



De-risking small-scale renewable energy in rural areas through microfinance and matchmaking

Main question: What are the business models that can be used to overcome the barriers preventing the greater uptake of small-scale renewable energy (RE) for productive use in the Arab region?

EGM target outputs:

- Identify key barriers and risks preventing the accelerated ramp-up of small-scale RE for productive use in developing countries
- Promising case studies from around the world that address various barriers and risks to financing small-scale RE in rural areas
- Key financial and policy instruments that can be employed to bridge the gap between finance and RE projects for productive use
- Platforms that can be adopted to match lenders, with developers, with bankable projects

Report: Outputs from the EGM will be integrated into a technical report (currently under development). The report will be circulated to EGM participants in early 2023 for peer review ahead of publication.

EGM Programme (7 December, Time (10:00 – 11:30 AM Beirut) GMT+2)

Opening remarks: Ms. Radia Sedaoui, Chief, Energy Section, United Nations ESCWA

Scene-setter: De-risking investments in small-scale RE for productive use in rural areas of the Arab region (~5 mins)

Mr. Mustafa Ansari, Economic Affairs Officer, United Nations ESCWA

Presentations (~7 mins each)

- *Quentin Peries-Joly*, Business Development, ENGIE – **Making decentralised renewable energy viable in Africa by electrifying productive usages**
- *Sandra Winarsa*, Program Development Coordinator, HIVOS – **Small-scale RE actions and inclusive finance for marginalised groups in Indonesia**
- *Kevin Johnstone*, Senior Researcher for Energy and Livelihoods, IIED – **Community engagement - gender equality and social inclusion**

Interactive panel (Davos style) (~60 mins)

Moderator: Ms. Radia Sedaoui, Chief, Energy Section, United Nations ESCWA

Wrap up Mr. Mustafa Ansari, Economic Affairs Officer, United Nations ESCWA

Contact: Mr Mustafa Ansari, Economic Affairs Officer, United Nations ESCWA

Email: mustafa.ansari@un.org and copy escwa-energy@un.org; Office phone: +961 1 978 523

Background document

Introduction

Small-scale renewable energy (RE) can positively transform small rural communities, lift millions out of energy poverty by creating jobs and build resilience to climate change. Whilst there is no shortage of projects that can be implemented in the Arab region, the story in most if not all developing countries is the same – the markets are undeveloped and fragmented, the barriers are multifaceted, and the perceived risks are too high.

What this means is that developers are likely to prioritise scale, and for investors returns, over needs and impact, and without the proper business models, both are unlikely to realise the full potential of an integrated approach to RE for productive use and lose out on what could otherwise be a lucrative endeavour under mitigated circumstances.

As such, with much momentum from the international community and national governments to achieve targets under the Paris Agreement, mobilising finance is equally as important as the need to match lenders, with developers, with end users.

There are various business models employed globally to overcome the barriers preventing the greater uptake of small-scale RE (output power capacity up to around 100 kW) for productive use. These models, if adapted and scaled-up, can inform policymakers and stakeholders on the variety of policy and financial instruments that can be undertaken to bridge the gap between the various actors.

SDG 7 and the Arab region

From the high-income countries of the GCC to the least developing countries (LDCs), as well as low and middle-income countries in between, the Arab region is heterogenous in its natural resources, in its geography and in its use of energy. This means that the scaling up of RE for productive use will vary from country to country, whether due to socio-economics or politics and from one community to another, as well as on gender, each with its own challenges and opportunities.

Scaling-up renewable energy (RE) is a cornerstone for achieving universal access to sustainable energy (SDG 7) – that is adequate, reliable, affordable, clean and safe – which is necessary for creating sustainable economic growth and development. The penetration of RE in the Arab region has been mixed, with net-energy importing countries accounting for the largest share, yet it accounted for only 4.6 percent of the region's total final energy consumption. Moreover, as with patterns exhibited globally, RE penetration remains primarily a rural problem (over 80% of the Arab region's deficit), with a higher concentration in least developed countries (LDCs).

Specifically, higher tier access to RE technologies (RET) are critical tools to provide rural communities with access to further productive uses of modern energy to generate income. These productive uses of small-scale RETs extend to agricultural, commercial and industrial activities, including pumping for irrigation, for use in dryers, hydroponics, grain milling, and food refrigeration, as well as IT support for businesses.

