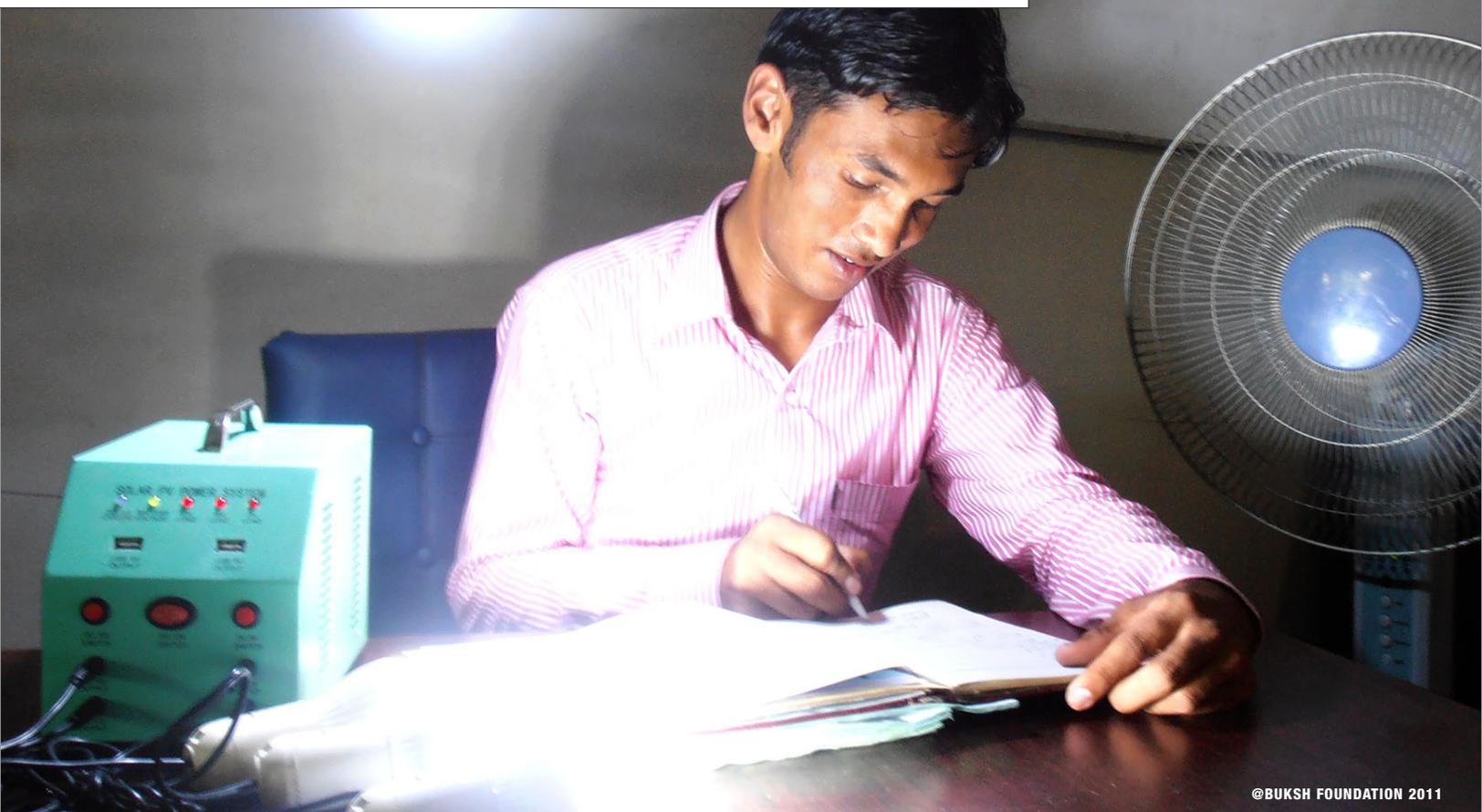


The Buksh Foundation's Solar Loan Initiative



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AFFORDABILITY MECHANISMS AND ENERGY ACCESS

Sparking a “Clean Energy Movement” in Pakistan

Founded in 2009, the Buksh Foundation is an up and coming microfinance institution that supports microenterprises and small businesses in Punjab, Pakistan's largest province. It takes a unique approach to addressing a critical need that is faced by virtually all of its business clients: lack of access to reliable and affordable electricity. Even in grid-connected areas of Pakistan, a

growing energy crisis leaves rural communities without power for up to 20 hours per day. Beginning in 2010, the organization began to explore clean energy finance as a solution to this escalating challenge. Today, Buksh Foundation's solar loan program is taking direct aim at the problem, and it has emerged as the fastest growing area of its portfolio.

