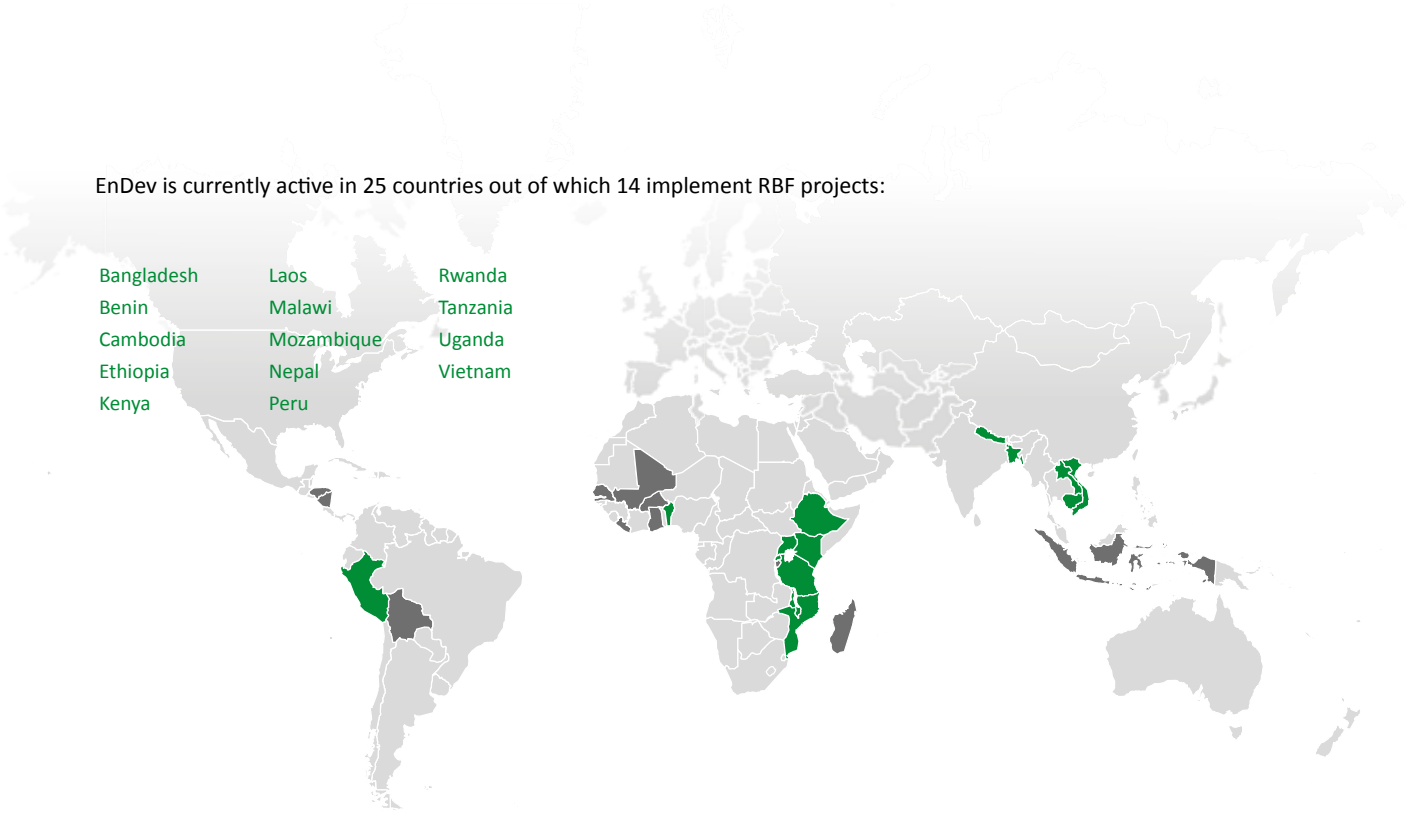
Driving markets to scale

Lessons learned from stimulating energy access markets with results-based financing

energising development

EnDev is currently active in 25 countries out of which 14 implement RBF projects:

Bangladesh	Laos	Rwanda
Benin	Malawi	Tanzania
Cambodia	Mozambique	Uganda
Ethiopia	Nepal	Vietnam
Kenya	Peru	



Content

1. Introduction

Results-based financing (RBF) aims to open up access to clean energy in low-income countries. It gives incentive payments to private sector businesses that deliver and operate clean energy products, services or systems. RBF is part of the programme Energising Development (EnDev), a partnership between the Netherlands, Germany, Norway, the UK, Switzerland and Sweden.

