EVALUATION SUMMARY | FMO'S CONTRIBUTION TO THE OFF-GRID ELECTRICITY SECTOR

STUDY FACTS

CLIENTS

- 20 ACTIVE AND INACTIVE CLIENTS SINCE 2014

COUNTRIES

- SUB-SAHARAN AFRICA & SOUTH ASIA

CONSULTANT

- GREENCROFT ECONOMICS LTD.

OFF-GRID SECTOR FACTS

- 733 MILLION PEOPLE WITHOUT ACCESS TO ELECTRICITY GLOBALLY (2020)
- GLOBALLY AROUND 8M UNITS SOLAR HOME SYSTEMS SOLD ANNUALLY
- 40 MILLION PEOPLE REACHED WITH (INCREASED) ACCESS TO ENERGY BY FMO SINCE 2014

INTRODUCTION

The report presents an independent review of FMO's investments and broader role in supporting the off-grid electricity sector since 2014. Since then, FMO has financed over 20 off-grid electricity transactions, with most funding sourced from concessional Dutch government funds, in a few instances leveraging FMO's own balance sheet.

The purpose of the review is to draw and share learnings of this experience, seeking to support companies to achieve impact while driving progress towards commercial success.

SCOPE

The three key questions addressed by the study include:

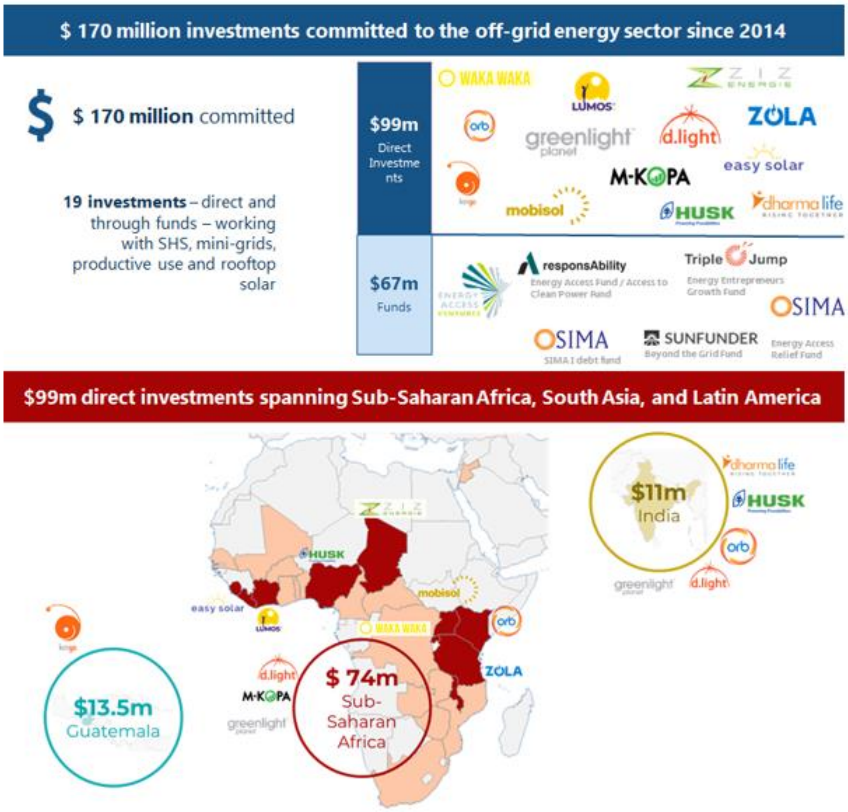
1. How did the off-grid sector develop in the past five years?
2. What role did FMO play with its own as well as with its government funds and compared to other investors?
3. What results did FMO achieve in the sector and what has been learnt about making impactful investments in the sector?

1) THE OFF-GRID ELECTRICITY SECTOR HAS STABILIZED IN THE LAST FIVE YEARS

Since 2015, annual unit sales of standalone solar systems have stabilised at around eight million units, while investment has plateaued at around US$ 300 million each year. After rapid growth in unit sales and investment volumes between 2010 and 2015, the global market for solar lanterns and solar home systems has been remarkably stable since 2015. However, there has been significant evolution in the types of products and the range of companies active in the market. While the early 2010s saw the emergence and dominance of 1st generation companies – typically vertically integrated multinationals – in more recent years, specialised providers, focussing on part(s) of the value chain, have emerged and are showing signs of success. There has also been an increasing shift towards the PAYGo business model, particularly in East and West Africa. Even as some markets in South Asia have passed their peak, many markets across Southeast Asia, West Africa and Southern Africa are continuing to grow. In parallel, there has been a marked transition of finance from equity to debt, and a widening of the investor base to include strategic corporates and commercial banks.

