ENERGY SAFETY NETS

GHANA CASE STUDY

POLICY BRIEF

KEY FINDINGS

- Over the past three decades the Government of Ghana has implemented several programs to enable access to energy. In most of these programs, targeting of support to poor and vulnerable households has been absent or weak.

- Programs to enable poor and vulnerable people to access modern energy in Ghana have been implemented in phases with changes in coverage and modalities. Measures to ensure the long-term sustainability of programs have been lacking.

- The operation of energy access programs has been subject to political influence, because targeting has been weak or uncertain and resources limited.

- The future design and implementation of Energy Safety Nets (ESNs) in Ghana will require in-depth analysis of alternative mechanisms and knowledge of household energy needs. Measures to inform the public about ESNs and how poor and vulnerable households can benefit from them will also be needed.

POLICY RECOMMENDATIONS

- The weak targeting that has plagued most energy access programs should be addressed so their key objectives of serving the interests of the poor and vulnerable can be achieved. This could involve transitioning towards means testing to determine eligibility.

- Future ESNs should be developed as complete programs with long-term perspectives to ensure sustainability over time.

- The government and other stakeholders involved in ESN programs should educate the public, especially poor and vulnerable households, on the benefits of the various ESN programs and how they can benefit from them.

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INTRODUCTION

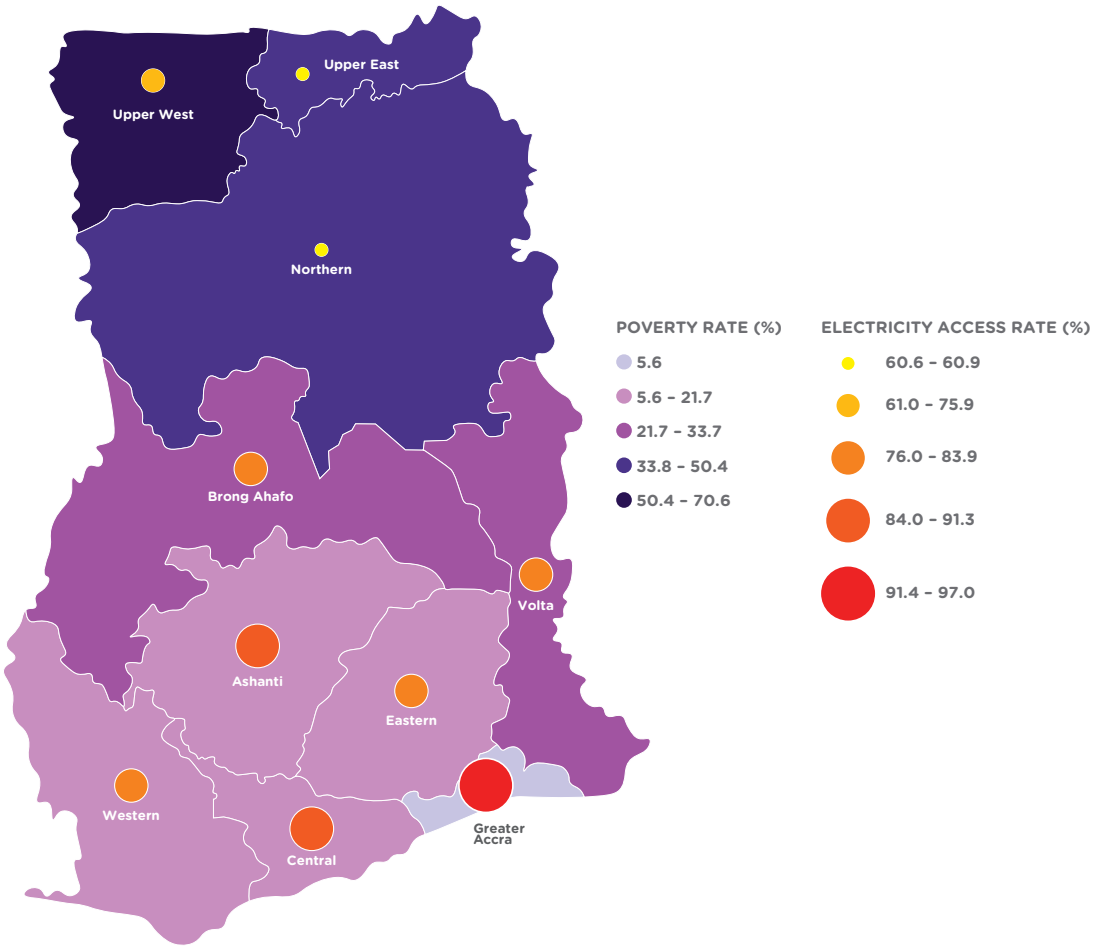
Globally, energy access remains a challenge for a significant number of people, especially in developing countries. While a handful of countries have made strides in increasing energy access, there are still challenges in the provision of affordable, reliable, sustainable and modern energy especially to the poor and vulnerable. Energy Safety Nets (ESNs) are social assistance programs that target the poor, vulnerable and the economically less privileged by providing them with the necessary support to access and use modern energy services.