RBF's payment-by-results approach is about speeding up and growing markets, and so boosting private sector investment in more efficient production and distribution systems. In the process, suppliers and financiers gain experience, products come down in price and word of mouth and other factors increase demand. In this way, the model sets out to stimulate a market so that it's in a position to carry on developing once the project's incentives expire.

RBF projects face different barriers and have different levels of success. In mid-2016, various stakeholders came together to share the lessons learned from these projects so far. They included project managers and staff, financial institutions and participating companies. This document sums up those lessons, focusing on:

- Developing the market – appreciating the economic and market context for the project, and understanding what support it will need.
- Finding the participants – presenting a simple proposition to companies that's clear about the benefits, costs and risks; and choosing the right fund manager.
- Running the project – designing the right incentive structure, and monitoring, evaluating and verifying results.

2. RBF at a glance

What is RBF?
Results-based financing (RBF) offers incentives to the private sector in the low-carbon, off-grid energy sector in developing countries. Companies receive payments based on results set in advance. These are around the companies delivering modern energy technologies or services and customers operating them. RBF aims to boost energy access markets by supporting companies along the whole value chain by reducing financial barriers.

Where are the projects?
So far EnDev's RBF facility encompasses 17 projects in 14 countries in Africa, Asia and Latin America.

		stoves	biogas	SHS	picoPV	solar mini-grid	hydro mini-grid	grid	other lighting/ electricity
country projects	Bangladesh				●				
	Benin				●				●
	Ethiopia	●							
	Kenya	●			●	●			
	Nepal	●							
	Peru	●							●
	Rwanda				●	●	●		
	Tanzania				●				
	Vietnam		●						
multi-country projects	Bangladesh, Kenya			●					●
	Kenya, Tanzania, Uganda		●						
	Malawi, Mozambique	●							
	Mekong (Cambodia, Laos, Vietnam)	●							
	Mozambique, Uganda							●	

What technologies do they support?
RBF projects have backed a wide variety of products and technologies including cookstoves, solar lanterns, appliances, streetlights, water pumps and water heaters, biogas, grid densification and mini grids.

Who are the key actors?
The key actors commonly involved in an RBF scheme are the following:

- EnDev as the main project implementer and provider of incentives;
- a financial institution, supporting the management of the RBF mechanism and responsible for the administration of the incentive disbursement procedures;
- an independent verification agent, who will verify claimed results by the private sector to trigger disbursements;
- the private sector as provider of the clean energy product or service and recipient of the RBF incentives out of which RBF is built up.

3. Developing the market

The RBF approach aims to overcome barriers the private sector faces in energy access markets. But the markets aren't stable – they're changing constantly. And they're not isolated. How they evolve depends on a region's broader economic development and growth. So, successful RBFs don't work in isolation either. They become part of other development programmes, and they don't underestimate the support they'll need.

Keep a close eye on the market before and during a project

When markets develop, they become increasingly complex. It can be very difficult, if not impossible, to identify and predict all the internal and external factors that affect barriers in the energy market. These barriers include:

- energy companies' limited distribution channels
- lack of access to finance for companies and consumers
- lack of consumer trust in (and awareness of) energy technologies
- limited business and technical capacities of energy companies
- unfavourable policy frameworks.

Energy markets are part of larger political and economic systems, and subject to pressures outside their control. They could affect a project in many ways. Take incentives, for example. If the economy booms, purchasing power grows along with demand, and incentives could become superfluous. But if the price of raw materials like cement or steel goes up, incentives set at the start of an infrastructure project, for example to build mini-grids or biogas digesters, could be inadequate.

So RBF projects must constantly track how the market develops, analyse trends and respond accordingly, whether that's by recalibrating incentives or through other action to make the project suit its environment. If projects don't do this tracking, there's a good chance it will take more time and resources to get, and keep, them going.

Assess what support a project will need before the start

In the design phase, projects need time and resources to assess the market and its barriers. And project designers need time with relevant stakeholders to see if the market is actually ready for an RBF approach.

RBF rarely functions as a stand-alone development tool. In fact, pilot projects often overestimated how ready markets were for RBF interventions, and underestimated how much technical assistance they'd need.