Yet the uptake for small-scale renewable energy is hindered by several barriers that are disproportionately affecting remote and rural communities and those in low-income countries. These barriers heighten the risk of installing modern renewable energy in areas that, in other words, will also directly address the Arab

region's stalling access deficit.

Barriers and risks

A range of barriers and risks are preventing the greater uptake of small-scale RE, and whilst some of those may include developments in the global energy markets and supply and demand fundamentals, the focus here is specifically on SME financing of small-scale RE for productive use in rural areas of developing countries.

Some of these barriers are unique to the country/region generally, whilst others are specific either to the buyer or the seller. Broadly speaking a great number of barriers can arise even from one community to another. Typically, beneficiaries live in remote areas, have little or no access to electricity and have little capital or even collateral to take out loans. Add to that the component of political and economic stability, currency risks, unfavourable regulatory environments, immature markets and market fragmentation, then the reservation from financiers becomes all the more clear.

Unlike government financing, private investors command substantial resources, and operate based on returns in the context of the risk involved, meaning that in areas where they have less exposure and familiarity (such as remote areas of developing countries) the prospects are simply not attractive enough. This means that financiers will place risk premiums for projects outside their comfort zone that make them non-bankable or non-viable for investors.

The lack of access to capital and the high cost of financing for small and medium-sized enterprises (SMEs) in developing countries constitute a barrier to the sector's expansion. The potential for adoption of distributed RE is vast and far greater than the market's current size.

Whilst the discussion is associated with financing small-scale RE, the productive use component means that an integrated approach will face additional challenges from the lack of coordination across sectors and therefore potentially overlapping regulations and instruments.

The success of developing a programme that links energy access for income generation hinges on other interlinked sectors in the rural economy receiving equal attention. Ultimately, poverty reduction and income generation will depend on other development efforts such as finance for electric appliances, access to markets for additional production and skills for entrepreneurs to identify opportunities

A closer assessment of these risks will help close the information gap and identify which risks if not all can be partially or fully addressed by different actors, to enhance the viability and bankability of these projects. Given the diversity of needs across the region, and even the heterogeneity of rural communities within each country, the solutions will undoubtedly differ meaning that a range of options are necessary to cater for different people from gender, to age groups to levels of education.

De-risking instruments

De-risking refers to the reallocation, sharing or reduction of existing or potential risks in relation to financing small-scale RE for productive use and can be split between policy de-risking and financial de-risking. Below we highlight some of the instruments that can be leveraged to adopt an integrated approach for ramping up small-scale RE in remote areas. As part of the EGM and via peer review process, other business models will be included and expanded upon based on input from experts.

1. **Microfinance** has been a ground-breaking financial service for low-income individuals or groups that are typically excluded from traditional banking, and by making energy systems more affordable, it can



then support the dissemination of these technologies. Lenders, including IFI's play an important role in this regard, as they are able to offer flexible loans and structure their services in accordance with needs. The Lenders are able to follow a criterion that is designed to address various specific barriers associated with small-scale RE and provide tailored funding in line with expected cashflows from productive use. To scale-scale up microfinance, lenders can explore the below options:

- a. **Blended finance** – combining the role of governments, multilateral funders and the private sector – typically involves the deployment of grants alongside other concessional capital including risk-sharing instruments such as guarantees, can reduce risk and thus the average cost of capital associated with small-scale RE for productive and increase the bankability in the eye of standard commercial investors.
 - b. **A revolving facility** - (complimentary financial tools) creating a special fund with a revolving facility with conditions that have to be met by lenders, developers and beneficiaries that are outlined to ensure that risks are addressed prior to engagement. This way we can undergo a filtration process that helps create the uptake of small-scale RE, with likelihood that most bankable and straightforward projects are commissioned first. In turn a track record is created whilst returns from these initiatives help refinance the facility for further projects. Over time, this creates a learning curve for all players, and the business models can be amended, appetite for risks can be increased and government are able to implement measures to tackle issues progressively either through financial or regulatory interventions.
2. **Government incentives** – Governments have many roles to play from the creation of a conducive environment through appropriate regulatory and policy interventions, to general financial injections. They can play a central role in either reduce the risks faced by developers by handling/addressing additional risks or provide subsidies and grants to reduce the cost of the capital and encourage investors to off-take the additional burdens and complexities. But governments are also the main pipeline for channelling global climate financing (that is readily available) into targeted micro projects in sustainable agriculture and low carbon energy sources.
 3. **Aggregation** - Combining multiple, smaller investment opportunities into a single vehicle or platform - energy enterprises or investors pool capital into a portfolio of projects to cut costs and hedge risk. Aggregation can also be used to create new investment products; perhaps by bundling up smaller loans, using targeted subsidies, blending public-private finance or by merging several projects and their assets into a single investment vehicle.
 - a. Special purpose vehicle - financial aggregation can package these small-scale financing needs into a portfolio from which marketable debt instruments can be issued.
 - b. Blockchain as a platform for mobilising finance: Mapping productive use projects, and securing funding from around the globe for thousands of small players, mitigating currency risk, reducing transaction costs and overcoming small ticket to deal expenses.
 - c. Aggregating demand and consolidating energy usage within communities or regions, particularly useful in large concentrations of demand with similar characteristics, such as refugee camps.
 4. **Bundling RE with other lower risk higher return measures** - This means you can opt to bundle renewable energy projects with other lower risk investments that bring down the cost of financing and at the same time enhance the return on investment. This is particularly important in the context of



combining RE with PUE equipment, which in itself will generate higher demand for energy.

As with most problems, solutions already exist, and in some cases require some either refinement or further customisation for effective use. But above all, they are often not well communicated or understood.

Creating Matchmaking Platforms can enable effective B2B & B2Finance matchmaking, allowing different players to tailor their searches. Through the creation of a world/regional map, platforms can show which members are active, where they are based and what they actually offer. This in turn helps to mitigate for diversity associated with different ticket sizes, expertise, focus, technologies and business models.

Productive use of Renewable energy

At present the focus of the international community and the most prevalent use cases as far as the developing world is concerned has been in selected parts of sub-Saharan Africa (SSA) and Central and East Asia. There is credible cause to infer that the diversity and heterogeneity of these regions however can provide significant scope for learning and adoption in other parts of the world, not least the Arab region.

Way forward

1. Identify which instruments can be applied across different parts of the Arab region and what the immediate steps should be.
2. Identify the actions and processes involved in setting different matchmaking platform that cater for the needs of various players, from matching to following through on next steps.
3. Map out the key policy interventions needed to catalyse the use of financial instruments



References

ESCWA (2021). Small-Scale Renewable Energy Technological Solutions in the Arab Region: Operational Toolkit. E/ESCWA/CL1.CCS/2020/TP.8. Available at: <https://www.unescwa.org/publications/small-scale-renewable-energy-applications-rural-areas-arab-region>

ESCWA (2022). Regional Initiative to Promote Small-Scale Renewable Energy Technologies and Applications in Rural Areas of the Arab Region REGEND: Social, Economic, and Environmental Impact Assessment Report. Available at: <https://www.unescwa.org/sites/default/files/pubs/pdf/social-economic-environmental-impact-assessment-report-english.pdf>

ESCWA (upcoming), United Nations Sustainable Development Goal 7 Policy Brief for the Arab region 2022

SEforALL (2022). Five hurdles to getting productive use of energy products to the last mile. Available at: <https://www.seforall.org/news/five-hurdles-to-getting-productive-use-of-energy-products-to-the-last-mile>

ENGIE (2022). An innovative financing method for universal access to electricity. Available at: <https://www.engie.com/en/news/crowdfunding-blockchain-cryptocurrency-energy-access>

UNDP (2022). Linking global finance to small-scale clean energy. Available at: <https://www.undp.org/publications/linking-global-finance-small-scale-clean-energy>

Alliance for Rural Electrification (2022). Company website. Available at: <https://www.ruralelec.org/matchmaking-platform>

Get Invest (2022). Company website. Available at: <https://www.get-invest.eu/about/who-we-are/>

EuEI (2015). The Productive Use of Renewable Energy in Africa. Available at: <https://europa.eu/capacity4dev/file/27867/download?token=L7-6U7P1>