



End-user finance: A guide for sustainable energy enterprises and NGOs

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1 Introduction

1.1 Background

Since 2001, the Ashden Awards for Sustainable Energy have been rewarding and supporting enterprises and NGOs that are delivering energy and changing lives with solar, micro-hydro, biogas, improved stoves, water pumps and other technologies. The health, well-being and poverty alleviation benefits of these technologies have been well documented, and they have the additional benefit of being low carbon, compared to traditional energy systems based on fossil fuels or biomass.

These winning programmes have demonstrated that the challenges of delivering energy to the poor, often in remote areas, are not insurmountable. They have shown that scale can be achieved and millions of people can be reached, and that profitable models are possible.

Not all sustainable energy programmes can and should be profit-making enterprises. However, there is not enough aid or grant funding to meet the needs of around two billion people lacking access to modern energy services¹, and profitable models have the potential for rapid scale-up and wide dissemination in the developing world.

Finance is one key ingredient for scaling up sustainable energy enterprises. Three types of finance are often necessary:

- Investment finance – for enterprises in the sustainable energy supply chain.
- Carbon finance – to capture the value of the carbon savings from global carbon markets.
- End-user finance – to help customers purchase energy products.

With our partners GVEP International and Arc Finance, we are preparing short guides to help Ashden Award winners, GVEP partners and other sustainable energy enterprises to negotiate these three areas.

This guide is an introduction to end-user finance for sustainable energy enterprises and NGOs.

1.2 Purpose of this guide

The purpose of this guide is to introduce the concept of end-user finance, to summarise key issues involved in providing finance for the purchase of sustainable energy products and services, and to provide recommendations on how to develop an end-user finance strategy.

We have tried to create a guide for sustainable energy enterprises that is easy to understand, and ensures that they:

- Undertake sufficient research and analysis to define the scope and requirements of end-user finance for their enterprises;
- Understand the available options and key success factors for introducing end-user finance; and
- Have sufficient tools to guide decision-making and implementation.

1.3 What is a sustainable energy enterprise?

For the purpose of this guide, we define a sustainable energy enterprise as one of the following: an organisation which is selling products that allow customers to generate sustainable energy or to save energy; one that is generating sustainable energy locally and selling it to customers (or to an electricity grid); or an enterprise which is

¹ International Energy Agency, World Energy Outlook 2006 (Paris: IEA, 2006). <http://www.iea.org/textbase/weo/electricity.pdf> and <http://www.iea.org/textbase/weo/cooking.pdf>

itself powered by local sustainable energy. We define “sustainable energy” as energy that brings environmental, social and economic benefits – it includes energy from solar, micro-hydro, biogas, energy-efficient cooking stoves, and other technologies.

Sustainable energy enterprises might be:

- Manufacturers
- Importers
- Wholesalers
- Retailers
- Installers and service contractors as well
- Generators and distributors

Some enterprises may cover more than one of these (e.g. importing, assembling, retailing and installing solar home systems). Others will focus on just one element (e.g. manufacturing stoves and selling to distributors).

1.4 What is end-user finance?

For the purposes of this guide, an “end-user” is defined as any individual, household, business, or other consumer of an energy product or service. “End-user finance” is money borrowed by these consumers to pay for energy products or services.

This guide focuses mainly on enterprises that are selling sustainable energy products to individuals, households and micro/small enterprises. The guide could also be useful for sustainable energy enterprises with a service-based model, particularly where their customers may need finance to pay for connection fees. These include micro-hydropower or community wind power.

1.5 What is the connection between end-user finance and sustainable energy?

At present, roughly 1.6 billion people do not have access to electricity and over 2.5 billion people do not have access to clean cooking options.² Most of the people without modern energy access also lack access to finance.

People on low incomes in developing countries typically spend a large proportion of their income on energy. For example, people living on less than US\$1 per day often spend 20-25 percent of household income on inefficient energy sources, which are usually purchased in small quantities as cash becomes available.³ As compared to traditional energy sources, sustainable energy products are often viewed by customers as more costly due to the high up-front payment that may be required. This is a result of both the cost of the energy products themselves and the costs associated with delivering the products to customers. However, the ongoing energy costs are typically much lower with sustainable energy products.

For example, buying and installing a solar home system typically costs at least \$200 (depending on the size and where you are in the world), but will continue to provide light and electricity for many years without additional cost, apart from occasional battery replacement. This compares to kerosene lanterns that cost only a few dollars to purchase – but of course require continuous purchase of kerosene.

As such, it is often easier for energy enterprises to serve higher income people who can purchase products with a lump-sum cash payment rather than find ways to target lower income people. Without end-user finance options available for their customers, it can be difficult for sustainable energy enterprises to achieve significant scale.

² International Energy Agency, World Energy Outlook 2006 (Paris: IEA, 2006). <http://www.iea.org/textbase/weo/electricity.pdf> and <http://www.iea.org/textbase/weo/cooking.pdf>

³ World LP Gas Association, LP Gas and Microfinance: A Study into the Applications and Use of Microfinance in LP Gas Access Projects (Paris: World LP Gas Association, 2004).

A recent review of leading sustainable energy enterprises found that end-user finance is critical to successful expansion strategies and serves as a path to reaching lower-income market segments.⁴

1.6 What are the benefits of linking energy and end-user finance?

The *potential* market for sustainable energy can be transformed into actual customers if end-users can access finance for the purchase of energy products and services. This has benefits for end-users, enterprises, and lenders:

- **Benefits for end-users:** Households and small business have the ability to purchase sustainable energy products and services that can bring well-being and health benefits, increase economic productivity, reduce energy expenditures, and improve livelihoods
- **Benefits for enterprises:** End-user finance can increase sales and allow enterprises to reach clients with lower incomes or irregular income streams
- **Benefits for lenders:** Lenders can increase client retention, diversify product offerings, increase competitiveness, and ultimately expand their client base while having increased social impact.

Linking end-user finance and sustainable energy can also bring broader benefits for climate change mitigation and poverty reduction:

- **Poverty reduction:** Access to sustainable energy can be vital for achievement of the Millennium Development Goals – particularly those related to the environment, health, education, and gender equality. A report produced for the UN Millennium Project states that energy services have a direct impact on all the Millennium Development Goals and that enhancing access to energy services would greatly aid the process of achieving the targets.⁵
- **Climate change mitigation:** Most sustainable energy enterprises will be reducing emissions of carbon dioxide and other greenhouse gases. This is because their customers switch from higher carbon energy sources (e.g. kerosene lanterns) to lower carbon energy sources (e.g. solar home systems), or because they switch to more efficient ways of burning biomass (e.g. with improved cooking stoves).⁶ Increasing access to end-user finance can help to speed the switch to cleaner, low carbon energy sources.

1.7 What are the main types of end-user finance providers and how do they differ?

In most countries, there is a wide range of finance providers that could play a role in providing end-user finance for customers. Although the available options can vary widely between regions and countries, finance providers can be split into the formal, the semi-formal, or the informal sectors.

More details of these sectors are provided in Annex 1. In summary:

The formal sector is made up of banks, building societies, microfinance institutions (MFIs) and other lenders that are covered by government regulation. Of the three sectors, the formal sector is the most difficult place to access finance for poor households, as they typically require clients to provide collateral/security and a good credit history. They also tend not to be well represented in rural areas where energy needs are greatest.

The semi-formal sector is made up of unregulated MFIs, microfinance NGOs, savings and credit cooperatives, village banks and other lenders that are usually registered with the government. It is generally easier to access finance from these lenders, compared to the formal sector, and many of them have social development objectives which means that they may be more willing to provide finance for energy products.