This assistance could mean developing the market and resolving bottlenecks by introducing people to the RBF concept and supporting private sector participants and government institutions. Or it could mean support to manage the project itself, whether it's negotiating with financial institutions, or monitoring and verification. Depending on the type of technology, projects between €1m and €3m spend at least 20% of their budget on management (including fees for financial institutions), communications, and monitoring and verification only. Market development support like policy advice and regulatory help and all other technical assistance would be on top of this.

Consider joining forces with others

Making RBF projects part of existing market development work or teaming up with like-minded organisations can boost their chances of success. That's especially true if they can't address all market barriers at once or afford broader market development activities.

Different initiatives can work alongside RBFs to mitigate risks. Investing in off-grid areas is costly for private companies and means considerable spending up-front before seeing returns. Companies can face unfavourable regulatory environments, and they often have low purchasing power. Measures like SME loans, partial risk guarantees, business development services and training can all help build capacity on the supply side. Awareness campaigns can support and educate customers, so helping to drive demand. And advising governments on policy and regulation can help create the right environment for the market to flourish.

Coordinating with others can also help overcome barriers to market development that wouldn't be addressed otherwise. And it can avoid duplicating efforts or conflicting approaches. It also means the RBF projects don't take on more responsibility than they have to.

If a project does collaborate with others, it's crucial that everyone is clear on where resources will come from before the project launches. RBF projects might also want to involve partners in the design stage.

Box 1. Developing a market from scratch - Benin

The RBF project in Benin (2013-2018) aims to stimulate the market for solar lanterns. The beneficiaries are households in rural areas without access to electricity and urban households that need a back-up in case of blackouts.

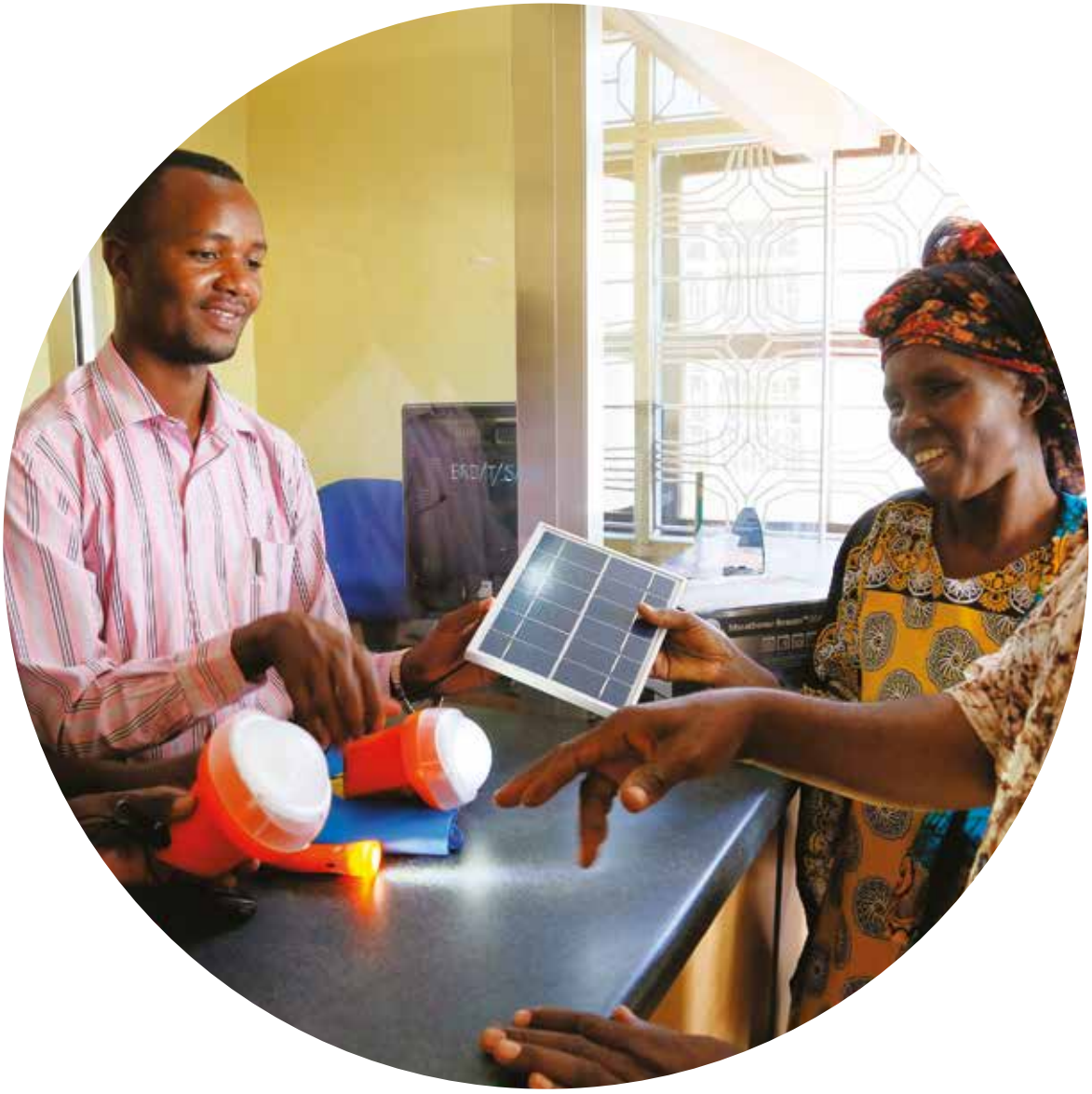
In Benin, the solar lantern market basically didn't exist when the project started. Initially, it was envisioned for a financial institution to manage the tender procedure for companies and the incentive disbursements. However, financial institutions didn't want to venture into a business sector without track record. Therefore, the project itself took over the management, having to develop contracting and disbursement mechanisms which took more time and effort than anticipated. In order to get started in a nascent market companies had to invest in cooperation with new business partners which again took much longer than expected: they spent almost two years building relationships with manufacturers, accessing finance, importing products, creating customer awareness and designing their distribution channels – all from scratch – before they could report their first sales.

