

Issues and options: The potential role of microfinance to expand access to energy services

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1. INTRODUCTION

Poor people must have access to modern energy services if global poverty and inequality are ever to be reduced. The primary aim of the Millennium Development Goals (MDGs) is to reduce by half the proportion of people living on less than a dollar a day by 2015, and to substantially enhance the social, economic, political and environmental conditions that make up the reality of these peoples' lives. While no MDG relates directly to energy, energy services are an essential input to achieving all these development goals. In itself, energy is of little interest to most people. However, it is an essential ingredient of socio-economic development and economic growth. The objective of the energy system is to provide energy services necessary for all sectors of the economy (residential, commercial, service, industrial, construction, mining, agriculture, and so on). Energy services are the desired and useful products, processes, or services that result from the use of energy, for instance, illumination, comfortable indoor climate, refrigerated storage, transportation, appropriate temperatures for cooking, materials, etc. For example, it would not be possible to supply safe water, without energy for pumping or clean fuels for boiling water. Issues of gender equity cannot be resolved if young girls are unable to attend school because they have to collect scarce fuels for family subsistence. In other words, energy is a central development issue that cuts across all sectors and development topics. Improving access to energy services is therefore not an end in itself but, rather, a critical means to achieve the goals of sustainable development, and especially the Millennium Development Goals.¹

Emphasis on energy services is particularly important in developing countries, where the current levels of energy services are low. Access to modern energy services can be greatly enhanced if people could also access consumer loans and microfinance to pay for these services. Microfinance has played an important role in enhancing the economic opportunities available to poor people. These opportunities, however, will remain limited if people cannot access and pay for modern energy services. Access to consumer credit for financing the delivery of energy services depends on the availability of suitable mechanisms and institutions that are willing to provide capital. As the awareness of both microfinance and energy technologies grows, financial institutions will be able to better channel capital into loans for energy services for poverty reduction.

The goal of this paper is to evaluate how energy services and consumer lending can work together for the benefit of the poor (and often, though not exclusively, rural) energy consumer. Section 2 highlights key dimensions of the consumer's energy and financing needs. In sections 3 and 4, we discuss issues faced by microfinance agencies and energy service providers in meeting these needs. In section 5, we identify

¹ United Nations Development Programme. 2003. *UNDP and Energy for Sustainable Development brochure*.

opportunities for synergy between microfinance institutions and energy services providers. This paper provides background information and a conceptual framework that can enable the identification, design and implementation of strategic and focused interventions. Throughout this paper we use the term microfinance, consumer lending and consumer credit interchangeably, to denote the provision of financial services (mostly credit) to people who cannot easily access the traditional banking system.

2. UNDERSTANDING THE ENERGY AND FINANCING NEEDS OF THE CONSUMER

It is important to stress up-front that there is *no one type of “energy consumer.”* Discussions about the “energy consumer” must account for the fact that energy needs vary substantially between members of a community, and between communities. People will also have different incomes, and may not receive income on a regular monthly basis. It is essential to keep these differences in mind when designing energy and financial services.

Poor people do not need energy per se, but access to *energy services*. To understand this, we turn again to the Millennium Development Goals (MDGs). Goals such as reducing poverty, increasing primary education, improving environmental conditions, increasing access to safe water, reducing infant and maternal mortality, and reducing the spread of HIV/AIDs cannot be achieved without access to energy. Simultaneously, what is needed is not the provision of energy per se, but the services, or goals it enables. Energy services can be used for various purposes. *Productive uses* involve utilising energy for an income generating activity; *household uses* involve utilising energy inside the house for cooking, lights, and running home appliances like televisions and fans. *Community uses* are largely confined to schools, hospitals, health clinics, and community centres. These categories are in one sense artificial; more often than not, there is considerable overlap between them. For example, one can argue that using electricity to power lights in the house so children can study is as much a productive use as it is a household one. However, the categories are analytically useful in discussions surrounding microfinance, as explained in section 3.

We categorise the challenges facing the energy consumer in terms of access, availability, and affordability.

The challenge of access

People who lack access to modern energy services, are for the most part, poor people who live in remote rural areas. This is not to say that urban areas do not suffer from energy problems, there are many people in urban areas who either lack access to the grid altogether, or who suffer from frequent and prolonged blackouts. However, the oft-quoted 2 billion people who lack access to the electricity grid inhabit mostly rural regions. There are often no motorable roads connecting these regions to larger towns, and people sometimes have to travel by foot for days to reach market places, energy services, and financial services. Not only do these people have a difficult time accessing services, but also servicing their needs is a costly and difficult proposition for energy service providers, and finance agencies.

Accessing modern energy services for cooking needs is an even bigger barrier. Most rural people still rely on biomass for their cooking needs. Locating and collecting fuelwood is a time-intensive and laborious process. In parts of sub-Saharan Africa, women travel for 6-8 hours a day collecting sparsely distributed fuelwood for their cooking needs.