The informal sector covers revolving credit and savings associations, money-lenders, shopkeepers or traders who extend credit, family, friends, and other lending arrangements. These finance players offer financing on very

⁴ Opportunities to Achieve Poverty Reduction and Climate Change Benefits Through Low Carbon Energy Access Programmes: A Review of the Portfolio of the Ashden Awards for Sustainable Energy. April 2008.

⁵ Energy Services for the Millennium Development Goals, 2005, Chapter 2, especially pages 33-34.

⁶ For a detailed discussion on this see: Nicola Armacost, "Microfinance and Sustainable Development", FDC, 2009 (forthcoming).

personalised terms and are present in rural areas, but they can be hard for an energy enterprise to partner with as each lender will typically only reach a small number of customers.

2 End-user finance and sustainable energy enterprises

2.1 I am a sustainable energy enterprise - how can end-user finance help me achieve my goals?

There are multiple benefits from an effective end-user finance strategy:

Increased market size: For many sustainable energy enterprises, market potential is limited to customers that are able to purchase products and services on a cash basis. By offering end-user finance, many enterprises are able to expand the target market to include lower income households and businesses, and customers that are able to pay for products over time but may not have the ability to make a lump sum cash payment.

Cross-selling opportunities: By working with an end-user finance partner, a sustainable energy enterprise may be able to market products to customers that are receiving housing loans, education loans, working capital loans, or savings, remittances and insurance products.

Promotion by finance partners: Some energy enterprises have found that end-user finance partnerships can lead to increased promotion of products that do not require credit because of the financing partner's focus on livelihood improvement. For example, SEWA Bank in India promotes several cook stoves to clients that are purchased on a cash basis from Solar Electric Light Company (SELCO). Although SEWA Bank does not profit from the promotion of these products, the MFI plays a role in their dissemination because of the health benefits these improved cook-stoves can bring to their clients.

Solar Electric Light Company (SELCO) – India

SELCO is a Bangalore-based private company providing solar home systems and other energy services to low-income households and institutions primarily in Karnataka and Gujarat, India. SELCO's approach focuses on offering a combination of customized products, after-sales service, and financing delivered at the customer's doorstep. The end-user finance component of this strategy is provided through the Partnership Model, whereby SELCO has developed a strong relationship with MFIs like SEWA Bank in Gujarat and Regional Rural Banks in Karnataka to offer flexible financing options to customers in need of financing for clean energy products and services.

<http://www.ashdenawards.org/winners/selco07>

2.2 What are the different business models used to provide finance to end-users for energy?

There is no one-size-fits-all model for providing end-user finance to customers. Determining the most suitable end-user finance model is an important decision that is highly influenced by local context. Annex 2 has details of five different models, and they are summarised below. The most common and most successful options to date are the One-Stop-Shop and Financial Institution Partner with Energy Enterprise Models.

One-Stop-Shop Model: In this model, sustainable energy products and finance are provided by the same organisation. This happens when a finance provider decides to offer energy products, or when an energy enterprise decides to offer finance.

- **Key advantage:** The finance provider or energy enterprise maintains complete control over both aspects of their business.
- **Key disadvantage:** The organisation has to develop new areas of skills and expertise to be able to implement this effectively.

Grameen Shakti – Bangladesh

In many ways, Grameen Shakti is a global leader in delivering clean energy products and services to rural Bangladesh and is by far the most widely recognized example of a “One-Stop-Shop” in terms of energy end-user finance. In this model, Grameen Shakti provides technology, after-sales service, and end-user finance tailored to the specific needs of clients under one roof without partnering with a finance provider. Grameen Shakti was able to scale quickly by tapping into the existing infrastructure of its sister organization, Grameen Bank, initially subsidized loans from World Bank/GEF, and significant investments in training and internal human capital.

http://www.ashdenawards.org/files/reports/grameen_case_study_20081105.pdf

Financial Institution Partnered with Energy Enterprise: In this case, an energy enterprise enters into a partnership with a local financial institution to sell sustainable energy products. This model typically involves a financial institution providing credit to an end-user and managing the monitoring and repayment processes, while the energy company provides the energy product, installation (if necessary), service and maintenance.

- **Key advantage:** Both organisations stick to the business area that they know best.
- **Key disadvantage:** It relies on a good partnership to make sure that both organisations deliver their side of the partnership effectively.

“Umbrella” Partnership Model – the energy enterprise enters into a partnership arrangement with an “apex institution” that manages a network of local financial institutions (e.g. a union or organisation of credit cooperatives, credit unions, or other village-based financial institutions). The apex institution lends money to the local finance providers, who then lend to an end-user and manage the monitoring and repayment processes. The energy enterprise provides the energy product, installation (if necessary), service and maintenance.

- **Key advantage:** Both organisations stick to the business area that they know best, and the energy enterprise is able to reach many more clients than with a local partnership.
- **Key disadvantage:** Compared to a local partnership, it is more difficult to manage the partnership and make sure that all activities are being implemented effectively across the network.

Franchise/Dealership Model - the energy enterprise provides credit to dealers and/or franchises to allow them to sell to clients on an installment basis. This particular model is common for relatively inexpensive products – usually those that cost under US\$50 (e.g., solar lanterns, treadle pumps or efficient cook stoves).

- **Key advantage:** A simple way of increasing the reach of an energy enterprise and expanding the market.
- **Key disadvantage:** It requires upfront cash investment from the energy enterprise, and relies on effective dealers who can provide quality services to customers and collect repayments.

Sunlabob Renewable Energy Ltd. – Laos PDR

Due to the low level of financing options for end-users in rural Laos, Sunlabob developed an innovative rental system to improve access to high quality PV products in areas where people are unable to afford the high upfront cost. Sunlabob utilizes a network of franchises that manage village-level charging stations, renting energy systems to end-users. This rental income covers the equipment and operational costs, including training, maintenance, and replacement parts. The successful Sunlabob rental system is being replicated in other parts of Asia and East Africa.

<http://www.ashdenawards.org/winners/sunlabob>

Brokering Model – a third-party organisation or individual is paid by the finance provider and the energy enterprise to market energy products and assess customers’ suitability for financing. They will then bring viable customers forward to buy energy products. The broker may also be involved with loan payment collection, after-sales service, and technical upkeep.

- **Key advantage:** A simple way of increasing reach and expanding the market, and brokers are usually paid a finder's fee after the product is sold, so it doesn't require upfront cash investment.
- **Key disadvantage:** It relies on brokers who can effectively market products and screen customers.

3 Planning Your End-User Finance Strategy

3.1 How do I develop an end-user finance strategy? Where do I start?

The following is a set of issues and questions to ask yourself that should help you develop an end-user finance vision:

Organisational Strategy. It is important to begin this process by developing a few high-level goals and objectives for end-user finance.

Key Questions: What is my vision for end-user finance in 3 to 5 years? Why is end-user finance important for my business? How does this fit into my overall strategy and business plan?

Current Market. Before jumping into an analysis of your target market for end-user finance, you should take a closer look at the client segments you already serve with energy products and services.

Key Questions: Who are my current clients? How do they pay for my products and services? Do any obtain financing – if yes, from where and at what terms? What is their income level?

Target Market. Using available resources, gather data and conduct research to better understand the target market – try to gather data on their energy and finance needs, and the loan characteristics (size of loan, loan terms etc.) that would be attractive to them. Additional information on how to conduct a market demand analysis is contained in the next section.

Key Questions. What types of customers that I currently serve will require end-user finance and what energy products will they require/demand? What do I know about their ability and willingness to pay? What do these customers value in terms of customer service?

Internal Capacity: It is important to determine your own ability to introduce end-user finance, either in-house or through partners.

Key Questions: Can I offer end-user finance myself or would it be better to look for a partner?