The cooperation with another support programme complements EnDev's efforts: with SNV's assistance, one of the solar companies managed to introduce the country's first pay-as-you-go mechanism making solar lanterns even more affordable for poor households.

Be clear on what you expect to achieve

Projects must judge what role RBF should play in a complex developing market. Can it stand on its own with little support? How will it address any obstacles to developing the market? And what results can it realistically expect?

In close-to-mature markets, RBF may overcome the targeted market barriers in relatively short timeframes of three to four years. Meanwhile, in immature markets it might be unrealistic to expect a large and lasting effect on market development in such a short period. But there are always exceptions to distinctions like this. For example, at the start of an RBF solar lantern project in Tanzania (c.f. box 2), the market for solar in the country was already sizeable, and companies were familiar with the products. The incentive specifically aimed to strengthen distribution from the import supplier to the end retailer in the Lake Zone, a comparatively underserved rural region with low access rates to the grid. After the launch of the project, companies moved into the region relatively quickly and sold significant volumes of lanterns to end customers in the first year already.



4. Finding the participants

RBF only succeeds if private companies commit. To make sure they do, the project must make the benefits clear, but also the effort it will take to achieve them, as well as the costs and possible risks. Projects also need to take care to choose the right financial institutions as their fund managers. A good choice boosts the chances of success, but it can take time.

4.1 Working with the private sector – keep it simple

Present a clear business proposition
Companies need to be totally clear on the costs, potential risks and benefits of being involved in an RBF project before they decide whether to take it on. Companies also need to be aware that RBF is a support tool. It's a way of helping the companies implement their own development strategies. It shouldn't be directing those strategies.

So any proposition has to enable companies to be clear about:

- what's expected of them
- how much it costs to apply and what the process is – especially the fact that they have to pre-finance the project themselves
- potential extra costs, like loan repayments, or the impact of slow turnaround times
- their exposure to risk if the project fails, or if the market changes
- the results they need to achieve to qualify for RBF incentives
- their administrative duties during the project – particularly around monitoring and verification.

Invest time up front to find the right partners
Especially in nascent energy access markets, simple tendering processes often won't be enough to find the right private sector actors. Proper due diligence and thoroughly looking over business plans will reveal whether companies can deliver the results the project is aiming for.

Once a project has found the right partners, it's important to follow their investment trends when designing the RBF structure. Projects shouldn't try to dictate which way the market should go. Following partners' lead will boost their confidence and willingness to learn. Setting up regular feedback mechanisms also paves the way for a successful partnership and helps keep the project flexible enough to adapt to changing markets.

Use simple, standardised contracts with built-in flexibility
RBF projects need to avoid technical terminology like 'theory of change' or 'market barriers', and instead talk to companies in their own language. Incentive structures need to be clear and simple too, with straightforward criteria that show what results the project expects, and how they'll disburse incentives. Those incentives should line up with companies' financial cycles too, whenever possible.

