

Output-based Aid for Energy Access



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Globally, around 1.1 billion people live without access to electricity. Ensuring universal access to affordable, reliable, sustainable and modern energy by 2030 is one of the Sustainable Development Goals adopted in 2015. The Global Partnership on Output-based Aid (GPOBA) supports this energy access goal through the use of output-based approaches to service delivery. Output-based aid (OBA) is an innovative financing mechanism designed to increase access to basic services for poor populations through subsidies linked to specified outputs. This note looks at the key components of designing OBA projects in the energy sector, and presents two projects in Kenya and Uganda that support access to grid electricity.

OBA is a form of results-based financing (RBF) that links the payment of subsidies—generally designed to complement or replace access fees—to the delivery of specific services, or outputs. Under OBA schemes, service delivery is contracted out to a third party, public or private, who is responsible for pre-financing the project and is reimbursed once services have been delivered and independently verified.

Although subsidies are common in the energy sector, many of the poorest households do not benefit from them as they are not connected to networks in the first place. Because OBA specifically targets poor populations, it helps to ensure that the benefits of infrastructure investment reach those most in need.

GPOBA has been working in the energy sector since 2006, and energy now comprises almost half of GPOBA's entire portfolio, with 17 projects in 15 countries. These projects are implemented in urban and rural settings, and support grid and mini-grid electrification, as well as renewable energy solutions such as solar home systems. This technological and regional diversity has allowed new approaches to be tested in meeting a range of needs. OBA approaches have demonstrated that they can ensure quality and service delivery, while making energy affordable for poor households. To date, GPOBA has disbursed more than \$57 million supporting energy provision.

Designing Projects in the Energy Sector

GPOBA's experience confirms that projects can succeed even in challenging environments if enabling conditions exist on the ground and project design is solid. At the local or country level, factors that support results include: strong government commitment to a national energy access program that is adequately resourced and focused on the poor; sound institutional and regulatory frameworks supporting energy access; and, for grid-based projects, a power sector performing well enough that critical problems such as power shortages would not undermine a project's capacity to achieve its objectives. Within project design, factors that support the successful use of OBA include:

- **Solid, thorough preparation.** Adequate time is needed to adapt models to new conditions or countries, identify implementing agencies and service providers with sufficient capacity, and develop institutional arrangements in an environment where a specific technology or subsidy scheme has never been used.



Additionally, sound assessment of users' capacity to pay can confirm the project's viability and enable design of effective subsidy schemes.

- **Clear assessment of sector challenges.** As well as inadequate regulatory frameworks, limited power supply, or low capacity of utilities, socio-political constraints (such as the presence of informal/illegal energy services run by cartels) can also impede implementation. Potential difficulties should be identified upfront and programs and targets designed accordingly.
- **Flexibility.** Pilot projects by nature explore new approaches and are implemented amidst considerable uncertainty. As projects advance, for instance, subsidy requirements may change due to evolving technologies, economies of scale, market development, or the bidding process. Flexible project design that can respond to unforeseen changes increases the likelihood of project success, as experience in both Kenya and Uganda shows.
- **Pre-financing capacity of service providers.** Pre-financing requirements can be met by service providers through micro-financing, supplier credit, user down payment, donor grants or credits, or a combination of these options. Pre-financing remains one of the main challenges OBA projects face in low-income countries. Sound project design recognizes risks that are beyond the control of the provider, such as exchange fluctuations in financially unstable environments, and assesses how much risk service providers can realistically bear without hampering their ability to deliver outputs or creating unaffordable user tariffs.
- **A strong implementing agency.** Given the innovative nature of OBA, implementing agencies tend to require substantial technical assistance, particularly in environments where capacity is weak. But an implementing agency that is dedicated to the project, and has appropriate technical and managerial capability, will be crucial to project success.
- **Extensive public outreach.** Outreach activities can help train customers in the use of unfamiliar technologies and ensure local commitment to a project. Early public outreach can also support the productive involvement of local governments.

Kenya

Kenya is one of the fastest urbanizing countries in sub-Saharan Africa, but only about a quarter of slum households have electricity connections. Many slum residents rely for electricity on informal networks, often controlled by criminal cartels, which add another layer of vulnerability and insecurity to their lives. These informal connections are usually more expensive and of poorer quality than legal connections.

In 2012, GPOBA provided a \$5.15 million grant to support expansion of the Kenyan electricity grid into slum areas. The GPOBA project is part of the larger World Bank-financed Kenya Electricity Expansion Project (KEEP), which includes IDA financing of \$10 million for the slum electrification component. The Kenya Power and Lighting Company (KPLC) is the implementing partner.

Prior to the GPOBA project, the Government of Kenya and KPLC introduced a special reduced fee for slum residents of \$15 per connection, substantially below the actual cost per connection (estimated at \$395) incurred by KPLC. The gap between connection costs and customer contributions was to be financed by output-based subsidies from KPLC (\$155 per connection), IDA credit (\$150 per connection), and GPOBA subsidies (\$75 per connection), which would be disbursed once the independent verification agent (IVA) confirmed working connections with pre-paid meters.