External Landscape: Learn about end-user finance players and other energy enterprises that already operate in your market.

Key Questions: Who are the primary competitors? What end-user finance suppliers have experience with or are currently financing energy products in your market? What terms and conditions do they offer?

3.2 How do I assess if there is adequate demand?

Whether or not you plan to offer end-user finance yourself or partner with a financing institution, it is often useful to conduct a market demand assessment. You may want to bring in external assistance to conduct this research. The aim of this assessment is to:

- 1) Understand market demand for energy products and end-user finance.
- 2) Develop a baseline profile of energy consumption client incomes .
- 3) Draw a geographic map of customers demand and existing suppliers – for both energy products and for end-user financing. This will help you decide on pilot areas.

Annex 3 has a sample methodology that can inform your demand assessment:

3.3 What are the main challenges I might expect in implementing my end-user finance strategy?

The introduction of new end-user finance options poses a set of new challenges for energy enterprises. These are laid out in more detail in Annex 4. For example:

Target clients have low-incomes and are difficult to reach. End-user finance will allow energy enterprises to reach new markets with customers that have lower or less reliable incomes and are often in remote areas. This poses challenges for installation and maintenance across wider areas, and new risks as these customers are often vulnerable to economic shocks such as loss of livelihood.

Financing partners need to understand and embrace the case for sustainable energy. Fully engaged financing partners are critical for success and so energy enterprises will have to spend time educating their partners on the business and social case for sustainable energy lending (including different levels of management and loan officers).

Impacts on cash flow, staffing, and price. Offering end-user finance to customers adds a number of new activities, compared to simple cash sales. This will have an impact on the cash flow for the energy enterprise (if finance is offered in-house), on staffing needs, and ultimately on the price of the products.

3.4 What are the key legal and policy issues I need to be aware of?

Key legal and policy considerations include:

Financial sector regulation. The regulation and supervision of financing activities is one of the most important issues to consider when planning end-user finance options. If you choose to offer finance in-house without a partner, then you need to fully understand the registration and reporting requirements needed to legally offer end-user finance options to your clients. In most countries, there are strict regulations determining which entities can offer finance. If partnering with a finance provider, it is important to understand what legal body oversees the partner and applicable regulations for financing activities.

Interest rate policies. Restrictions on interest rates have been introduced in some countries to protect vulnerable sectors of the population. They can make it difficult to operate end-user finance activities efficiently and profitably. To ensure financial sustainability, end-user financing needs to be priced to allow for recovery of all associated costs, and any profits, regardless of whether offered in-house or through a finance partner.

Legal enforcement of contracts. Energy enterprises need to understand the legal framework for effective enforcement of financial contracts. It is useful to examine contract law and property rights in your local context and regulations that could impact your ability to introduce penalties for customers (i.e. late fees) in case of late payment or default.

Ability to seize pledged assets. Some energy enterprises or financing partners may require that interested clients offer assets as collateral for end-user finance products. In these cases, it is important to understand the legal requirements and processes involved in seizing pledged assets.

3.5 When should I partner with a supplier of end-user finance and when does it make sense to offer in-house financing?

There is no single model for end-user finance that can be applied to all situations. Therefore, it is important to understand as much as you can about the target market, policy and regulatory environment, and geographic constraints that are unique to your local context. A few questions to consider include:

- Is my current market served by suppliers of end-user finance? Are these same players interested in financing energy?
- Is the target market served by suppliers of end-user finance? If so, is there an interest in financing energy? What terms would be offered?

- Does my enterprise have sufficient cash-flow, skills and expertise to offer in-house financing?

Experience has shown that offering in-house financing is not a simple undertaking, and it requires significant changes to the enterprise, for example:

- Restructuring operations, modifying products and processes, amending the business plan and organisational priorities.
- Establishment of a finance department and a robust management information system capable of monitoring and enforcing end-user finance processes, producing consistent and accurate financial reporting, and ensuring low default rates
- Training of staff and hiring of dedicated staff to handle end-user finance.
- Ensuring financial resources are in place to fund your end-user finance programme and/or implementing a solid plan for raising the necessary funding.

3.6 What factors should I look for in a potential end-user finance partner and what will they consider when evaluating an energy partner?

Prior to entering into partnership arrangements, it is important to assess potential financing partners. This is often known as “due diligence” and it refers to the process by which an energy enterprise conducts research on the finance institution’s structure, finances, management, operations, technical capability, outreach, etc. to better understand the benefits and risks associated with a potential partnership. Finance institutions will also conduct due diligence on potential energy partners. Annex 5 has a set of issues that you may want to use as a guide for evaluating potential partners, and a guide to the qualities that financing partners will be looking for in an energy enterprise.

4 Developing and Implementing End-user Finance Strategy

4.1 What are the key elements of a partnership agreement with finance institutions?

When you go into a partnership with a finance institution, it is important to have a written document that clearly lays out the expectations on both sides. Many energy enterprises and financing institutions find it helpful to clarify each partner’s role in a formal partnership agreement, typically in the form of a Partnership Contract or other legally enforceable document. Annex 6 has a list of items suggested as priorities for written partnership arrangements by energy and microfinance practitioners.

One particular area to highlight is that of carbon rights. As discussed previously, sustainable energy technologies often reduce carbon emissions due to switching to lower carbon energy sources, or energy savings. This means that sustainable energy enterprises may be able to sell carbon credits in the global carbon market. Finance providers may also wish to sell carbon credits for the energy products that they are financing. Enterprises and finance providers must avoid selling the same carbon credit twice – there is no hard and fast rule for who “owns” the carbon rights and so this should be negotiated and agreed in advance.

4.2 If I decide to provide end-user finance myself without a partner, what are the next steps?

The following is a list of exercises that should be undertaken to further develop your in-house end-user finance offering:

Draft a Business Plan. Create a business plan that outlines goals for end-user finance, organisational changes required to meet the goals, anticipated changes to other products and services, proposed timeline for introduction, preliminary budget and financial projections.

Build Internal Capacity. This could include additional training, hiring new credit staff or commission-based agents, installing new management information system, and adjusting processes and policies. For many enterprises, it might make sense to establish a separate division/unit within the organisation with core responsibility for end-user finance. This can ensure separation of duties and avoid conflicting staff priorities.

Design Financial Products. Strategic decisions need to be made to define the terms, conditions, and procedures for end-user finance, including establishing client eligibility requirements, client assessment processes, end-user finance product features (loan amount, repayment terms, interest rate, collateral, penalties).

Design Processes. Now that the key attributes of the end-user finance products have been determined, you should design the processes necessary to implement your vision. These include developing loan application forms, household and business visit questionnaires, and processes for appraisal and approval, payment collection, and arrears monitoring. It is helpful to map out these processes and financial product characteristics in an End-user Finance Manual.

Test Financial Products. It is essential that you pilot test the end-user finance products, closely monitor progress, and make revisions to products and processes prior to full implementation. The following sections offer recommendations for establishing monitoring and evaluation processes and a pilot test.

4.3 How should I design monitoring and evaluation systems for my energy portfolio?

Irrespective of your business model and strategy, monitoring and evaluation is vital because it produces information that can guide decision making, enhance performance, and help to attract capital. Most energy enterprises find it useful to monitor performance across financial, social, and environmental areas. Annex 7 provides more detailed information to guide the development of a monitoring and evaluation system, and a portfolio management system.

4.4 How do I plan for and initiate a pilot?

Piloting and testing of the energy-lending pilot is an essential step in introducing end-user finance – it allows you to experiment and learn from your experiences with a small number of customers. This kind of experimentation can allow you to test new finance products in a somewhat controlled environment prior to investing in full-scale implementation. Annex 8 provides more detailed information to help design and launch a pilot programme.