Contracts also need to recognise that these companies often operate in difficult conditions, so they need to account for some flexibility without compromising on targets. This could include accepting a certain percentage of non-verifiable results (for example for non-fixed products such as solar lanterns or portable cookstoves), or results from markets outside the project scope.

Be clear about the purpose of the RBF
If the goal of the RBF is to stimulate innovation and product development, then design it accordingly. For example, in Peru, an RBF project explicitly calls for companies to design and develop – and later commercialise – portable cookstoves for the Peruvian market. Incentives are set for the designs and products that achieve highest results in e.g. fuel efficiency, safety, weight.

But this can be less straightforward than it seems. In Kenya, an RBF aimed to make 'higher tier' cookstoves more available in the market. Only stoves meeting the minimum requirements of tier 2 were eligible for the RBF incentives. But few stoves in the Kenyan market passed the test and companies had to invest in improving the design of their product before they could even enter the RBF. That initially discouraged many, holding up the project. Eventually, incentives, a general drive in the market for more innovative products and some leniency on RBF criteria did lead to some new products becoming available. So, would incentivising initial design work and making this part of the project purpose have produced results faster? Or is there value in not spoon-feeding companies, testing their commitment and having them gather valuable experience that will benefit them later?

Understand risk – and be clear about it
Especially in rural areas, the low-carbon off-grid energy sector in developing countries is mainly made up of new and financially vulnerable companies. Their situation is inherently risky. They often work in a very challenging environment, with unstable policy and regulatory circumstances, poor financing conditions, and many demand and supply-side challenges.

In RBF projects companies only get reward for taking on risk after they've delivered results, and had those results verified. RBF might therefore expose companies to more risks than they might have taken without the prospect of financial incentives – for instance, the cost of pre-financing or difficulties in verifying results. This combined with the difficult framework conditions, can make it hard for companies to predict risk accurately. As a result, they may take on very little risk, which means they don't get the most out of RBF. Or they can take on too much, and put themselves in danger.

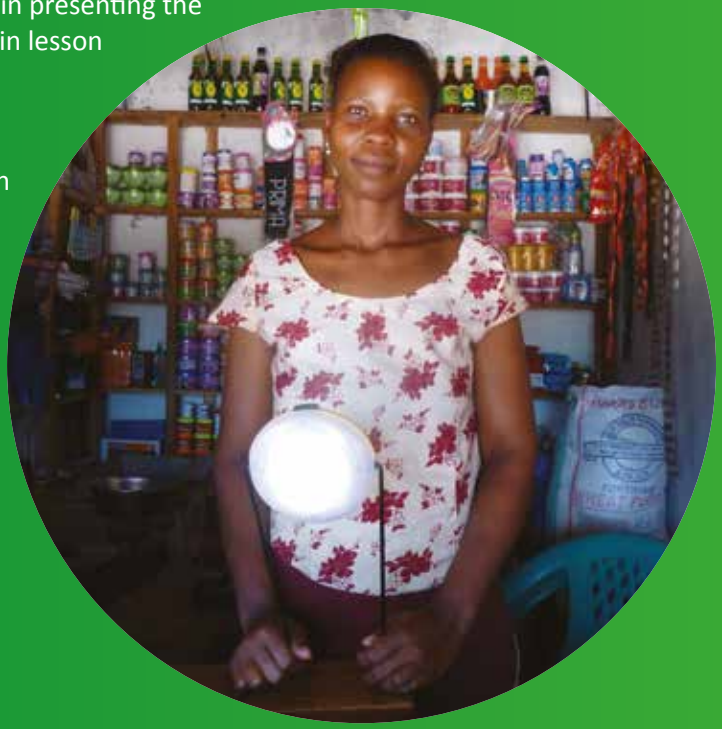
So RBF projects need to take into account how much risk the private sector is willing and able to absorb. Similarly, companies shouldn't overestimate their capacity and open themselves up to more risk than they can bear.

Put a proper risk-management process for the RBF in place
A risk management framework is crucial both before and during an RBF project. It should be part of the day-to-day operations, and flexible enough to adapt to changes in the project or market conditions. If possible, the project design should include plans to mitigate risk, but they have to be in proportion to the size of the RBF intervention.