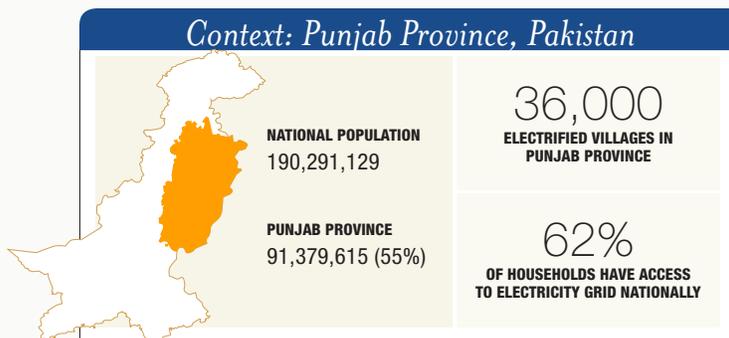
CHANGING LIVES THROUGH ACCESS TO FINANCE
FOR CLEAN ENERGY AND WATER



“It took a lot of time to set up the right business model because it’s not only about financing, it’s about the product, the quality assurance of the product, having the right product for a particular client. It’s about awareness and education, and after-sales service, as well. For us, it is about being part of a clean energy movement, not just doing clean energy lending.”

– Fiza Farhan, Executive Director, Buksh Foundation

INSTITUTION & CLIENT PROFILE



business feasibility report for each individual client. This level of risk mitigation has enabled the Buksh Foundation to maintain a PAR of 0.5 percent. Roughly 60 percent of Buksh’s clients are female. Clients operate various forms of micro and small enterprises, ranging from grocery, clothing and jewelry stores, to handicraft manufacturing, food vending and other services. The average monthly income of the target population is around Rs. 10,000 to Rs. 25,000 per month (USD \$106 to \$266, or an average of \$6 per day).

The Buksh Foundation currently serves 1,700 members through two branches located in the peri-urban surroundings of Punjab’s capital city, Lahore, and eight satellite kiosks based in the province’s rural districts. The organization offers three loan products: a productive loan for enterprise investments, a transportation loan that finances ownership of two-wheelers and rickshaws, and a clean energy loan that enables clients to own solar portable generators that provide electricity for multiple enterprise and household uses. The Buksh Foundation uses an individual loan methodology, reflecting a broader sector-wide shift away from the group lending that has taken place in Pakistan over the past two years. Staff conduct stringent due diligence analyses in support of client selection, including an individual cash flow analysis, psychometric evaluation and a detailed

Pakistan is currently in the midst of an escalating energy crisis resulting from inadequate generating and distribution capacity relative to its rapidly growing demand for power. Thirty-eight percent of Pakistan’s population is not served by the electricity grid, but daily load shedding and system failures leave even grid-connected communities without power for up to 14 hours per day in urban and peri-urban areas, and 20 hours per day in rural communities. According to Buksh Foundation’s market surveys, on average, its clients spend close to Rs. 3,300 (USD \$35) per month for highly unreliable grid electricity and kerosene. The burden of high costs and low reliability on client business and income has become increasingly severe over time; as crisis conditions escalate, serious loss of business in many small enterprises results.

AFFORDABILITY MECHANISM: INDIVIDUAL CLEAN ENERGY LOANS

The Buksh Foundation began laying the groundwork for its clean energy loan program in August 2010, less than a year after the organization was founded. The first loan was disbursed in July 2011, during the inaugural pilot phase. Following extensive product and model revisions, energy lending was established as a full and permanent program in April 2012. Between pilot and permanent program, staff incorporated findings from its own

market research, as well as international best practices, technical advancements and quality assurance tests, to arrive at a 360 degree, turnkey solution to promote scale and sustainability.