4.5 Once my pilot is working well, how do I expand the business?

Now that you have successfully implemented a pilot and refined the end-user finance products and processes, efforts should be focused on reaching scale through expanding the target market and offering end-user finance options to new customers.

It is helpful to begin with an in-depth review of the pilot phase. Next, you should develop an implementation plan for rolling out the end-user finance products to new customers. If partnering with a finance institution, this is a good time to evaluate whether or not it makes sense for the partner to establish an energy division, if it has not already.

When rolling out the finance products into new geographic regions or market segments, it is important to periodically review end-user finance mechanisms and, if necessary, make revisions. Possible revisions include adjustments to loan characteristics, eligibility criteria, and warranty agreements.

Finally, you should create a long-term strategy for end-user finance that incorporates lessons learned during pilot phases, finalised finance product characteristics and processes, budgeting for expansion including marketing and promotion strategy. At this time, it makes sense to consider standardising processes and promotional materials to ensure consistent marketing messages across regions.

4.6 Where could I (or my finance partner) access funds to lend for energy?

There are a number of funding sources available to both energy enterprises and financial institutions to help build and grow end-user finance, ranging from in-kind technical support and grants to fully commercial investment financing.

In-kind Support

Some in-kind funding is available from international not-for-profits and donors in the form of technical assistance to conduct market studies, trainings and capacity building activities. Usually the organisation providing support has a specific agenda and it is important to be sure your expectations and needs are matched with what the organisation is willing to provide. These types of arrangements should be treated as any other partnership and the terms should be enshrined in a Memorandum of Understanding between the parties.

Grants

Some donors are also willing to provide grant funding for innovations and for implementing pilots that break new ground and are viewed as cutting-edge in some way (for example developing a new product line or bringing a specific energy technology to a new part of your country or region, or a different part of the world). It is important to note that this type of funding is usually premised on a sound business plan that outlines how income will be generated once the funding has been used up.

Lines of Credit and Guarantees

Local banks and certain international donors (such as bilaterals or multilaterals) can be a useful source of funding to build or expand energy lending portfolios. One common instrument is a line of credit, which is a credit facility extended to a business by a bank usually in the form of an account that can be tapped when the need arises. Banks and international donors may also be willing to provide full or partial credit guarantees – a promise to provide timely debt service up to a pre-determined amount – to promote an increase in energy end-user finance.

Fully Commercial Funding

For more established energy enterprises, there is a growing network of local and international “social impact investors” that may be willing to provide either debt or equity funding to eligible enterprises. For more information, please see our parallel guide on investment financing.

5 Examples

Good examples of top-notch end-user finance programmes:

Solar Electric Light Company (SELCO) – India

SELCO is a Bangalore-based private company providing solar home systems and other energy services to low-income households and institutions primarily in Karnataka and Gujarat, India. SELCO’s approach focuses on offering a combination of customized products, after-sales service, and financing delivered at the customer’s doorstep. The end-user finance component of this strategy is provided through the Partnership Model, whereby SELCO has developed a strong relationship with MFIs like SEWA Bank in Gujarat and Regional Rural Banks in Karnataka to offer flexible financing options to customers in need of financing for clean energy products and services.

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http://www.ashdenawards.org/files/reports/grameen_case_study_20081105.pdf

Biogas Sector Partnership – Nepal

In 2005, Nepal's Biogas Sector Partnership (BSP) won an Ashden Award for its innovative work in scaling access to household biogas digesters through successful collaboration with government, private sector, financing institutions, donors, and end-users. Individual digesters are financed through the combination of a targeted subsidy aimed at encouraging installations in remote areas, household contribution of labour and materials, and a cash payment made by the households. Over 100 microfinance institutions in Nepal are actively engaged in offering microcredit for the household cash contribution toward a biogas installation, which is typically repaid within eighteen months.

<http://www.ashdenawards.org/winners/bsp>

Sunlabob Renewable Energy Ltd. – Laos PDR

Due to the low level of financing options for end-users in rural Laos, Sunlabob developed an innovative rental system to improve access to high quality PV products in areas where people are unable to afford the high upfront cost. Sunlabob utilizes a network of franchises that manage village-level charging stations, renting energy systems to end-users. This rental income covers the equipment and operational costs, including training, maintenance, and replacement parts. The successful Sunlabob rental system is being replicated in other parts of Asia and East Africa.

<http://www.ashdenawards.org/winners/sunlabob>

Solar Energy Foundation – Ethiopia

In rural Ethiopia, most off-grid households do not have access to financial options from the formal banking sector or existing microfinance institutions. Because of this gap, the Solar Energy Foundation (SEF) established a micro-payment scheme in Rema, Ethiopia, collecting small fees on a monthly basis from over 2,500 end-users to cover basic maintenance costs of solar PV systems. In 2009, SEF opened five new solar centers across Ethiopia with the goal of selling solar PV systems on a cash basis and via micro credit through an internal revolving fund. SEF is working with Arc Finance to design an internal finance division to manage the fund and is developing financing unique financing options for end-users and utilizing a special system to lower default risks. There is a timer function in all products sold on credit basis, which allows SEF to de-activate the solar-home-systems if payments are not made by the customers.

<http://www.ashdenawards.org/winners/SEF09>

6 Glossary and Resources on End-user Finance

6.1 Glossary of terms used

Bankable – in relation to end-users, this refers to an acceptable level of risk for financial institutions

Collateral – a security or guarantee pledged for the repayment of a loan in case of default

Delinquency – when a client fails to meet a financial obligation in a timely manner

End-user – any individual, household, business, or other entity that is the final consumer of an energy product and/or service

Management information system – a planned system consisting of people, equipment, and procedures to gather, sort, analyze, evaluate, and distribute timely and accurate information to decision makers

Microcredit – the extension of small loans to microentrepreneurs – i.e. low income individual business owners who often lack collateral and a formal credit history

Microfinance – the provision of a wide range of financial services (including loans, savings products, insurance and remittances services) to poor or low income individuals and businesses

Modern energy – refers to fuels or energy carriers that are currently less established (such as liquefied petroleum gas, electricity, biogas, ethanol) but offer advantages in efficiency, pollution reduction, and sustainability as compared to traditional energy sources

On-lending – the practice of borrowing funds from one entity and then lending these funds to additional entities – usually clients.

Pilot – a phase in which a company or financing institution tests a product prototype in a small geographical area, monitors and evaluates client feedback, and makes adjustments to processes and procedures necessary to introduce the new product across all clients

Portfolio at Risk (PAR) – the outstanding balance of all loans that have an amount overdue

Portfolio management system – a loan tracking system used to gather and monitor information on applications, current loan status, arrears, and impacts

Rollout – the process by which a company or financing institution introduces a new product to different geographic areas or market segments

Traditional energy – refers to a fuel or an energy carrier that is well established and widely used (such as fuelwood, charcoal, animal waste, and agricultural residue)

6.2 Useful resources on end-user finance

SEEP/Citi Foundation Reports on Using Microfinance to Expand Access to Energy Services

Summary of Findings: http://www.arcfinance.org/pdfs/pubs/Energy_Summary_FINAL.pdf

Africa Study: http://www.arcfinance.org/pdfs/pubs/Energy_Africa_FINAL.pdf

Asia Study: http://www.arcfinance.org/pdfs/pubs/Energy_Asia_FINAL.pdf

Latin America Study: http://www.arcfinance.org/pdfs/pubs/Energy_LatAm_FINAL.pdf

Uso de las Micro Finanzas para Expandir el Acceso A Los Servicios de Energía (En Español)
http://www.arcfinance.org/pdfs/pubs/Energy_Summary_Spanish.pdf

Sparking Strong Partnerships: http://www.arcfinance.org/pdfs/pubs/Sparking_Strong_Partnerships_FINAL.pdf

Arc Finance

www.arcfinance.org

Arc's mission is to promote and expand access to financing for modern energy, clean water and other basic needs to build the income and assets of poor people around the world. Arc is a neutral platform that bridges knowledge and resource gaps between the energy, water, and finance sectors, supports the improvement of existing infrastructure lending programmes and other tools for financing basic needs, and develops new innovative linkages between financing institutions, businesses and non-governmental organisations (NGOs) that wish to enter the emerging energy/water lending field. The organisation provides a package of services, tools, finance and knowledge that will build, reinforce and scale-up partnerships between financing institutions and energy and water enterprises.

