bills and improve their bottom line. The RE sector has created several job opportunities in Jordan, both directly within the sector and indirectly in related fields such as the installation, maintenance, and manufacturing of RE components. The

<sup>8</sup> Jordan Chamber of Industry (2024). Small and Medium Sized Services.

<sup>9</sup> Regional Center for Renewable Energy and Energy Efficiency (RCREEE) (2020). Arab Future Energy Index (AFEX) Renewable Energy 2020.

<sup>10</sup> Timilsina (2021). Are Renewable Energy Technologies Cost Competitive for Electricity Generation?



Energy Sector Investors Association in Jordan confirms that there are 10,000 workers in Jordan working directly in the sector and another 10,000 working indirectly in the sector, employed in 492 institutions.<sup>11</sup> Even low-end estimates posit net job creation at 15 to 45 percent above the equivalent energy generation with fossil fuels.<sup>12</sup> Combining the cost savings on energy and job creation benefits, the RE transition provides an opportunity for increased economic efficiency.

For instance, solar PV systems provide a reliable and cost-effective source of electricity, particularly in Jordan, which enjoys abundant sunlight year-round. By installing solar panels on their rooftops or nearby spaces, MSMEs can generate their own electricity, which would reduce their dependence on the national grid and shield them from future increases in electricity prices driven by fluctuations in global fossil fuel markets.

The adoption of RE also enhances the competitiveness of MSMEs in both local and international markets by reducing their carbon footprint, thereby making them compliant with the global trend toward more stringent environmental standards and reducing their overhead related to energy costs. As consumers and businesses increasingly prioritize sustainability, companies that demonstrate a commitment to RE and environmental stewardship are likely to gain a competitive edge. MSMEs that invest in RE can differentiate themselves by offering green products and services that appeal to eco-conscious consumers and business partners.

### Advancing sustainable development

Beyond economic benefits, the RE transition offers MSMEs the opportunity to make a positive environmental impact and contribute to sustainable development in Jordan. By reducing reliance on fossil fuels and adopting clean energy solutions, MSMEs can significantly lower their carbon footprint and help mitigate the effects of climate change. RE adoption by MSMEs also promotes social benefits, particularly by improving energy access and reducing energy poverty. In remote and underserved areas, decentralized RE systems provide reliable and affordable electricity, improving quality of life and fostering social inclusion. Furthermore, the

<sup>11</sup> Jordan Energy Investors Association (August 2024). Press Release.

<sup>12</sup> Kis, Z., Pandya, N., and Koppelaar, R. (2018). Electricity Generation Technologies: Comparison of Materials Use, Energy Return on Investment, Jobs Creation and CO2 Emissions Reduction.

RE transition aligns with Jordan's commitment to the United Nations Sustainable Development Goals (SDGs), particularly Goal 7 (Affordable and Clean Energy) and Goal 13 (Climate Action). By adopting RE, MSMEs can contribute to these goals and enhance their reputation as responsible, forward-thinking businesses.<sup>13</sup>

### Considerations and challenges

While the RE transition in Jordan presents substantial opportunities for MSMEs, it also introduces significant challenges that must be addressed to fully realize the potential of these enterprises. The challenges range from financial and regulatory hurdles to technical expertise and infrastructure limitations. Addressing these challenges is critical to ensuring that MSMEs can effectively contribute to and benefit from Jordan's RE goals.