Currently, the program facilitates client ownership of three different solar portable generators that the organization has developed in-house with the support

BOX 1. TECHNOLOGY

Solar Portable Generators



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COMPLETE SOLAR HOME SOLUTION

SERVICES: ELECTRICITY



ENERGY HARDWARE

- 1 PHOTOVOLTAIC MODULE (25 Wp)
- 1 SLA BATTERY (12 Ah)
- 2 LED LANTERNS

MODEL

OPERATING LIFE

- 1-year model warranty
- 5-year manufacture warranty

CAPACITY: INDIVIDUAL LOAD

- 2 LED lanterns (18 to 19 Wh)
- small fan (22-23 Wh)
- 12v DC TV (18 to 19 Wh)
- laptop (8.5 to 9.5 Wh)



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SOLAR FAN KIT

SERVICES: ELECTRICITY



ENERGY HARDWARE

- 1 PHOTOVOLTAIC MODULE (20 Wp)
- 2 SLA BATTERIES (5 Ah)
- 1 OSCILLATING FAN (16 INCH DIAMETER, 3-SPEED)

MODEL

OPERATING LIFE

- 1-year model warranty
- 5-year manufacturer warranty

CAPACITY: INDIVIDUAL LOAD

- 3 LED lanterns (3W, 14 to 16 Wh)
- 16" fan (8 to 10 Wh)



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SOLAR LIGHTING KIT

SERVICES: ELECTRICITY



ENERGY HARDWARE

- 1 PHOTOVOLTAIC MODULE (8 TO 10 Wp)
- 2 SLA BATTERIES (4.5 Ah)
- 3 LED LANTERNS (3W EACH)

MODEL

OPERATING LIFE

- 1-year model warranty
- 5-year manufacturer warranty

CAPACITY: INDIVIDUAL LOAD

- 3 LED lanterns (3W, 7 to 8 Wh)

The Buksh Foundation's solar portable generators integrate photovoltaic modules, battery storage, and other balance of systems (BOS) components with a simple control interface. The interface includes a battery output indicator, an on-off switch and multiple ports for charging different loads. All components, except the solar module, are housed in a sealed, portable metallic container. Each kit comes with a different set of external components that enable usage, including lamp stands, chords and mobile phone adaptors. Portable generators

also include an AC adapter, which provides users with the option of charging from the grid.

Solar portable generators are designed for stationary use, but are light and compact enough to enable end users to easily transport them between the point of sale (a Buksh Foundation branch office), their businesses and their homes. All models have a one-year warranty, and a five-year manufacturer warranty for the solar module with complete after-sales service provided to clients.

of its sister organization Buksh Energy, a private energy service company (ESCO). Today, clean energy lending is the fastest growing area of the Buksh Foundation's total portfolio. To date, 122 energy loans have been disbursed, and as of July 2012, an additional 100 clean energy loan applications were under review. Cumulatively, this represents roughly 13 percent of the MFI's total client base. With a new line of dedicated credit for its energy portfolio set to commence with one of Pakistan's leading commercial banks, the organization is targeting over 2000 additional clean energy loans by June 2013.

The Buksh Foundation aspires to become a "one stop shop" provider of multiple services that support commercial success and quality of life improvements for its clients. Within this framework, addressing the mounting electricity access challenge has been a core element of this vision from the very outset. As Executive Director Fiza Farhan explains: "The initial vision of the Buksh Foundation always incorporated the notion of impact investment, and impact investment in a country

like Pakistan, we believe, starts with energy." The Buksh Foundation refers to its engagement in energy as a "movement," rather than a program. This is justified given the broad scope of activities and investments that it carries out to realize its objectives. These activities extend far beyond the provision of credit, and, remarkably, include product design, component sourcing and fabrication, in addition to distribution, marketing, consumer education and after-sales service.

The depth of the Buksh Foundation's involvement in energy resulted largely in response to the underdeveloped state of Pakistan's commercial energy sector and the absence of viable energy products and suppliers. The organization realized early on that in order for its energy vision to be realized, it would need to assume a direct role in coordinating various aspects of supply, not just end-user finance. However, it also reflects the extent to which Buksh views energy as a significant business opportunity that it is well-positioned to take advantage provided that adequate investments are made.