Ashden Awards for Sustainable Energy

www.ashdenawards.org

The Ashden Awards rewards and supports leading sustainable energy enterprises from across the developing world. Our network of sixty international winners (since 2001) includes a number of excellent examples of organisations that are offering end-user finance for energy products. Detailed case studies about each winner can be accessed on our website.

GVEP International

www.gvepinternational.org

GVEP International is a UK charity working to reduce poverty by accelerating access to affordable and sustainable energy services. Their website is a rich information resource for the sustainable energy sector, with a large number of connections to sustainable energy enterprises, NGOs and funders.

The Microfinance Information Exchange (MIX)

www.mixmarket.org

The MIX is a global, web-based information service that links microfinance institutions, donors, and investors. On the demand side, the MIX Market provides in-depth information on the performance of more than 700 MFIs, including ratings, assessment reports, and financial statements.

Consultative Group to Assist the Poor (CGAP)

www.cgap.org

CGAP is an independent policy and research center dedicated to advancing financial access for the world's poor. It is supported by over 30 development agencies and private foundations who share a common mission to alleviate poverty. Housed at the World Bank, CGAP provides market intelligence, promotes standards, develops innovative solutions and offers advisory services to governments, microfinance providers, donors, and investors.

Microfinance Gateway

www.microfinancegateway.org

The Microfinance Gateway is a comprehensive online resource for the global microfinance community, containing research and publications, original articles, organisation and consultant profiles, industry announcements, news, events, and job opportunities.



Annex 1: End-user Finance Providers and Options

In most countries, there is a wide range of finance providers that could play a role in providing end-user finance for your customers. Although the available options can vary widely between regions and countries, finance providers can be split into the formal, the semi-formal, or the informal sectors.

Formal. The formal sector includes government banks and regulated financial institutions. They typically offer a wide range of financial products, including credit, savings, insurance, and money transfers and focus on the urban and peri-urban market. In general, the formal sector serves the high end of the financial services market and charges interest rates on loans that cover costs and enable sufficient profits to fuel growth in both number of clients and product offerings. Formal financial institutions usually provide loans to individuals and small businesses, offering financial products to clients based on collateral (also known as security), credit history, or steady employment.

Semi-formal. Finance providers in the semi-formal sector are usually guided by a combination of social and financial objectives. In general, these players are not under direct financial regulation but are often registered with the government and may be required to report on financing activities. As compared to the formal sector, finance providers in the semi-formal sector are more likely to serve a combination of rural, peri-urban, and urban areas. Usually they are restricted from certain types of financial transactions such as collecting voluntary savings from clients.

Some of these actors offer non-financial services to customers such as health care, education, legal advisory services, and business development. Semi-formal finance institutions typically offer a combination of individual and group lending:

- Individual lending is the process of providing credit to a single client with loan eligibility dependent upon a character assessment and cash flow analysis of the applicant's business.
- In group lending, a group of clients largely manages loan screening, monitoring, and enforcement themselves and collectively guarantee individual loans of group members.

Semi-formal finance providers typically only offer financing to individuals after building a history with the client through a lending group or through a detailed household cash-flow assessment. For this assessment, a loan officer visits a client's home and business to gather economic information, verify references, and collect documentation.

Informal. In most countries, there are thousands of unregulated informal financing options available to end-users. These include informal credit and savings arrangements such as revolving credit and savings associations, money-lenders, shopkeepers or traders who extend credit, family and friends. These finance players offer financing on very personalised terms.

Sector	Advantages	Disadvantages
Formal: -Commercial banks -Regulated MFIs -Building Societies -Credit Unions -Postal banks -Development banks	High access to capital to fund energy finance Able to invest time and money in designing and rolling out new products Able to offer larger amounts of financing (US\$500 - US\$25,000) over longer terms (2 to 5 years) to qualifying clients There are numerous opportunities to cross-sell energy finance options with other financial product offerings – i.e. housing loans combined with energy efficiency	May require new energy products to generate profits in a short period of time May not be willing to finance very small energy loans (e.g. for lanterns) May have strict collateral and income requirements which limits the ability to serve poorer clients Compared to semi-formal lenders, they may be less interested in lending for energy products Often not present in rural areas

<p>Semi-Formal:</p> <ul style="list-style-type: none"> -Unregulated MFIs -Microfinance NGOs -Savings and credit cooperatives -Village banks -Registered self-help groups -Employee savings funds -Multipurpose cooperatives 	<p>Strong relationships with rural and urban poor clients with high energy needs</p> <p>Focus on livelihood improvement provides an easy entry point for energy products</p> <p>Interest rates, repayment periods may be lower than formal sector</p> <p>More likely to give finance to people without security or steady incomes</p> <p>More likely to be present in rural areas</p>	<p>Less access to capital to grow products as compared to formal sector; typically require grant funding to experiment with and introduce new products such as energy</p> <p>Fewer opportunities to cross-sell energy with other financial products, because they offer few products than formal lenders</p>
<p>Informal:</p> <ul style="list-style-type: none"> -Rotating savings and credit associations -Informal finance firms -Unregistered self-help groups -Individual moneylenders -Traders and shopkeepers 	<p>Strong presence in remote rural areas and urban poor populations which often coincide with biggest energy markets</p>	<p>Low access to capital to grow energy finance products</p> <p>Financial offerings limited in size (typically under \$500 per cycle)</p> <p>Unpredictable and therefore difficult to plan a financing strategy around (interest rates can be high, money not available on a reliable basis etc.)</p> <p>They are not always a good partner for a sustainable energy enterprise because they don't have a wide client base and so an enterprise will have to work many different finance providers.</p>



Annex 2: Different Business Models for Providing Finance to End-Users

Note: These models are not necessarily mutually exclusive – for example, an energy enterprise can provide end-user finance in-house in one region that it serves and have a partnership arrangement in another region.

One-Stop-Shop Model

In this model, sustainable energy products and finance are provided under one roof.

In general, there are two ways in which this business model can work:

Finance provider adding energy: This model often involves a financial institution supplying energy products alongside financial product offerings, without an energy partner. The most well-known example of this business model is Grameen Shakti, a sister company of Grameen Bank in Bangladesh. Grameen Shakti used Grameen Bank's branches to reach clients and expand quickly, it received an initial loan guarantee from the Bank, and transferred loan product design and processes from Grameen Bank.⁷

Energy enterprise providing end-user finance in house: In this model, the energy enterprise self-finances the energy products - similar to consumer credit for durable goods. This model is common in areas where financial institutions have insufficient presence or are unwilling to finance energy. In Nicaragua, an energy enterprise called Tecnosol has established an internal finance division to provide end-user finance options to clients for solar – mainly because finance institutions do not currently serve the rural areas with the highest need for off-grid technologies.