The challenge of availability

For people living in rural areas, energy services may not be available because energy service providers do not necessarily view this as a strong, viable market for their products. Despite the fact that people are

willing and able to pay for energy services, providers will not go to the rural areas because they are typically remote, isolated and more challenging communities in which to work. It has been shown that the rural markets and economies are strong, and that if credit is put within reach of the consumer, energy services can be made available.

The challenge of affordability

The majority of rural people cannot afford the initial *capital costs* of investing in energy technologies. This does not only apply to decentralised renewable energy systems; often the cost of obtaining a connection to the grid (which involves the cost of getting a wire from the distribution line to one's house, and wiring and appliances inside the house) can be too high. Down-payments on loans can also be expensive; even if a rural individual or household has access to credit, the initial down-payment on the loan can be as high as 25-40% of total costs, which itself can prove to be prohibitively expensive. Finally, terms of credit may not match income patterns. Rural earnings are often not in the form of a constant amount every month. Income can, for example, vary according to changes in agricultural market prices, and be earned in a few lump sums at times of crop harvests. Such variations in income are often not compatible with fixed, regular loan payment schedules established by rural credit agencies.

3. UNDERSTANDING THE POTENTIAL AND LIMITATIONS OF MICROFINANCE

For our purposes, microfinance is a term that is loosely used for a whole range of rural finance and credit agencies and activities that can vary substantially in many ways. There are three main types of microfinance institutions: (a) formal institutions, i.e. rural banks (public and private) and cooperatives, (b) semiformal institutions, i.e., nongovernmental organisations, and (c) informal sources, i.e. money-lenders and shopkeepers. These institutions can provide a broad range of financial services including deposits, loans, payment services, money transfers, and insurance to poor and low-income households and their micro-enterprises. Some lend only to individuals, some only to groups, and others lend to both. Cooperatives will generally only lend to their members. Certain microfinance agencies can be affiliated with rural NGOs and social movements that are also member-based. Some finance agencies lend only to women, and while some do lend to the “poorest of the poor,” the vast majority lend to the rural middle-class. Even within one microfinance agency, different lines of credit may be operated differently. Some microfinance agencies do not demand collateral, however, many do, especially if there is no external line of credit they can access for lending purposes. Highlighting the diversity inherent in microfinance is not to imply that no general lessons can be drawn, it is simply to underscore the importance of paying attention to locally specific concerns. The provision of loans for energy services raises its own set of issues, which we discuss here.

Lending for household vs. productive vs. community uses of energy

As previously discussed, the categories of household, productive, and community uses of energy are somewhat misleading because there is considerable overlap between them. However, the distinctions are important in the context of consumer lending for energy services. Microfinance agencies need to be assured that the loans they make will be paid back. They minimise risk of default by lending for activities that directly augment the income of the borrower. For example, obtaining a loan for the purchase of cultivable land, or a water pump will enable a farmer to augment his or her agricultural income, and use some of the extra income to pay back the loan. This has implications for lending for household, productive and community uses of energy; each of these is discussed below.

a) Lending for household uses of energy:

Many energy services are not seen to contribute directly to an increase in income, and so rural credit agencies are reluctant to lend for such purposes. For example, electric lights in a home offer obvious

social and economic development benefits; however, it does not always provide immediate financial benefits needed to pay back a 5-year loan. At the same time, it is important to recognise that rural people often spend large sums of money on their household energy needs anyway. For instance, they purchase kerosene or oil lamps, the fuel to run them, dry cell batteries to power radios, and car batteries to power small televisions. These energy costs rapidly add up, and switching over from traditional energy uses to a solar home system, for example, could be a cost-effective option for a household over the long run. In general, the "cost-effectiveness" of switching from traditional energy sources to modern energy services depends on the kinds of technologies and types and quantities of fuels being replaced.

For non-energy purposes, credit agencies do sometimes extend loans to rural people for purposes that are not directly income-generating. For example, many rural credit agencies will provide loans to build homes. Purchasing energy services for household uses is not dissimilar from building a home; in both cases, there is no immediate increase in household income, yet both are essential in enabling people to lead better lives and be productive.

b) Lending for productive uses of energy:

Small businesses often require greater energy inputs than households to run electric tools or machinery. This brings us back to a point made earlier; what people need is not energy per se, but energy services such as lighting, communications, motive power, and refrigeration. If a person wishes to do something productive with the energy they purchase, he or she inevitably needs other equipment and resources to make that happen. A farmer needs a water pump as well as electricity to run it. He also needs access to a market for his produce. A rural entrepreneur, who wishes to set up a wheat-grinding business needs to purchase a mill as well as the power to run it. Indeed, one of the key barriers to using energy for productive uses is that even in places where energy is available, complimentary opportunities and resources for generating income are not always present.

c) Lending for community uses of energy:

Community uses of energy are often the most difficult to finance. If community members wish to jointly make an energy-related purchase for a school, health centre, community centre, or place of worship, then a group loan could be organised. However, in the vast majority of cases, schools and health centres existing in off-grid, rural areas have many other more urgent needs. For example, they require furniture, books, basic medical equipment and medicines. Furthermore, schools and health centres are mostly funded and run by the government or NGOs, and purchasing decisions are made by government agents or NGO workers who are likely to obtain funds from their own sources.