ENERGY PRODUCT SELECTION AND DEVELOPMENT

Based on product testing and market research with its clients, the Buksh Foundation sought to identify energy solutions that would function both as reliable, affordable substitutes for grid electricity and that were capable of enhancing the business activities and revenues of its clients. A number of factors led the planning team to narrow its selection process to solar photovoltaic applications early on. Pakistan's high average levels of insolation throughout the year support consistent solar electricity generation. Solar increases end-user independence from volatile and escalating fossil fuel prices, while eliminating the challenges of fuel supply common in Pakistan's rural and peri-urban areas. Solar technology is mature and proven in rural contexts. The modularity of photovoltaic components also allows for flexible product segmentation and the ability to match the specific needs and payment constraints of different clients.

Staff reviewed and tested numerous small solar portable lanterns, but determined that the capacity of available products would not adequately meet the service needs of business clients. The planning period coincided with the emergence of a new category of solar application that bridges the price and functionality divide between small portable lanterns and larger installed solar home

systems (SHS). These solar "kits," like conventional solar home systems, power multiple small loads, including lights, mobile phones and fans. Larger models can also power appliances such as radios, televisions and laptop computers. However, like lanterns, the portable design of these devices allows for over-the-counter retail and self-installation and maintenance by end users. Staff determined that kits offered a number of advantages over alternatives. From the consumer perspective, they deliver a level of service that can reliably support common small business energy requirements at an affordable price. From an operational perspective, plug-and-play portable generators simplify and reduce the overhead costs of both distribution and after-sales service. These features would help promote the organization's operational goal of independence, reducing the need for a separate technical partner for installation and after-sales service.

For its initial pilot period in 2011, the organization sourced products from a leading global manufacturer and pioneer of solar kit products. Quality and client satisfaction were high for the 60 units financed during this period, but a sharp increase in the wholesale unit prices during the pilot threatened to compromise demand and program success. In response, the Buksh

Foundation took a bold step to protect against future fluctuations in price, quality or available supply by deciding to integrate product design and fabrication into its activities. The organization would develop its own products in-house, using components sourced from World Bank and European Union certified international vendors.

Assuming responsibility for product development demands skills and knowledge that are far removed from the core competencies of conventional microfinance institutions. The organization's ability to incorporate these highly technical upstream supply functions into its activities is a direct result of its collaboration with Buksh Energy, a private limited company and subsidiary of the Buksh Group, the commercial entity that founded the Buksh Foundation.

While today the business operates independently of the Buksh Foundation's microfinance arm and serves a growing range of market segments, Buksh Energy was initially established to provide necessary technical expertise for the clean energy program. In this capacity, Buksh Energy staff carries out a range of technical, product-related functions that are critical to its success. Staff conducted the R&D and testing that led to the development of the Buksh Foundation's solar portable generator product line and identified and contracted with World Bank certified manufacturers in China to source all product components. Buksh Energy also created the protocols for product assembly, and trains all Buksh Foundation energy officers in advanced after-sales service and proper product use and maintenance.

“We have a very strong technical arm in-house — we actually have a team of engineers. We realized that we needed the right competence and the right combination of microfinance and technology — which are critical when combined together — to make the energy lending program a success.” – Fiza Farhan

END-USER AFFORDABILITY

The Buksh Foundation's individual lending model involves rigorous client assessment and a high level of ongoing interaction between clients and staff. These practices help branches attain very specific knowledge about clients and the key factors influencing the success and growth of their businesses. With such detailed understanding, loan officers can provide tailored guidance to better determine with the client

how credit can be deployed most effectively. It is also the principal means by which the organization gains insight into the energy needs, behaviors and demands of its clients.

Buksh offers clean energy loans for each of the three solar portable generator models that it promotes. Loan amounts for the different models are USD \$80, \$130 and \$250 respectively. The

standard term for each loan is 12 months, however, clients have the option of 9-month and 6-month terms, as well. As with all of Buksh's loan products, a 25 percent flat interest rate is applied to the principal amount. Clients pay their monthly loan installments at their local branch. Buksh has developed its marketing, consumer education and product sales model around the centrality of the branch location in client-institution interactions. Solar kit models are prominently displayed at each branch to build interest, and facilitate demonstration at the client's request. A branch also serves as the point of sale, and is where most after-sales service issues are resolved.