#### *Financial barriers*

One of the most significant hurdles for MSMEs in Jordan is access to finance, particularly when engaging in capital-intensive RE projects. The upfront costs of installing RE systems, such as PV panels and wind turbines, can be prohibitive for many small businesses. Although financial initiatives like the Jordan Renewable Energy and Energy Efficiency Fund (JREEEF) offer grants and low-interest loans, these resources often fall short of meeting the high demand from MSMEs. Moreover, many MSMEs struggle to access traditional banking services, especially if they lack the necessary collateral or credit history to secure loans. Informal or semi-formal businesses without proper bookkeeping or financial records find it challenging to obtain financing through conventional channels. The perceived risk associated with RE projects, often seen as long-term investments with uncertain returns, further discourages banks from extending credit to MSMEs.<sup>14</sup>

In an effort to address the current lack of access to financing for informal MSMEs, the Jordanian government is in the process of approving third-party officials who can approve JREEEF funding outside of traditional financial institutions. The government will approve a body of administrators to license assessors, approved retrofit assessors (ARAs), and approved retrofit

<sup>13</sup> United Nations (2023). The Sustainable Development Goals Report 2023: Special Edition.

<sup>14</sup> Central Bank of Jordan (2023). Green Finance Strategy 2023-2028.





installers (ARIs) with the necessary qualifications. ARAs and ARIs will be required to pay an approval fee for the quality mark they receive from private engineers or contractors. From there, interested parties can access JREEEF funding through ARAs or ARIs even if they are unbanked.<sup>15</sup> This program is not yet active, and the financing options for informal MSMEs remain very limited.

Even for formal MSMEs, the relatively high cost of capital in Jordan compared to other countries in the region exacerbates the financial strain. The adjusted cost for international financing is 50 percent higher for Jordan than Saudi Arabia.<sup>16</sup> Interest rates on loans can be prohibitively high for small businesses, particularly for those just starting out or expanding into new areas like RE. This situation is compounded by the lack of tailored financial products for the RE sector, such as green bonds or impact investment funds, which could provide more favorable financing terms for MSMEs.

### *Regulatory hurdles*

The regulatory environment in Jordan poses another significant challenge for MSMEs looking to engage in the RE sector. While the government has introduced policies to promote RE, such as the Renewable Energy and Energy Efficiency Law (2012), the implementation of these policies has been inconsistent and, at times, counterproductive (Jordan Ministry of Energy and Mineral Resources, n.d.). Obtaining permits and approvals for RE projects can be cumbersome and time-consuming, involving multiple government agencies with overlapping responsibilities. This bureaucratic complexity is a significant deterrent for MSMEs, which often lack the resources to navigate these processes effectively. Additionally, the lack of a standardized framework for connecting RE projects to the national grid complicates matters, as MSMEs must deal with different standards and requirements depending on their location and the specific energy company involved.<sup>17</sup>

<sup>15</sup> World Bank (2020). Residential Energy Efficiency Retrofit Programme and Certification Scheme. Ministry of Environment of the Hashemite Kingdom of Jordan and Partnership for Market Readiness (PMR).

<sup>16</sup> Steffen, B. (2020). Estimating the Cost of Capital for Renewable Energy Projects.

<sup>17</sup> IEA (n.d.). Renewable Energy Market Analysis: MENA 2020.

Local regulations and municipal codes also pose challenges, such as building codes that restrict the installation of solar panels on rooftops or zoning laws that limit land use for RE projects. These regulations can vary widely, creating additional uncertainty for MSMEs and increasing compliance costs. The inconsistent enforcement of environmental regulations further complicates the landscape, particularly in rural areas where oversight is limited.

### *Knowledge gap*

Limited technical expertise is a major challenge for MSMEs in Jordan as they seek to engage in the RE sector. RE technologies require specialized knowledge for their design, installation, and maintenance. However, many MSMEs in Jordan lack the technical capacity to adopt and effectively use these technologies, especially in rural areas where access to training and technical support is limited. Additionally, the RE sector in Jordan suffers from a shortage of skilled labor in technical fields like engineering and project management. The educational and vocational training systems have not yet fully adapted to the needs of the growing RE industry, leading to a mismatch between the skills available in the labor market and those required by the industry. This skills gap limits MSMEs' ability to engage in RE projects and increases the costs associated with hiring qualified personnel, as businesses must compete for a limited pool of skilled workers.