Financing terms and arrangements

Terms of finance include considerations such as payment schedules, interest rates, down-payments and collateral. Payment schedules are significant because as discussed, rural incomes may not be on a monthly basis. Down-payments and interest rates are generally quite high in rural areas, since risks are high. However, they can be even higher for energy services because energy purchases are not always seen to directly generate income. Interest rates are also high since off-grid households are always in remote locations, mostly far from roads, and highly dispersed. These factors not only make them a (financially) high risk population group, but servicing such loans increases the financing agency's operating costs. Requiring collateral is another risk-minimising strategy employed by financing agencies. In the case of energy services, options for collateral can vary. For instance, it is simple to make a solar home system, or an efficient cook stove its own collateral. If a loan is not repaid, the microfinance agency can seize, remove and resell the system. However, if a loan is being sought for connecting to the grid, or to a community energy system, then the energy technology itself cannot be made collateral. This is because a microfinance agency is not in a position to disconnect a household from the grid. Further, even if they could, there is no physical asset to repossess.

Financing arrangements can take the form of group or individual loans. Some microfinance agencies only lend to a group where members are jointly responsible to pay back the loan through sharing risks, supporting each other in difficult times, and using peer pressure on defaulters. Group lending makes more sense for certain kinds of energy technologies. For example, in the case of community-based energy systems like diesel generators, micro-hydro or biomass energy systems, people often form village committees, which obtain a group loan for the purchase of the system, and then collect monthly payments from their members to repay the loan. For technologies like solar home systems, solar lanterns, or small diesel generators, individuals or households make the purchase decision. However, just because the systems are on the scale of the household does not mean that loans cannot be grouped. There is considerable benefit to be gained from grouping small individual loans. For one, lending to groups reduces the administrative costs faced by the microfinance agency. It means that a single loan officer can process a set of loans in a geographically concentrated area, and make monthly collections far more efficiently, than if he/she had to travel to many dispersed households. Grouping loans, and customers, also brings down maintenance and service costs for the energy company.

4. UNDERSTANDING THE ROLE OF ENERGY SERVICES PROVIDERS

There is as much diversity in the nature and types of energy service providers as there is amongst microfinance agencies. Energy services providers can be government agencies, private companies or NGOs. In most countries, the government still plays a dominant role in the field of rural energy provision, directly, through activities like extending the grid, and indirectly through provision of subsidies for the purchase of energy systems and services.

Energy service providers and consumer credit

While some energy service providers do occasionally extend credit to their customers, this tends to be at very high interest rates, for very short periods of time. In general, energy service providers are neither established financially, nor in terms of infrastructure and operations, to provide credit to their customers. Some energy service companies are entering into partnerships with credit agencies. However, in cases where these partnerships exist, often, the onus of responsibility has traditionally been on the energy companies. Energy company representatives are often responsible for filling out complicated loan forms for their customers, and company employees often have to chase down loan defaulters. Microfinance agencies and rural energy service providers can have quite polarised views on who should bear different kinds of responsibility. In most cases, both partners are simply striving for the same goal – to minimise operating costs and risks.

Providing services, not just energy

Ensuring that energy systems are properly maintained is central to maintaining a good relationship between the service provider and credit organisation. However, rural energy service providers frequently lapse on service provision, to the detriment of their relationship with rural microfinance organisations. When systems stop working, people stop paying back their loans (as they should, after all in urban areas, people are not expected to pay for services they do not consume). In addition, energy service providers mostly offer standardised packages only, which does not always match the demands and purchasing power of rural consumers. Finally, energy service providers may sometimes offer complimentary equipment needed for productive uses (like a water pump, or a sewing machine, or home appliances), but in most cases, the customer has to look elsewhere for such equipment. In other words, many energy service providers are often lacking on the "service" aspect of their business.