2) ROLE FMO: FMO HAS BEEN A LEADING INVESTOR SUPPORTING A DIVERSE RANGE OF DIRECT INVESTEES AND SPECIALISED FUNDS

FMO is one of the largest investors in the sector in terms of financing volume, alongside other DFIs such as CDC and Norfund. From 2010 to 2018, of all investors in the sector, FMO committed the most finance in off-grid electricity ventures and contributed to capitalising six of the specialised equity and credit funds that now account for a significant share of capital committed. Through 19 investments between 2014 and 2020, FMO has supported a diverse range of investees with ticket sizes ranging from a few hundred thousand dollars in convertible grants up to over US$ 15 million typically as senior loans.



FMO's strategy has evolved to balance supporting successful commercialisation with promoting innovation and delivering impact, while ensuring additionality of funds deployed. Its first forays into the off-grid electricity sector starting in 2014 were high risk – reflective of a sector with limited track record. Between 2016 and 2019, as the sector matured, FMO financed several of the now well-established companies – with varying degrees of success in terms of commercial outcomes. In this phase of investment, FMO was proactive in increasing the sophistication of financing products and supported a variety of first-of-a-kind transactions, such as the first major receivables debt facility with M-Kopa in 2019 , local currency facilities, and direct lending to local operating companies (such as Lumos Cote d'Ivoire, and Zola Electric Tanzania). Since late 2019, FMO has leveraged this experience and shown flexibility to respond to feedback from other investors. and from investees. This has led it to taking on highly additional, riskier, investments in small early-stage ventures, while also supporting consolidation for established companies accessing commercial capital, by, for example, showing a willingness to purchase secondary shares alongside strategic corporate investors.

Dutch government funds have provided the majority (81%) of FMO commitments to the off-grid electricity sector. The Access to Energy Fund (AEF) is the main source of FMO's committed funding, with Building Prospects (BP) and MASSIF also supporting some transactions. The use of these funds reflects the lack of a clear blueprint for. or evidence of, profitability in the sector as a whole; there are very few companies that have sustained positive profit for multiple years. The sector still faces a challenge in reaching commercial sustainability while also maximising impact, especially when it comes to reaching remote and vulnerable customers who are also the least commercially viable.

SUMMARY I FMO'S CONTRIBUTION TO THE OFF-GRID ELECTRICITY SECTOR

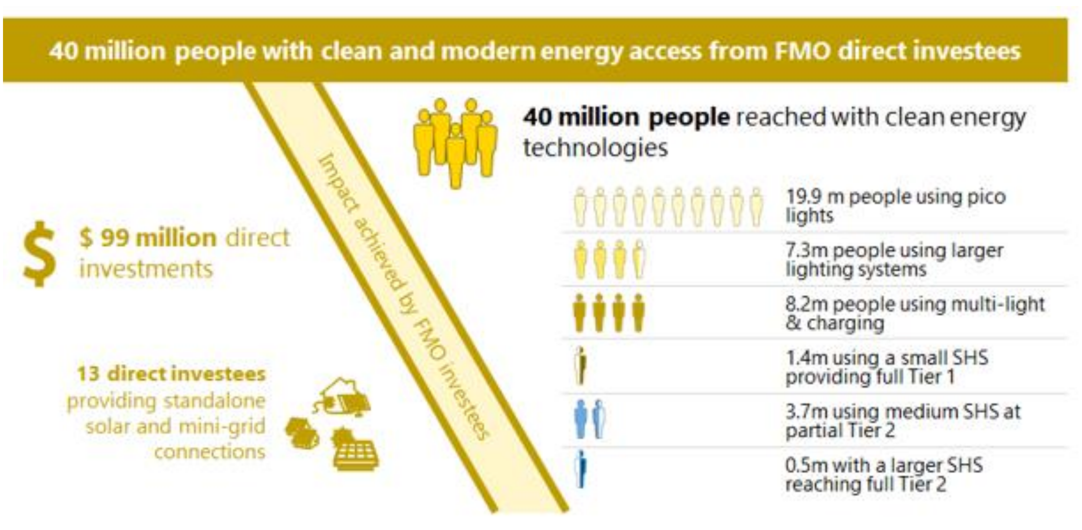
Access to finance from FMO has been crucial in providing investees with both the volume and the type of finance needed to realise their impact and commercial ambitions. FMO has contributed to closing transactions that would not otherwise have been viable, including developing proof of concept for new financing products. FMO's commercial acumen, due diligence and expertise is highly valued by investees and co-investors. Similarly, its willingness to invest at a relatively early stage, to stay involved and support investees through difficult periods, and to provide a bridge to help investees close subsequent funding rounds, in some case including commercial investment, are also perceived favourably.