Addressing this challenge requires building the technical and managerial capacity of MSMEs through targeted training programs and vocational education, as well as establishing centers of excellence that provide technical support and advisory services. Partnerships with international organizations and foreign experts can also play a crucial role in transferring knowledge and best practices to local businesses.<sup>18</sup>

### *Infrastructure limitations*

Infrastructure limitations present another significant challenge for MSMEs in Jordan as they seek to engage in the RE sector. The country's electrical grid, while improving, still faces capacity and efficiency issues that limit MSMEs' ability to connect their RE systems to the grid. The grid's ability to handle intermittent energy sources, such as solar and wind, is limited. Moreover,

<sup>18</sup> IRENA (2021). Renewable Readiness Assessment: The Hashemite Kingdom of Jordan.



in some areas, the necessary infrastructure to support RE projects is either outdated or non-existent. The high cost of energy storage solutions, such as batteries, further complicates the situation. Energy storage is crucial for mitigating the intermittent nature of RE sources, ensuring a stable electricity supply even during low solar or wind activity periods. However, the cost of these storage solutions remains high for many MSMEs, particularly those in rural areas or operating on tight margins. This lack of affordable energy storage options makes it difficult for MSMEs to fully integrate RE into their operations. Logistical barriers also pose a significant hurdle, particularly in remote or rural areas where roads and other infrastructure may be inadequate. This increases the costs and complexity of RE projects, making them less accessible to MSMEs.

### *Market dynamics*

The RE market in Jordan is still in its early stages, and MSMEs face significant challenges in navigating this changing landscape. One primary challenge is intense competition from larger, more established (domestic and international) companies, which have the resources and expertise to dominate the market. These larger companies often benefit from economies of scale, allowing them to offer lower prices and more comprehensive services than smaller MSMEs. MSMEs also struggle with market access, particularly in securing contracts for large-scale RE projects. Many government tenders and contracts are awarded to large companies with a proven track record, leaving smaller businesses at a disadvantage. Additionally, MSMEs must contend with fluctuating demand and price volatility, driven by changes in government policy, energy prices, and global economic conditions. To enhance competitiveness, MSMEs must develop strategies such as forming partnerships with other small businesses, investing in niche markets, and exploring export opportunities, particularly in the MENA region, where demand for RE technologies is growing.<sup>19</sup>

### *Social and cultural barriers*

Social and cultural barriers are also among the challenges faced by MSMEs in the RE sector. In

some parts of Jordan, there is a lack of awareness and understanding of RE technologies, leading to resistance to adoption. Misconceptions about the reliability and cost-effectiveness of RE, as well as a preference for traditional energy sources, present additional complications. Cultural factors, such as a reluctance to invest in new technologies perceived as risky, can be particularly challenging for MSMEs, which may already operate in a risk-averse environment due to financial constraints. Overcoming these barriers requires public education campaigns, community engagement initiatives, and demonstrations of successful RE projects to build public trust and support.

### **Conclusion**

The RE transition in Jordan presents a crucial opportunity for MSMEs to significantly contribute to the nation's shift toward sustainable energy. However, their potential to play a transformative role is constrained by a range of financial, regulatory, technical, infrastructural, and social challenges. To fully capitalize on the benefits of this transition—such as reduced operational costs, increased competitiveness, job creation, and enhanced environmental sustainability—MSMEs require a coordinated and strategic approach. This approach must involve government support, private sector participation, and international collaboration to address the multifaceted obstacles they face. MSMEs are integral to Jordan's economic landscape, and their active involvement in the RE sector is vital for achieving the country's energy goals, bolstering economic resilience, and advancing sustainable development. However, realizing these benefits depends on overcoming significant barriers. Financial challenges, including the high initial costs of RE technologies and limited access to affordable financing, are among the most pressing issues.

Moreover, regulatory complexities, such as lengthy approval processes and the inconsistent enforcement of environmental laws, add to the difficulties MSMEs encounter when entering the RE market. The lack of technical expertise and inadequate infrastructure, particularly in rural areas, further hinder the adoption and integration of RE solutions. These challenges are exacerbated by social and cultural resistance to change, which are fueled by misconceptions and a preference for traditional energy sources.