The project faced initial implementation challenges. After the project commenced, the average cost of each connection increased to around \$900 due to the inflation of input costs. In order to adjust to this increase, GPOBA raised its subsidy from \$75 to \$125 per connection; IDA and KPLC also increased their subsidies to \$250 and \$510 respectively. The connection target was revised from 66,000 households to 40,000. The disbursement of subsidies was amended from the original two-tranche schedule to a one-time payment triggered by the verification of working connections with pre-paid meters.

Another challenge was that slum residents in certain areas were reluctant to switch to legal connections due to issues of trust, payment barriers, and fear of reprisals from local cartels. To address this issue, KPLC prepared an implementation acceleration plan, a two-track approach differentiating between those slums with rampant illegal connections and strong cartel presence, and informal settlements designated under the World Bank's Kenya Informal Settlement Improvement Project. In the informal settlements, KPLC prepared for infrastructure improvements; in the slums where residents were reluctant to convert to legal connections, KPLC used a community-supportive approach. Their outreach involved strengthening communication with residents through collaboration with youth groups, civil society organizations, and social scientists, and preparation of educational materials and contact points, such as kiosks.

Having made these adjustments, KPLC has to date connected 40,323 households (161,630 people) in the project area, exceeding the revised target of 40,000. The project is enabling KPLC to expand its customer base; since the company's investment has begun yielding results, it has received requests from several slums for legal power supply. The new Kenya Electricity Expansion Project-Additional



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Financing (KEEP-AF) will enable KPLC to maintain the momentum of the KEEP program. The slum electrification component of KEEP-AF is financed by the IDA (\$10.5 million) and GPOBA (\$3 million) and will connect an additional 54,000 low-income households in Kenya's slums.

Uganda

In Uganda, where the electricity access rate is about 18 percent, GPOBA is supporting provision of grid connections to 115,700 poor households (578,000 residents) in rural and peri-urban areas, representing about ten percent of the electrification rate. The \$5.5 million GPOBA contribution is part of a larger \$18.2 million OBA facility funded by the World Bank, the European Union, the Government of Germany through the German Financial Cooperation (KfW), and the Government of Uganda.

Managed by the Rural Electrification Agency (REA) on behalf of the Ugandan government, the GPOBA project is implemented by eight service providers licensed by the Electricity Regulatory Authority. This project pilots the OBA approach in grid-based electrification in Uganda, while also creating an OBA facility, embedded within the REA, which provides for output-based subsidies for utilities that provide pro-poor connections. The facility will enable flexibility for future generations of electrification through, for example, additional funding from other development partners and the government.

The project subsidizes the full cost of connection for (i) poor households in the vicinity of a low-voltage network who need no pole service and can pay for internal house wiring and energy consumption but have not connected their premises for at least 18 months after commissioning of the power lines, and (ii) eligible poor

households identified in newly electrified areas where poverty mapping has been undertaken. Following installation of pre-paid metered connections, GPOBA disburses 100 percent of the agreed subsidy.

The project faced initial implementation challenges, including low payment capacity of households for internal wiring, shortage of connection materials (particularly for small service providers), and delays in poverty mapping and in verification/subsidy disbursement. These challenges have been addressed by offering partial wiring and ready board options to address barriers related to internal wiring; accelerating and finalizing poverty mapping; and streamlining disbursement procedures. Project restructuring allowed for a change in the subsidy disbursement schedule to a one-time payment to accommodate pre-paid meter technology (the only technology used), which contributed significantly to connection uptake due to service providers being more strongly incentivized. REA has also pursued an active mobilization and public outreach campaign to inform residents of the benefits of the project and accelerate connection uptake.

Since these steps were taken, the project has progressed quickly, supporting 102,205 new connections benefitting approximately 511,000 people (88 percent of the project target). Informal feedback from consumers has emphasized the benefits of electrification: lighting has replaced kerosene and allowed children to study at night and adults to use TVs, radio and phones; increased ease of women's household chores with electric appliances; and improved community safety. Service providers have emphasized the project's role in reducing illegal connections and growing the customer base, which has encouraged support within management of the service providers for the OBA facility and for mainstreaming connection application procedures.

The continuous engagement of Umeme, the major utility operator in Uganda and the main project service provider, has been critical for project progress, while the OBA financing instrument has incentivized the REA to focus on quality of connections and accountability of service providers.

Conclusion

The provision of safe, reliable, and clean energy presents enormous challenges that require innovative development approaches. OBA has proved to be a versatile and flexible financing mechanism that can succeed even when country conditions are challenging. Going forward, GPOBA will continue to focus on implementing results-based solutions in support of the SDGs, working in the energy, water, sanitation, and other sectors to increase access to basic services for poor populations in order to create sustainable communities.

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OBA Approaches is a forum for discussing and disseminating recent experiences and innovations in supporting the delivery of basic services to the poor. The series focuses on the provision of water, energy, telecommunications, transport, health, and education in developing countries, in particular through output- or performance-based approaches. The case studies

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