FMO is highly valued as a flexible investor and for the dedication and commitment of investment officers. FMO investment officers bring many years of experience to transactions, take the time to understand the client business in detail, and tend to stay committed to transactions and client relationships for a prolonged period. This results in a deep understanding of the investee business context and a willingness and ability to show flexibility to make deals happen and then work together to make them a success.

As it has gained experience in the sector, FMO has increasingly provided bespoke capacity development to its investees and has contributed to wider sector initiatives. Capacity development has often focussed on key areas of comparative specialisation in FMO, such as credit risk management, customer protection principles (CPPs), and environmental and social governance (ESG). FMO has also contributed to supporting key industry initiatives, such as GOGLA's industry-wide CPPs in 2018-19, broader funding to support GOGLA's activities as the voice of the industry, and grant funding for seed finance initiatives such as Acumen's PEII, and delivery of public health solutions in response to COVID-19. Despite this, and while FMO's non-financial support to clients is valued, its contributions as a financier are perceived to be much more important, and it is perhaps not as proactive as other investors and development partners in terms of catalysing wider sector initiatives.

3) FMO IMPACT: FMO'S DIRECT INVESTMENTS HAVE CONTRIBUTED TO REACHING 40 MILLION PEOPLE WITH ACCESS TO CLEAN AND MODERN ENERGY SOLUTIONS

Most people reached by FMO investees are using products which enable partial Tier 1 energy access. Of the total 40 million people reached, 35 million are below or around the threshold of Tier 1 energy access, while just five million have access to a system that would provide full Tier 1 energy access for the whole household. Based on the FMO's share of capital in each investee over the period of investment, FMO's US$ 99 million of direct investments in SHS providers and mini-grid operators had enabled an additional 2.9 million people to gain access to energy.



This extra energy access reach delivers important welfare benefits and quantifiable economic, social, and environmental benefits. The main impact of reaching 40 million people is in the access to energy itself and the welfare improvement this delivers for end users through access to a range of associated products and services, such as lighting, radio, TVs etc. Furthermore, based on GOGLA's standardised impact metrics, FMO's investees are estimated to have contributed 9 million tonnes of CO2 emissions avoided, added 167 MW of renewable energy capacity, delivered cash savings to households worth around US$ 1.2 billion dollars, and supported income-generating activities worth around US$ 730 million to households and businesses.

FMO has also helped capitalise six sector funds which have, in turn, supported a diverse portfolio of companies reaching many millions more people. The funds have delivered a range of impacts through around 50 companies across their respective portfolios, offering a wide range of energy-related products spanning solar home systems, mini-grids, commercial & industrial, and productive use.

LESSONS LEARNED IN THE FMO PORTFOLIO

Not all investments have been successful – and learning the lessons from these challenges has helped FMO improve how it supports off-grid electricity ventures. For example, two of the 11 FMO solar home system investees have effectively been written off, with WakaWaka winding up operations in Rwanda, and Mobisol filing for insolvency before being acquired by Engie in 2019. Most companies across the sector are still struggling to reach profitability even after many years of experience and investment. Despite this, as the financing space has become more crowded in recent years, there is a potential risk of crowding out some commercial investment as FMO competes with other investors to provide capital to the same small number of companies, including, sometimes, competing with the specialised sector funds that it has helped to capitalise.