Box 2. Keep it simple – Tanzania

This RBF project aims at improving access to small solar systems for households in rural areas of Tanzania's Lake Zone. The products range from solar lanterns, to powerful solar lights that can charge phones and radios to small solar home systems, with panels ranging from less than 1 to around 10 Watt peak.

In Tanzania, a lot of experience was gained in presenting the RBF approach to the private sector. The main lesson was to keep it simple:



1. Don't use policy language - Literally all project documents were fully re-written to suit needs for practical use and function of the RBF within the private and financial sectors
2. Use of locally agreed terms and concepts – Link up to what partners already know, e.g. an FI may not know the details of RBF exactly, but they were familiar with existing escrow based services
3. Make clear what the requirements are in the form of an operational guideline – non-performance will actually result in non-payment, regardless of any pre-investments made by partners.

The most important consideration is to ensure that practical nuts and bolts necessary to build a business case are front and foremost in any presentation and packaging of the instrument to the private sector, including an accurate time indication.

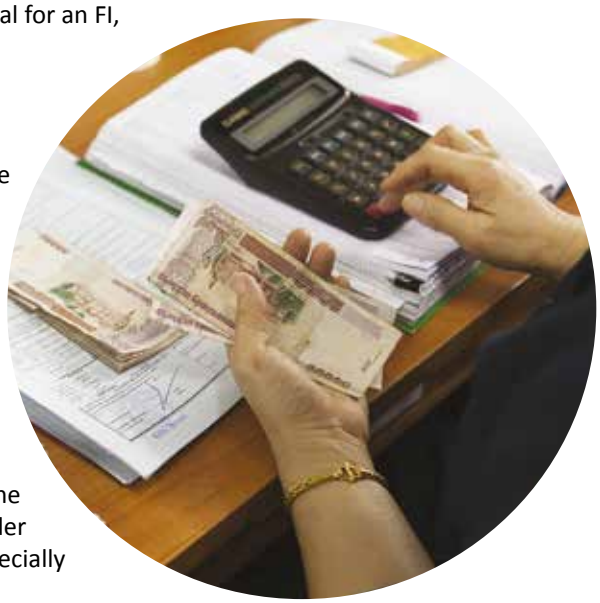
4.2 Working with a financial institution – the benefits and risks

In some RBF projects, EnDev works with a local financial institution (FI) as the fund manager. They manage the project's funds, contract companies, verify results and disburse incentives. They can play a key role in projects. Ideally, they will make more commercial services available to private companies in the sector, making it easier for the project to achieve its objectives. And by being active in the area after the projects' ends, they can help make the results more sustainable. But the feasibility of working with an FI varies per country, and identifying an appropriate one can take time.

Remember the benefits of having an FI as fund manager
The FI gets exposure to the energy sector, which may encourage them to develop new financial products that help the sector grow. In that way, the financial sector is being partly transformed as well. In fact, some of EnDev's RBFs specifically target the development of new products in local MFI loan portfolios.

An FI already has access to an established customer network. In some cases, they'll let enterprises use this network to attract new customers, because they can then sell them financial products and services.

A project can outsource various things to an FI, like making contracts with project stakeholders, verifying payment requests and disbursing incentives. This can help make the project more efficient because this work is business-as-usual for an FI, but not necessarily for the organisation responsible for the project.



Understand the possible drawbacks – and how to manage them
Not every country will have suitable FIs, and those that are suitable might not be willing to engage. They might not see the business value for themselves, or perceive the sector as too risky. Or they might not be willing to take on a project manager role that goes beyond their business-as-usual operations. They might also feel their lack of experience with RBF projects and process holds them back.

Several RBF projects have had serious delays in starting up in part because of a lengthy search for an FI as fund manager, which led to a drawn-out tendering and contracting process. In some cases, because of a misunderstood value proposition or the FI's disinterest, proposed fees were considerably higher than the cost of managing the fund in-house. This can happen if the FI sees its role as service provider only, and has no genuine interest in renewable energy financing, especially when it comes to low-cost energy access technologies.

Also, in some cases FIs' capacity to handle the project was lower than expected and they needed significant technical support to get started, as they weren't accustomed to the role of project manager. This again meant higher costs, but without the reduced workload.

To manage these risks:
Choose an FI with a proven interest in the energy sector
They're more likely to invest, and set up the right kind of structures and procedures. And they'll be more interested in developing new products and services for the sector.