Clients are given the option of applying for an energy loan once they have completed their first loan cycle and have demonstrated strong repayment tendencies. This policy of graduation mitigates the risk of loan default and equipment theft by screening for strong and reliable clients. For Buksh, the standard policy is to grant one loan at a time, irrespective of type (i.e. general business, energy loan or transportation). However, in practice, if a client demonstrates strong repayment tendencies, a branch can permit the person to take on two loans concurrently. Therefore clients who receive a clean energy loan are not necessarily blocked from accessing loans for working capital or other essential business needs.

Energy loans are not handled by general loan officers, but rather are referred exclusively to designated energy officers, whose responsibilities include all energy loan-related transactions, product demonstrations and consumer education, client training, and after-sales service. The energy officer receives technical training by Buksh Energy staff. This enables branches to resolve the most common technical issues on-site. Each branch currently has one energy officer on staff. This division of labor was established to promote operational efficiency, accountability and quality control. Concentrating technical expertise and responsibilities in a single position allows branches to select candidates who possess strong technical backgrounds, and ensures that the requisite attention is paid to client training and after-sales service. It allows for a level of training and proficiency building that would not be cost effective to establish across an entire staff of loan officers. The energy officer approach also discourages potential conflicts of interest

wherein a loan officer may be compelled to push the client towards a larger general loan instead of a comparatively smaller energy loan.

FIGURE 1. COST ENERGY LOAN (12-MONTH TERM)

ENERGY PRODUCT	LOAN PRINCIPAL (RETAIL PRICE LESS 20% DOWN PAYMENT)	INTEREST RATE	MONTHLY INSTALLMENT
SOLAR LIGHTING SOLUTION	\$88	2% PER MONTH (FLAT)	\$9
SOLAR FAN SOLUTION	\$124.	2% PER MONTH (FLAT)	\$13
COMPLETE SOLAR HOME SOLUTION	\$212	2% PER MONTH (FLAT)	\$22

Consumer Education and Outreach

The Buksh Foundation's branches serve as demonstration and training points for solar products. In addition to on-site promotions, the organization also organizes regular community workshops targeting existing clients and the community at large. Guests are invited to sample products and ask questions in a social atmosphere. These events were promoted heavily prior to the introduction of the loan product and generated advanced interest that helped drive strong sales from the outset.

In rural districts, the Buksh Foundation conducts outreach through a network of eight kiosks located within Agrow retail centers. Agrow is a rural retailer that caters to the supply needs of local farmers, providing a range of agricultural inputs and products including fertilizer, seeds, tools and tractors. Kiosks are staffed by two Buksh Foundation loan officers, who conduct banking with new and existing clients and promote new products and services. Agrow centers support high customer densities and therefore serve as an ideal outreach point within the rural communities where transportation and communication infrastructure is limited. Kiosk rental costs are much lower than that of regular branches, which offsets the comparatively high overhead usually associated with accessing rural customers.

Client training prior to product distribution is critically important to containing after-sales service expenditures, and preserving the satisfaction and trust of clients. Since most technical faults result from product misuse, Buksh views its investments

in user education and training as an essential form of risk mitigation. Clients whose energy products fail in the field are less likely to continue to repay their loans and are inclined to voice their dissatisfaction to other members of their community, raising the risk of widespread spoilage. Limiting failures through proper client training and fast response after-sales

service is absolutely critical to avoiding such an outcome. In the words of one Buksh Foundation manager: “In the rural areas, if one product goes wrong, if one client is dissatisfied, he’s going to spoil the entire market for you, and all of them will lose trust in the technology.”

ANALYSIS: KEY DRIVERS AND SUPPORT FACTORS

Buksh Foundation’s “beyond microfinance” vision accommodates and inspires its commitment to energy access

The Buksh Foundation refers to itself as an “impact investor” because it aims to help its low-income members identify and overcome any and all obstacles that prevent commercial success and growth. In the midst of Pakistan’s power crisis, gaining access to reliable and affordable electricity has emerged as one of the most critical needs for virtually all clients. While energy deprivation is a condition faced by microfinance clients worldwide, the sector’s narrow focus on providing a limited number of microcredit products is a constraint that prevents more substantial involvement in energy. Supporting electrification directly aligns with the Buksh Foundation’s commitment to addressing multiple client needs over time, not just credit for general business needs. The enormous costs that result from unreliable, limited service – or no service at all - contribute directly to low productivity and economic insecurity. The Buksh Foundation recognizes the critical link between energy access and commercial success, and this explains its commitment to clean energy lending.