We draw three main conclusions from FMO's experience investing in the sector:

1. **Off-grid electricity providers must identify their specialisation in the value chain to achieve commercial success.** Cash sales alone are unlikely to achieve profitability as they compete in a rapidly commoditised and price sensitive market, while projections of market potential for larger size systems often prove optimistic. The PAYGo business model can unlock a wider market for higher-margin products and services but is not a panacea. There is no single blueprint to achieving commercial success; companies may need to diversify to specialise in different business models to maintain their individual value-offering.

2. **Companies must be able to flexibly respond to customer demands and move into adjacent product markets.** PAYGo offers a route to potentially more attractive commercial product and customer segments but will nonetheless require continuous innovation and a focus on identifying and consolidating commercially viable customer segments. Companies will need to continue to innovate and offer high-value products, leveraging established distribution networks set up to provide energy access products. To become and remain commercially viable companies will need to have the flexibility to add new products and services to their offering – in many cases moving beyond a pure energy access focus.

3. **The role of DFIs and the broader financing landscape must evolve and reflect the conditions in different market contexts.** There remains a tension between investors who seek a return on their finance and expect companies to be profitable, while also driving impact-oriented companies serving the most needy populations. Financing structures will need to adapt to suit market segments that are not – nor likely to become – commercially viable. The use of concessional government funds will continue to be essential to deliver impact to these market segments. Nonetheless, there are now some relatively mature and well-capitalised companies where DFIs risk crowding out commercial investors and should be moving to junior positions / exiting.

RECOMMENDATIONS FOR OPTIMISING THE FMO ROLE IN THE SECTOR

FMO's strategy will need to evolve flexibly as the sector faces an uncertain future. FMO will need to continue to balance three core objectives: impact for end users, commercialisation of investees, and promoting innovation. As many regions are likely to face a challenging macroeconomic operating environment in the coming years, it will be important to maximise the sector's impact potential and ensure historic impacts do not roll back, including by (1) continuing to support access to relatively smaller entry-level solar products, and (2) being pragmatic in considering impacts beyond energy access, as companies diversify their product offering. Innovative approaches to unlocking commercial lending should still be explored where market conditions allow for it, particular in relatively more mature markets and with well-established companies.

Building on lessons learnt, and on its position as a leading DFI in the off-grid electricity sector, FMO could further optimise its role in the following five ways:

1. Where providing equity to new investees, be innovative and flexible, joining early rounds and staying in to bring the investee through to commercial scale, bridging the pioneer gap, including continuing to offer small-ticket direct equity investments.
2. With existing equity investees, support consolidation and provide a balance to investment from strategic corporates, including a willingness to purchase secondary shares and enable the exit of early-stage investors.
3. For debt provision to established and well-capitalised companies, seek to catalyse local commercial banks including by supporting local currency facilities, and by taking on junior positions to help leverage local commercial banks taking senior positions.
4. Take a flexible stance on energy access impacts, enabling companies to innovate and balance impact with commercial success, allowing companies to diversify their product and service offering to seek profitability and meet customer demands, including if this means companies don't *only* provide access to energy.
5. Use targeted technical assistance to help businesses continue to improve governance and credit management through core business support. FMO can also use its technical assistance in supporting companies so that, as they add new products and services to their offering, they retain a strong impact focus.

ALSO READ

- IN THIS DUTCH ARTICLE, HUUB CORNELISSEN (DIRECTOR ENERGY) AND WARD NUSSELDER (INVESTMENT OFFICER) EXPLAIN FURTHER HOW FMO DEALS WITH THE RAPID CHANGE IN THE SECTOR AND WILL CONTINUE TO SUPPORT IT.
- IN 2017, FMO COMPLETED AN EVALUATION INTO THE IMPACTS OF SOLAR HOME SYSTEM SALES OF ORB ENERGY. THE RESULTS ARE STILL RELEVANT AND COMPLEMENT THIS LATEST EVALUATION (WHICH TOOK A PORTFOLIO VIEW).
- ALSO READ FMO'S EVALUATION ON ANOTHER IMPORTANT OFF-GRID ENERGY BUSINESS LINE FOR FMO: THE DETERMINANTS OF SUCCESS AND IMPACTS OF CLEAN COOKSTOVES BUSINESS MODELS.