<sup>19</sup> Jordan Chamber of Industry (2024). Small and Medium Sized Services.



## Recommendations

This policy brief outlines several recommendations, listed below:

1. The Jordanian government, in collaboration with financial institutions, should enhance MSMEs' access to affordable financing by developing green financing products like low-interest loans, green bonds, and impact investment funds.
2. The government should simplify and standardize the regulatory processes for RE projects by reducing bureaucratic hurdles, streamlining approval processes, and ensuring the consistent enforcement of environmental regulations. A one-stop shop for RE permits could help MSMEs navigate these processes more efficiently.
3. To address the shortage of technical expertise, targeted training programs and vocational education should be developed. Establishing centers of excellence and fostering partnerships with international organizations can help MSMEs gain the necessary skills and knowledge.
4. Significant investments are needed to upgrade the national grid and expand energy storage capacity, including developing a "green corridor" for RE transmission. Enhancing rural transportation infrastructure would also improve the viability of RE projects for MSMEs.
5. Public education campaigns and community engagement initiatives should be launched to overcome social and cultural resistance to RE. MSMEs can be ambassadors for RE technologies, demonstrating their benefits and encouraging wider adoption through successful case studies.

## References

- Central Bank of Jordan (2023). Green Finance Strategy 2023-2028.
- International Energy Agency (IEA) (n.d.). Renewable Energy Market Analysis: MENA 2020.
- International Renewable Energy Agency (IRENA) (2021). Renewable Readiness Assessment: The Hashemite Kingdom of Jordan.
- Jordan Chamber of Industry (2024). Small and Medium Sized Services.
- Jordan Ministry of Energy and Mineral Resources (n.d.). Jordan's Energy Sector Strategy, 2020 -2030.
- Jordan Energy Investors Association (August 2024). Press Release.
- Regional Center for Renewable Energy and Energy Efficiency (RCREEE) (2020). Arab Future Energy Index (AFEX) Renewable Energy.
- SolarSME (2023). What is the Payback Period on a Solar Panel?
- Steffen, B. (2020). Estimating the Cost of Capital for Renewable Energy Projects.
- Timilsina, G. (2021). Are Renewable Energy Technologies Cost Competitive for Electricity Generation?
- United Nations (2023). The Sustainable Development Goals Report 2023: Special Edition.
- World Bank (2020). Residential Energy Efficiency Retrofit Programme and Certification Scheme. Ministry of Environment of the Hashemite Kingdom of Jordan and Partnership for Market Readiness (PMR).





**ERF at a Glance:** *The Economic Research Forum (ERF) is a regional network dedicated to promoting high-quality economic research for sustainable development in the Arab countries, Iran and Turkey. Established in 1993, ERF's core objectives are to build a strong research capacity in the region; to encourage the production of independent, high-quality research; and to disseminate research output to a wide and diverse audience. To achieve these objectives, ERF's portfolio of activities includes managing carefully selected regional research initiatives; providing training and mentoring to junior researchers; and disseminating the research findings through seminars, conferences and a variety of publications. The network is headquartered in Egypt but its affiliates come primarily from different countries in the region.*

### Contact Information

#### ERF Office

**Address:** 21 Al-Sad Al-Aaly St. Dokki, Giza, Egypt

PO Box 12311

**Tel:** +202 333 18 600 - 603

**Fax:** +202 333 18 604

**Email:** erf@erf.org.eg

**Website:** <http://www.erf.org.eg>

### Follow us



[economic-research-forum](https://www.linkedin.com/company/economic-research-forum)



[ERFLatest](https://twitter.com/ERFLatest)



[TheERFLatest](https://www.youtube.com/channel/UCvKw8F8W8W8W8W8W8W8W8W8)



[www.erf.org.eg](http://www.erf.org.eg)