Franchise/Dealership Model

In this model, the energy enterprise provides credit to dealers and/or franchises to allow them to sell to clients on an installment basis. This particular model is common for relatively inexpensive products – usually those that cost under US\$50 (e.g., solar lanterns or efficient cook stoves). Some traditional finance providers are not willing to offer credit for a low cost product as the transaction costs associated with servicing this loan are too high. In India, Ashden Award winning enterprises IDEI and NEST provide short-term credit to dealers who provide up to 120 days of credit to end-users. In Uganda, a cook stove enterprise called UGASTOVE offers short-term credit to partner retailers to ensure a steady supply of stoves and to allow these dealers to offer various financing options to end-users.

Local Financial Institution Partnered with Energy Enterprise

In this case, an energy enterprise enters into a partnership with a local financial institution to sell sustainable energy products. This model typically involves a financial institution providing credit to an end-user and managing the monitoring and repayment processes, while the energy company provides the energy product, installation (if necessary), service and maintenance. There are some key advantages of this partnership approach:

- Ability to offer your clients financing options without a creating your own financing division internally.
- Financial institutions can bring their experience and expertise in providing finance, client outreach, and infrastructure – i.e. branch network, marketing channels
- Ability to gain access to research resources within larger financial institutions to conduct market demand assessments.
- Customer access through long-standing relationships with clients and a certain level of trust that can be useful in introducing new technologies such as clean energy solutions.
- In-depth data on clients that can be useful in mapping the market as well as information on energy expenditures, uses, and priorities.

⁷Learning from Grameen Shakti's Success in Consumer Financing for Renewable Energy Products: Bangladesh Field Visit 18-21 September 2006. Energy for Sustainable Development, United Nations Environment Programme, Global Environment Facility.

- Opportunities to cross-sell energy products with other product offerings of the finance institution

This model aims to take advantage of the core competencies and network of each partner organisation and, in most cases, share costs of marketing and promotion of the energy and loan product. In western India, Solar Electric Light Company has partnered with SEWA Bank to provide a package of solar product, financing, and after sales service. Another recent example in Tanzania is Zara Solar, which solar products on credit to individuals and small businesses in partnership with savings and credit cooperatives in the Mwanza region.

“Umbrella” Model – A network of financial institutions partnered with an Energy Enterprise

In this model, the energy companies enter into partnership arrangement with a network of financial institutions, rather than engaging many smaller village finance institutions. This typically involves an energy company entering into a partnership with a union or organisation of credit cooperatives, credit unions, or other village-based financial institution. In this model, the apex institution that runs the network in turn lends to smaller village-based finance institutions, which then lend to clients. The apex institution often negotiates a bulk-purchase agreement with the energy enterprise on behalf of these small village finance institutions and plays a role in ensuring low cost distribution and after sales service. The success of this model is highly dependent upon the effectiveness of the apex/umbrella institution in ensuring village finance institutions are properly coordinated, have sufficient capital to lend, and receive proper training in energy technologies.

Brokering Model

In this model, the finance provider and energy enterprise enter into a partnership with a third-party that brokers end-user finance. The brokering entity markets energy and loan products, conducts due diligence on potential clients, and brings viable clients to the financing institution to fund the purchase of a clean energy product. When the loan is approved and funded, the brokering institution often receives revenue in the form of a finder’s fee or a percentage of the interest charged on end-user finance products from the finance institution and/or energy enterprise. In some cases, the energy enterprise and finance provider may outsource other functions to the brokering entity such as loan payment collection, default monitoring, after-sales service, and technical upkeep. This model is not widely used at this point, but has great potential to link energy enterprises with financial institutions in a way that adds value to all parties and shows potential to expand along with recent growth of peer-to-peer lending organisations like Kiva, MYC4, and others. Peer-to-peer lending is a type of financial transaction in which lending/borrowing occurs between two individuals without the intermediation of a traditional financial institution, and is typically brokered by a web-based business model.

Business Model	Advantages	Disadvantages
One-Stop-Shop	<p>Ability to control where the energy end-user finance products are offered</p> <p>Ability to control financing terms</p> <p>Avoid many challenges associated with developing and managing complex partnerships with suppliers of finance or energy products</p>	<p>Need to invest significant financial and human resources as this model depends upon adding a completely new core competency to the business that can affect all core operations</p> <p>For financial institutions adding energy in-house, there is a significant technological learning curve, inventory management issues and a need to develop a strategy to deal with service and maintenance</p> <p>For energy enterprises adding finance in-house, there is risk of facing cash flow problems and loan defaults if offering long-term financing options. Additionally, this requires an energy enterprise to handle loan collections which completely shifts the</p>

		business model to support ongoing loan monitoring
Financial Institution Partnered with Energy Enterprise	<p>Each partner is able to focus on core competencies</p> <p>Ability to pool resources for marketing, promotion, and other activities with partners</p> <p>Energy enterprises are able to offer end-user finance without investing in an in-house finance division and infrastructure, and gains access to financial institution's clients, outreach, reputation</p> <p>Financial institution can reach a larger market and respond to client demand for energy loans and cross-sell other financial products</p>	<p>Requires significant communication and coordination with partner organisations beyond what is typical in dealing with suppliers, distributors, re-sellers, etc. Geographic coverage of energy enterprise and finance institution typically differ, which can lead to high costs of serving certain geographic areas</p> <p>Energy enterprises do not have control or influence on financing terms offered to end-users</p>
Umbrella Model	<p>Energy enterprises are able to engage multiple village-level finance institutions with a single partnership</p> <p>Village-level finance institutions typically serve rural and urban poor populations with high need for modern energy</p> <p>Ability to lower cost to end-user through bulk purchase agreements</p>	<p>Sheer number of partner institutions may be difficult to coordinate effectively</p> <p>After sales service and maintenance may be difficult across wide networks of apex institutions</p> <p>Energy enterprises will have low level of ability to conduct due diligence on village level finance institution partners</p> <p>Village-level finance institutions may lack access to capital for energy lending</p> <p>Many levels of markups could make end-user finance products too costly, potentially wiping out benefits of bulk purchase arrangements</p>
Brokering Model	<p>Energy enterprises and finance institutions are able to increase access to energy end-user finance with little to no investment</p>	<p>Business model has yet to be tested at a sufficient level to fully understand benefits and risks</p>

	Broker may be better positioned to market and promote energy end-user finance products	
Franchise/ Dealership Model	<p>Ability to ensure steady supply of customers through franchises that may otherwise have cash flow problems</p> <p>Can give village-level franchises/ dealers the resources to craft end-user finance solutions that are appropriate to local context</p>	Could lead to cash flow issues if dealer/franchise credit is not managed properly

The above matrix offers an introduction to the full range of end-user finance models that have been tested by energy enterprises and financial institutions around the world. By far, the most successful options to date are the One-Stop-Shop and Financial Institution Partner with Energy Enterprise Models, which also happen to be the most common models in practice currently.



Annex 3: Suggested methodology for assessing market demand

1. Secondary Research – It is useful to start with a review of publicly available information on your clients' ability and willingness to pay for energy services and access to finance – such as census bureau statistics, government energy figures, and donor reports. Try to do as much secondary research as possible before interviewing potential clients and providers of end-user finance.
2. Meetings with Potential Partners – It makes sense to meet with a range of end-user finance providers (e.g., microfinance institutions, savings and credit cooperatives and informal credit associations) in your target market. Try to get a high-level understanding of both their interest and/or experience with energy lending (awareness of technologies, perceived risks, etc.) and to learn whether or not their clients have already indicated a demand for energy loans.
3. Survey of Current and Potential Customers – It is valuable to do a basic survey of clients, but this can be a time and resource intensive activity. If resources permit, it is valuable to conduct a survey with a representative mix of current and potential clients who might require end-user finance. Useful variables to examine include gender, business type, household and business cash flow, current access to finance, urban vs. rural, distance from grid, existing energy expenditures (kerosene, diesel, fuel wood, batteries, energy services), and awareness of products. One option is to start with the existing client base of a potential financing partner since they may have internal research departments that can easily conduct surveys.