Only ask the FI to do things that are part of its core business
FIs are comfortable with performing transactions, managing clients and compliance activities. But they might prefer to stay out of technical verification activities, strategic project management and communication.

Make sure the FI knows exactly what you expect
Develop very clear terms of reference to make sure FIs fully understand what you need. Ideally, these terms should come with an operations manual that details all the steps, procedures and documents. This will help you make sure the FI is genuinely interested in and committed to the project, and so lower the risk of delays later.

5. Running the project

5.1 Setting incentives

The RBF incentive structure covers the overall amount of the incentive, who gets it, and when, based on which targets. How a project structures its incentives has a big impact on the outcomes and whether or not it's successful. It can also influence what sort of organisations take part.

Remember there's no single 'right' way to design an incentive structure
EnDev's portfolio of RBF projects includes a wide variety of products and geographic markets, and those markets vary in maturity. So a project's incentive structure has to reflect the characteristics of the market in which it operates. What works for one project in one country may not work for another. That also means project teams have to take into account the type of technology they deploy when they design the incentive structure. A project to develop physical energy infrastructure, like the mini-grid project in Rwanda, might need a structure that disburses incentives after early design and achievement of milestones. On the other hand, a project to distribute off-the-shelf, low-cost improved cookstoves may
want to hold off on incentive payments until it can verify sales to end-users.

Consider targeting more than one part of the supply chain
The ultimate goal of an RBF project is to increase access to clean energy. Incentivising companies that deliver clean energy products or services directly to consumers (like solar home system distributors, mini-grid developers, and cookstove retailers) may seem like the most obvious way to achieve this. But barriers to energy access are often down to market failures across the supply chain. An incentive structure that targets one or more points in the supply chain may in the end contribute more effectively to the set goal than directly and only incentivizing the delivery of clean energy products.

For example, in Bangladesh, off-grid appliance manufacturers and solar companies struggled to overcome import tariffs. They were so high that international appliance manufacturers wouldn't even invest the cost of travelling to Bangladesh to meet potential customers. Also, in-country appliance suppliers often struggled to secure large enough down payments on orders from new customers to mitigate their up- front financial risks. So the RBF project offers incentives to both off- grid appliance manufacturers – who don't deal direct with end-users – and customer-facing off-grid solar companies.

Think about the exit strategy when designing the incentive structure
The incentives of RBF projects won't last forever and the structure should reflect that. Project teams should keep their ultimate exit strategy in mind – and the impact of that strategy on how much support stakeholders will need – when they design their incentive structures. They could consider steadily decreasing the incentives as the market matures, and explaining this to participants, so they can anticipate it.

At the same time, projects have to stay flexible in their understanding of the exit strategy, so that incentive structures can evolve if they need to.

Think about how incentives relate to other financial tools
RBF projects don't exist in a vacuum. Other financial tools, offered by other development organisations along with private financial institutions and investors, or by public stakeholders, are often available to potential participants. The design of an incentive structure shouldn't overlook these other tools, or how the RBF project relates to them.

5.2 Monitoring, verification and evaluation

The success of an RBF project relies on knowing if and when to pay incentives for the results companies claim. Without robust processes for monitoring and verifying, it's impossible to know if they've really achieved those results.

Don't underestimate the resources you'll need
Projects generally underestimate how much time, money and effort they need to put into monitoring, evaluation and verification. The East African biogas project, for example, needed more than six months to set up a consistent, effective verification process (c.f. box 3).

Don't try to invent an approach to monitoring and verification that works everywhere
Factors like market conditions, geography, accessibility, local policy and project capacity can vary wildly from region to region, and projects need to be flexible. It's not realistic to expect that one centrally managed approach will work everywhere, or that what worked in one region can translate directly to another. Keep in mind that energy access products tend to be marketed in areas with limited accessibility, which means it takes more time and money to verify sales physically.

Across RBF projects, there's a huge range of approaches to monitoring and verifying. Based on the different technologies, quantities and possibility to actually verify the claims, different verification strategies have been developed (see box 3.) The East African biogas project, for example, has contracted a call centre to carry out part of its verification – through outbound calls – of all biogas plants installed. Biogas plants constitute a relatively high investment for a household and are fixed once installed. With a total target of around 20,000 plants over four years, a project can implement this at relatively reasonable cost.