5. OVERCOMING THE CHALLENGES: OPTIONS FOR DISCUSSION

Meeting the needs of the energy consumer calls for partnerships between energy service providers and microfinance agencies. Energy service providers can greatly increase access to poor and/or rural consumers if these consumers could also access credit facilities. Microfinance agencies could greatly increase the reach of their financial services, and augment the economic development opportunities they enable, by lending for energy. Although lending for energy services is not widespread, the experience has consistently been that once people gain access to modern energy, they are determined to keep that access, and are, for the most part, responsible borrowers. Further, once a person has access to energy, he or she is also likely to want to purchase equipment to use with it, and will return to the microfinance agency to obtain more loans. Lending for energy services can also open up new markets for microfinance agencies that have little to do with energy.

Based on our understandings of the energy consumer's needs, and the issues facing microfinance agencies and energy service providers, we can now identify important questions and problems that need to be resolved, and discuss some potential ways and means to establish mutually beneficial programs and partnerships. Many innovative approaches can be developed, and our goal in this section is to only indicate a few possible options. This is by no means an exhaustive list; it is aimed to serve as a launching point into a more extensive discussion of barriers to, and options for meeting the energy consumer's needs.

How can we design and implement programs that can build on existing consumer lending and microfinance infrastructure and capacity?

Examples of activities that offer obvious mutual benefit to energy consumers, microfinance and energy service providers include:

- **Lending for productive uses of energy**
Microfinance agencies can play an especially important role in overcoming this barrier, by providing information, and developing loan packages that encourage people to purchase the energy technology or service, and the equipment (e.g. a water pump or a sewing machine) or resources (e.g. a shop) needed to generate income. Energy service companies can facilitate this by designing "productive-use" technology packages that include both the energy technology or service, and complimentary equipment and appliances.
- **Sharing costs and risks**
There are several ways in which microfinance agencies and energy service providers could work together to minimise costs and financial risks. For example, it may make sense for energy service company representatives to conduct preliminary loan evaluations on the customers they visit. By the same token, it would benefit companies if microfinance agency representatives could make their loan forms easier, and evaluation procedures less cumbersome.
- **Integrating energy lending into existing financial products**
It is possible to expand the portfolio of financial products to include consumer lending for energy services and products. For example, in India, the regional rural banking network has established a line of credit called "priority sector lending." Through this line of credit, rural entrepreneurs and farmers can access loans at a relatively low interest rate for certain purposes like establishing rural businesses, and for agricultural purchases like fertilisers. These banks have now included solar home systems into the list of purchases they will extend loans for through the priority sector lending package. Packaging energy loans with housing loans is also an option that deserves more attention. The relatively small costs of the energy loan could be easily added onto the large housing loan. For example packaging a house mortgage with a loan for solar water heating system, and/or a solar home system could make good economic sense.

What policies are needed to promote rural lending?

In order for consumer lending for energy services to be more viable, it is necessary that policies be credible, and that there be an appropriate legal infrastructure and enforcement mechanisms. This could involve ensuring practical lending and repayment measures, removing policy biases and hidden subsidies that cause market distortions, and establishing integrated and efficient financial markets that put credit within the reach of the rural population. Governments can work to strengthen the rural markets and implement reforms that improve the overall business environment.

How should lines of credit be designed and operated?

International lines of credit could be designed so that smaller financing agencies can access them, especially for supporting a broad array of energy technologies. The availability of international loan guarantees, or lines of credit with lower interest rates and longer terms, can go a long way towards reducing the risks faced by microfinance agencies. The Clean Development Mechanism is potentially another important dimension of the international context.

How could we use subsidies and grants more effectively?

- Government subsidies could be creatively reworked to buy down interest rates for consumers, or as loan guarantees. Another important opportunity for synergy between government grid-extension programs and microfinance is in developing loan packages to buy down connection costs for consumers. As discussed in section 2, the high costs of connecting to the grid can be a substantial financial barrier to rural people.
- Donor grants can also be used innovatively to leverage more investment. For example, instead of providing grants to individual rural consumers purchasing energy services, donor money could be used as a seed fund to establish revolving credit facilities for financing energy systems.

How can we create awareness and disseminate information about potential ways to approach consumer lending for energy services?

Connecting consumers with appropriate credit facilities or microfinance providers is an essential first step. This could be achieved through workshops such as this, and by establishing on-line, and in-country information resource centres to share experiences and best practices.

6. CONCLUSIONS

Access to modern energy services is central to reducing poverty and to achieving the Millennium Development Goals. In order to develop effective programs to enable this access, it is essential to have an understanding of the energy consumer's needs, and the issues faced by microfinance agencies and energy service providers in meeting these needs. In this paper, we develop a conceptual framework designed to create such an understanding. Within this framework, we highlight a few key challenges and opportunities that exist for mutually beneficial partnerships and programs. The main goal of this paper is to provide food for thought and discussion at the thematic workshop on "Consumer lending and microfinance for increasing access to energy services." Translating the ideas and recommendations that emerge in this workshop into concrete actions will help increase access to modern energy services, and serve to reduce the incidence of poverty.