Annex 4: Challenges in implementing an end-user finance strategy

The introduction of new end-user finance options poses a set of new challenges for energy enterprises, including:

1. Target clients have low-incomes and are difficult to reach.
 - **Very poor potential clients.** Households and businesses with low or unreliable incomes typically have the greatest need for sustainable energy products and for end-user finance. However, these same potential customers also have the lowest ability to pay and are often vulnerable to economic shocks such as loss of livelihood.
 - **Lack of appreciation of energy products.** Most potential clients have a very low level of understanding of modern energy technologies and their benefits. There is a similar low level of knowledge about energy products among finance partners and it may require significant investment in training staff to appropriately promote energy finance products.
 - **Remote geographic location.** Target clients for end-user finance may be located in areas that are remote and/or difficult for the energy enterprise to service on a profitable basis. In particular, loan payment collection and providing after-sales maintenance and service for at least the term of financing may be difficult in these areas.
2. Finance partners need to understand and embrace the business case for sustainable energy:
 - **Lack of buy-in.** If partnering with a finance provider, you should keep in mind the depth of organisational commitment to energy. For example, a partner MFI may have one manager that is enthusiastic about energy and spearheads investment in the products, but without full organisational buy-in there is risk that products could be de-prioritised when and if this key champion leaves the institution.
 - **Focus on productive uses.** Many financing partners may initially view energy products as strictly related to household “consumption.” Although this may be true with many products, there are certainly income-generating possibilities for most energy products that should not be ignored. With this limited perspective on energy products, a finance partner may only make energy loans available to existing, repeat clients as a “top-up” loan in combination with a “productive” loan, rather than a separate product available to all interested parties.
 - **Competing interests of loan officers.** Loan officers of financial institutions often have strict quotas to meet on an ongoing basis that may not include energy targets. In these cases, energy products are put on the “back-burner” in order to meet other targets first.
3. Impacts on cash flow, staffing, and price:
 - **Price.** Delivering end-user finance introduces a new set of transaction costs – such as hiring or incentivising a loan collections officer – that need to be incorporated into the price of sustainable energy products and services. It is important to keep in mind how the risks and transaction costs associated with end-user finance will affect your cost structure and offerings.
 - **Cash flow issues.** Providing and servicing end-user finance is human and financial resource intensive and will affect working capital. Securing sufficient financing to fund the end-user finance portfolio can also be challenging.
 - **Managing expectations.** Experience with MFIs has shown that energy lending can be profitable, but cannot be expected to grow as quickly as general loan products given the need for marketing, client

education, staff training, etc.⁸ Most banks and MFIs seek to achieve profitability in the near term, which demands swift portfolio growth. This is important to keep in mind when discussing partnership opportunities with financial institutions.



⁸ Morris et al. Using Microfinance to Expand Access to Energy Services: The Emerging Experiences of SEWA, SEEDS, NUBL, and AMRET. The SEEP Network, 2007.

Annex 5: Partnership arrangements between energy enterprises and finance institutions

The following is a list of items suggested as priorities for partnership arrangements by energy and finance institutions⁹:

1. Product Identification and Quality Standards – There should be agreement as to the specific energy products to be financed by the financing partner and quality standards to be met by the energy enterprise for all system components.
2. Financing Process Roles and Responsibilities – It is helpful to outline high-level roles and responsibilities in the financing process to avoid potential future problems. Issues to address include the loan making process (application, appraisal, approval), payment collection (where, when, how are payments made), and arrears monitoring.
3. Client Eligibility Criteria – There are many examples of energy companies bringing potential clients to financing institution only to find out they are not “bankable” according to the eligibility criteria of the financial institution. It is important to outline in a partnership agreement what the eligibility criteria will be for energy lending.
4. Payment Process – The parties should establish a standard process by which payments are made to the energy enterprise for the energy product. For example, when a client’s loan application is approved, what triggers installation/delivery of the energy product?
5. Monitoring and Evaluation – The parties need to establish key performance indicators for energy financing activities – operational, financial and other measurements - to analyze progress and performance.
6. Terms of Loan Default and/or Technical Breakdown – It is critical that parties agree how to handle speed bumps along the way. If a client defaults on the loan, it is helpful have in place conditions for removing/repossessing the energy system and to understand the legal processes involved. When this happens, it is also good to have buy-back provisions in place outlining conditions under which the energy enterprise will purchase energy systems (i.e. after 3 months of installation, buy-back is 50% of original cost). In cases where there is technical breakdown, there should be terms and conditions for repair and replacement and who will bear the related costs.
7. Information Flows – As the energy portfolio grows, managing the flow of information will be essential to coordinate credit sales and ensure quality of service. The partners should agree how to collect and manage information on energy finance products and establish roles and responsibilities for these activities.
8. Energy system delivery/installation – The parties should establish terms and conditions for installation and/or delivery of energy products as well as deadlines and standards for quality of work.
9. After-Sales-Service and Warranty – The parties should clearly outline warranty terms and conditions, schedules of ongoing maintenance, terms for maintenance outside of warranty, provision of spare parts, etc.
10. Marketing – The partners need to construct an effective marketing strategy that clearly outlines marketing responsibilities of the energy enterprise, the financing institution, joint marketing efforts, and how various marketing expenses will be split between the partners.
11. Carbon Rights – In situations where the energy enterprise and/or financing partner are actively monitoring and monetising carbon offsets in either the voluntary or CDM market, it is important to document the specifics of these activities in the partnership agreement.
12. Termination of Partnership – It is normal to include a provision in the partnership agreement outlining the terms by which either party can terminate the partnership.

⁹ Sparking Strong Partnerships: Field Tips from Microfinance Institutions and Energy Companies on Partnering to Expand Access to modern Energy Services; Sustainable Energy Solutions and The Small Enterprise Education and Promotion (SEEP) Network, January 2008.

Annex 6: Suggested criteria for assessing a potential financing partner

The following criteria are suggested for assessing a potential financing partner:

- Top management support for energy and an internal energy champion – the financial institution should have at least one top-level staff member with a keen interest and willingness to coordinate closely with an energy enterprise in designing and rolling out energy loan products. The financial institution should also agree to allocate time and money to an energy-lending programme.
- Evidence of institutional and financial sustainability - the institution should have a solid track record with strong and transparent accounting systems, strong performance indicators, solid appraisal, monitoring and evaluation systems, high client retention, capable and experienced management, and a reputable Board.
- Demonstrated demand among current customers for energy loans – the financial institution should have evidence that clients want finance to purchase energy services and be willing to undertake a market assessment to gauge the extent of demand.
- Market coverage and diverse reach – the financial institution should have branches in the areas in which you currently operate or into which you would like to expand.
- Willingness to be flexibility in loan design and lending methodology – the financial institution must be willing to match the loan characteristics and its lending methodology to the energy product, including loan size, loan term, client eligibility requirements and collateral requirements.

Finance institutions will likely look for the following qualities in an energy enterprise partner:¹⁰

- Common interest in serving low income market segments that do not have the ability to purchase energy products on a purely cash basis
- Willingness to invest in training, marketing, awareness raising, and other things necessary to serve this market
- Reputation for high quality energy products, reliability, and customer service
- High technical capacity and operational effectiveness
- Local market presence and focus on after-sales service
- Experience maintaining long-term partnerships with other stakeholders

¹⁰ Sparking Strong Partnerships: Field Tips from Microfinance Institutions and Energy Companies on Partnering to Expand Access to Modern Energy Services; Sustainable Energy Solutions and The Small Enterprise Education and Promotion (SEEP) Network, January 2008.