The Buksh Foundation has selected energy products that best meet client demand within the context of Pakistan’s energy crisis

Electricity supply in Pakistan is outstripped by demand, diminishing the extent and reliability of service in most areas of the country, both urban and rural. The resulting crisis affects nearly every segment of society, with small businesses particularly hard hit. The growing intensity of the crisis has spurred demand for alternatives. The Buksh Foundation’s product line has been developed to provide direct and sustainable relief to clients. Solar

portable generators are substantial enough to deliver power for services such as lighting, mobile charging and space cooling that are critical to the types of micro-businesses that Buksh supports.

Even at this early stage, the Buksh Foundation is starting to see the positive, material impacts that greater electricity access is having on its customers. In June 2012, the Buksh Foundation completed a qualitative survey of 50 of its 120 existing energy clients to determine the level of impact. Seventy-five percent of respondents reported that solar kit ownership was enabling them to extend their operating hours past dusk and into the evening. This in turn was resulting in longer hours of operation and increased income generation. On average, respondent revenues had increased by 37 percent following adoption.

Buksh Energy addresses gaps in the value chain that can prevent MFIs from engaging in energy

Without the contribution of Buksh Energy, the MFI’s involvement in product development would likely not be possible. The partnership allows the program to gain greater control over product design, enabling the Buksh Foundation to conduct its own R&D and continuously modify and improve products to boost quality, lower costs and meet the specific needs of clients. It also provides the organization with greater control and certainty in regard to supply. By integrating the upstream functions of component sourcing and product assembly, Buksh can better hedge against price escalation and supply irregularities – both common issues faced by many MFI’s that partner with energy product wholesalers. In short, the partnership with Buksh Energy grants greater independence from factors that would otherwise be largely outside of Buksh Foundation’s control. Operationally, Buksh

Energy's technical experts provide in-house training to Buksh Foundation's energy officers to carry out after-sales service at the branch level, ensuring enduring client value and satisfaction. Faulty products that cannot be serviced by branches are repaired by Buksh Energy staff, who are able to rapidly turn around repairs and replacements as a result of their

close integration with the MFI (both are headquartered in the same building). The Buksh Foundation does not need to worry about the long-term commitment and presence of their product partner, because that partner was created by a common funder with the explicit mandate to support the clean energy program on a permanent basis.

FACTORS INFLUENCING SCALE

Institutional Size and Access to Capital

As a young organization, the Buksh Foundation's active client base is still relatively small compared to larger, more established institutions within Pakistan. Therefore, the MFI's ultimate capacity to have an impact on a large scale is tied to its overall rate of growth in the coming years. In July 2012, the MFI was granted full partnership status by the Pakistan Poverty Alleviation Fund (PPAF), the lead coordinating body and capital provider for Pakistan's microfinance industry. With access to a new round of PPAF funding, the Buksh Foundation projects to expand its outreach in the first half of 2013,

and increase its client base to 7,000 by the end of the current fiscal year (June 2013).

New capital from PPAF is committed exclusively to the organization's productive loan portfolio, and therefore will not be mobilized to support the growth of clean energy lending. However, the Buksh Foundation has been successful in establishing an energy-dedicated line of credit with one of Pakistan's leading commercial banks. This will enable it to increase the number of energy loans disbursed to 2,300 by the close of the year. With the methodology and product completely in place, sufficient capital and investment remains the only major obstacle limiting scale.

Closing: Lessons Learned

What it takes to go "Beyond Microfinance"

Microfinance institutions have the potential to play an important role in expanding energy access in poor communities. The Buksh Foundation's program to improve electricity service for its business clients has seen early success, and thus provides recent evidence of this potential. However, the organization's experience also makes clear that the MFI's ability to make an impact is dependent on the coordination and completion of a complex

value chain, of which finance is one significant element. In order to fulfill its objectives, the Buksh Foundation is compelled to take on functions that lie outside of the experience of conventional microfinance. The Buksh Foundation has learned that to create sustainable impact, financing alone is not the solution. What is required is a 360 degree, holistic turnkey solution to the needs of the unbanked segment.

Thank you to the Buksh team for their collaboration in writing this case study.

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