On the other hand, solar lantern projects like the ones in Benin, Rwanda and Tanzania expect to sell in the tens of thousands of systems over the course of a year. That means 100% verification isn't realistic, either in person or on the phone, especially as it's not uncommon for a purchaser to give the solar lantern away as a present to other family members not necessarily living in the same household. So projects must balance costs and statistical relevance to prevent fraud. Solar lantern projects are a good case study for the impact of geography, too. Companies often sell lanterns at markets, and through long distribution chains into remote areas, which can mean that a two-person field team can only verify three customers a day. To verify 1,000 sales in person would take a full-time team of 33 persons over 20 working days.

In general, projects often find that people in rural areas share phone numbers. They often only turn their phones on for outgoing calls, or at certain times of day, which makes it impossible to verify sales by phone. All these aspects need to be kept in mind when deciding on a sample.

Box 3. Verification - Biogas digesters in East-Africa

Projects generally underestimate how much time, money and effort they need to put into verification. A project with a quite distinctive verification strategy comes from East Africa. The RBF project on biogas digesters set up an independent Customer Service Centre that took a pivotal role in quality assurance and gathering customer feedback, as well as verifying sales. Plant owners will be called three times in the first year after completion, two times in the second year after completion and once annually for all subsequent years. Flagged installations will receive more calls.

A short questionnaire measures the client's satisfaction and the plant performance. Any issues will be flagged and communicated to the programme or biogas SME and later on it is verified if the measures taken have been sufficient. It took the project six months to get the service center up and running (e.g. to establish the relations with entrepreneurs and build sufficient capacity).

This shows that it's important to allow enough time to get stakeholders on board and keep the monitoring and verification requirements in mind already at the design stage. The reward is a verification system that does not only work but can also boost quality and consumer confidence in the market.

Try to standardise the principles and tools you use to monitor, evaluate and verify
As we've seen, projects always have to be flexible. But having a central idea of what the guiding principles are will help people setting up projects in new areas. For example, be clear on things like: what's the minimum threshold for verifying data? Does there always have to be third-party verification? How much budget goes to this area of the project? Does the project verify at different times for different companies, and does that vary over time? That way, project teams have the license to vary their approach, but everyone is clear on what the fundamentals are.

Match monitoring and verification with common business practices
As much as possible, projects should try to line up with companies' existing internal verification and reporting practices. If those processes aren't effective enough, work with the companies to reach RBF standards. But also bear in mind that changing processes comes at a cost, which companies need to offset either through profit or incentives.

Companies in the solar sector working through a pay-as-you-go approach, for example in Tanzania or Rwanda, usually already have a good customer database in place to monitor system functionality and collect payments over a longer period of time. In cases like this, projects can easily integrate RBF verification requirements as the company is already working with well-structured customer databases.

And, last but not least, projects need to verify results as soon as possible once they receive claims from companies. This minimises the financial burden on companies and wins their confidence.

Projects need to verify results as soon as possible once they receive claims from companies.

6. Conclusions

The 17 RBF projects run so far have produced some clear lessons. They cover each stage of a project, from planning, budgeting and setting incentives to recruiting companies and outside support, and verifying results.

Energy markets vary across different countries. The economic and policy context for those markets varies too. And so does the level of other economic development activity happening alongside RBFs. So there is no single 'best way' to design and run one.

But there are ways to increase the chances of success.

Tune in to the market and the economy
The more a project understands the market and its context, the better it is at anticipating how a market could develop, and what effect an RBF could have. That, in turn, makes it more likely that a project will set the right sort of incentives to stimulate the market and sustain it.

Be clear about the risks and costs as well as the benefits
In the energy access field, businesses taking part in RBF projects are often new and still developing. They need help to understand the right level of risk for them to take on: enough for them to benefit from the project, but not so much that it threatens their viability. Projects also need to be clear with businesses about the investment they'll have to make before they see a return.

Set incentives to reward and stretch
Setting the right incentives is one of the toughest parts of RBF projects. Businesses might need help through early product development, for example. But they'll also benefit from the learning that comes from solving real-life business problems in the knowledge that they'll get an incentive later.

Take the time to find a fund manager
A good fund manager can be the bridge between the RBF project and a long-term, sustainable market. Finding one might not be easy. But it's worth taking the time to search for a financial institution with a genuine interest in clean energy.

Be pragmatic about verifying and clear about paying
Results matter. Businesses need to see a verification method that inspires confidence. That means making it rigorous but also capable of relaxing criteria when barriers are too high. It also means making criteria unambiguous and being straightforward about how businesses will get their payments.

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