Annex 7: Guidance for development of monitoring and evaluation systems.

Monitoring and Evaluation when in partnership with a finance provider

Most financing institutions have solid management information systems to monitor core loan products. If you plan to partner with a finance provider, it is essential to ensure that energy loan products can be tracked separately from other core financial products within the financial institution's portfolio. It is important to focus on maintaining a "healthy" portfolio, which typically refers to a combination of high repayment rates and low percentage of total portfolio at risk of default. Weak portfolio quality for energy products results in sub-optimal yields and may jeopardise the long-term sustainability of a programme.

Monitoring and evaluation when finance is provided in-house

For those energy enterprises offering finance in-house, monitoring and evaluation needs are more complex. A management and information system with the ability to monitor the entire financing process, accept flexible payments, generate daily arrears (late payment information) and financial reports in addition to whatever existing technical monitoring and accounting systems you have in place. Some energy companies may find it helpful to invest in basic microfinance software to handle the new end-user finance activity flow. In early stages of development, many enterprises offering finance in-house may be able to handle end-user finance information flows using simple spreadsheet-based systems. However, this will become unwieldy as the end-user finance component grows. For example, it is very difficult to consolidate spreadsheet information from multiple branches in a timely manner that is essential to monitoring for timely repayment. You should evaluate the need to invest in a robust management information system (MIS) that can meet the growing information needs of the organisation.

One of the most critical components of successful end-user finance programmes is the implementation of a portfolio management system capable of meeting the anticipated growth projections. This is typically computer software designed to compile, analyze, and store data on financial transactions. For the purposes of energy, this system aims to closely monitor credit sales and ensure timely repayment of loans. Whether providing finance in-house or with a partner, there are several issues to consider when thinking about portfolio management systems:

1. **System requirements.** Pay attention to how the introduction of a portfolio management system will affect current structures in your enterprise. For example, it may require reworking of staff responsibilities to include data entry, redesigning information flows, and investing in computer technologies. Also, keep in mind the level of infrastructure required for a robust portfolio management system, including computers and operating systems, internet connectivity, staff abilities, budget, and local language requirements.
2. **Time required.** Think through how you will distribute portfolio monitoring activities among all stakeholders, including finance partners, franchises, commission-based sales/loan agents, etc.
3. **Software options.** When examining software choices, make sure the software can support financing methodologies and options you plan to offer, has the ability to integrate with existing systems (such as accounting), and has technical support options available locally. It makes sense to examine a few off-the-shelf portfolio management software programmes to assess which available reports are essential for day-to-day operations.
4. **Reporting.** Portfolio management system will need to produce reports in a hierarchical structure, starting with detailed transaction reports at the branch level moving up to summarised financial statements and operational income needed by management. For most energy enterprises, critical reports include: Detailed and Summary Aging of Portfolio at Risk, Delinquent Payments by Staff Member and Branch, Aging of Payments and Calculation of Reserve, and basic financial statements.

Annex 8: Designing and launching a pilot programme

Designing the Pilot

Prior to launching the pilot, you should:

1. Decide on what you want to test and where to test it.
2. Outline organisational expectations of the pilot.
3. Design a methodology for implementing and monitoring the results.
4. Estimate costs.

In most cases, you will want to rigorously test the products and processes, learn lessons to inform modifications, and solicit feedback from stakeholders. Next, you should determine geographic areas for the pilot. If possible, you should consider areas where you have been working for several years, have built a strong track record and reputation, have extensive technician outreach, and could be considered representative of conditions you expect for full roll-out. Once you have identified a geographic focus, you can now identify and train staff to run the pilot. Finally, you should set clear performance metrics to track during the pilot. It is helpful to track both quantitative (number of systems financed, repayment rate, customer demographics, loan portfolio size per officer) and qualitative (client perceptions of the finance terms, processes, awareness of technologies) and development impact indicators (e.g., hours saved from fuelwood collection, increases in income, health improvements, etc.).

Launching the Pilot

You are now in a position to launch the pilot. It is important to introduce the pilot under particularly favorable conditions – for example, during harvest season when disposable income may be readily available to target clients. Keep in mind practical issues that could negatively impact the pilot introduction, for example, rainy season may not be the best time to introduce a solar product; or, it might make a lot of sense to time the start of a pilot with the harvest season so you are introducing products at a time when potential clients have excess cash to invest.

Monitoring and Evaluating the Pilot

It is essential that you monitor and evaluate the pilot, using the system that you adopted throughout the testing phase and afterward. Variables that are useful to monitor include: information on client assessment, documentation, and approval, (including number of days from first contact to finance approval), progress toward targets; product understanding and acceptance by clients; proficiency of staff; portfolio at risk.

If resources permit, you should hold interviews with potential and participating customers, staff, and management to evaluate their satisfaction with the financial product offering, process, and the energy system. It is helpful to solicit suggestions in product and process adjustments with the staff participating in the pilot test. Throughout the pilot phase, you should design adjustments to products and processes, test adjusted prototypes in the field, and continue monitoring as necessary. Upon completion of the pilot phase, you should collect and document all feedback received in a pilot evaluation report before moving to scale-up.

Annex 9: End-user Finance Strategy Checklist

1. End-user Finance Pre-Planning
<ul style="list-style-type: none"> ▪ Assess end-user finance players, industry, policy and regulation, and competition
<ul style="list-style-type: none"> ▪ Understand client demand for end-user finance and assess internal capacity and readiness
<ul style="list-style-type: none"> ▪ Determine whether to partner with a finance provider or to offer finance internally
<ul style="list-style-type: none"> ▪ Create business plan for introducing energy end-user products including team required
<ul style="list-style-type: none"> ▪ Develop partnership agreements (between energy enterprises and finance providers) and build internal commitment to end-user finance
<ul style="list-style-type: none"> ▪ Determine human and financial requirements for energy end-user finance
<ul style="list-style-type: none"> ▪ If providing finance in-house, establish finance department with clear separation of duties, policies and procedures
<ul style="list-style-type: none"> ▪ If providing end-user finance in partnership with a financial institutions, suggest the partner develops an energy division and assigns dedicated staff to energy products
<ul style="list-style-type: none"> ▪ Design and Test Energy Finance Products; undertake and analyze additional market research (if necessary)
<ul style="list-style-type: none"> ▪ Design energy end-user finance products and processes; outline in procedural manual
<ul style="list-style-type: none"> ▪ Integrate energy products into loan portfolio monitoring system and create budget for pilot
<ul style="list-style-type: none"> ▪ If providing finance in-house, develop new loan portfolio monitoring system and integrate with existing MIS
2. Pilot Test
<ul style="list-style-type: none"> ▪ Prepare branches for pilot and train staff
<ul style="list-style-type: none"> ▪ Deploy pilot
<ul style="list-style-type: none"> ▪ Monitor progress against Action Plan; monitor triple bottom line impacts
<ul style="list-style-type: none"> ▪ Analyze pilot performance
<ul style="list-style-type: none"> ▪ Adjust product and processes as necessary
<ul style="list-style-type: none"> ▪ Determine whether second pilot is necessary
3. Implementation
<ul style="list-style-type: none"> ▪ Develop rollout and implementation plan
<ul style="list-style-type: none"> ▪ Budget for and build capacity for rollout

<ul style="list-style-type: none">▪ Solicit and secure funding for rollout
<ul style="list-style-type: none">▪ Begin rollout
4. Financing
<ul style="list-style-type: none">▪ Develop a financing plan that outlines revenue expectations (with timelines, and range of potential sources of funds)
<ul style="list-style-type: none">▪ Prepare the appropriate documentation based on the likely needs of the potential financing source
<ul style="list-style-type: none">▪ Pitch your story to the relevant funding sources