Energy access programs in Ghana in recent decades have directly or indirectly contributed to energy access for the poor and vulnerable. The implementation of social assistance programs, in Ghana and elsewhere, has faced several challenges including poor targeting, faulty institutional arrangements and mechanisms, and the inability of the poor and vulnerable to take advantage of energy-focused programs. This research seeks to understand the lessons learned from the design, targeting and implementation of these initiatives.

This policy brief highlights the key findings and recommendations of the Ghana case study, which explores the reasons for the successes and failures of five energy access programs and their effectiveness as ESNs: the National Electrification Scheme (NES) and Self-Help Electrification Programme (SHEP), the Lifeline Tariff scheme, Solar Photovoltaic (PV) programs, Liquefied Petroleum Gas (LPG) promotion programs, and Improved Cookstove (ICS) programs.

Figure 1

Regional poverty and electricity access rates in the former 10 regions of Ghana, 2017



Source: Author's construction based on Energy Commission 2019a and GSS 2017 data.

Note: In 2018, Ghana's political regions increased from 10 to 16, with some of the former regions being partitioned. This map uses 2017 data and shows the former 10 political regions.

NATIONAL ELECTRIFICATION SCHEME (NES) AND SELF-HELP ELECTRIFICATION PROGRAMME (SHEP)

Established in 1990, the goal of the National Electrification Scheme (NES) is to provide access to electricity for all Ghanaians by 2020 through the national electricity grid and the use of off-grid solar PV (Abavana 2004). Under the NES, the Government of Ghana laid down a comprehensive plan to extend electricity access to all settlements that have an adult population of about 500 or more and are within 20 kilometers of the grid. Due to inadequate funds and the need to accelerate the expansion of electrification, the Self-Help Electrification Programme (SHEP) was created in 1993 to complement efforts of the NES. Unlike the NES that allocated the full cost of electrification to the government, the design of the SHEP required communities wishing to be connected to the national grid to provide counterpart financing. Under SHEP, communities were expected to finance the purchase of low voltage poles and meters and ensure that at least 30 percent of their households were wired as a key prerequisite (Kumi 2017). These programs have underpinned the expansion of electricity access in the country. However, the NES/SHEP programs have failed to connect smaller communities and those located far from existing grid infrastructure. Impact on poor and vulnerable households has been largely incidental as the program contained no explicit targeting mechanism.

The government and its line agencies (Energy Commission and Ministry of Energy) should set up an integrated national plan for the electricity expansion programs to integrate pro-poor programs that target the poor and vulnerable.

LIFELINE TARIFF SCHEME

The Lifeline Tariff scheme was initiated in 1998 to promote consumption of affordable electricity by low-consuming households, which are assumed to include the poor (Kumi 2017). In 2018, 45 percent of residential customers in southern Ghana and 33 percent of residential customers in northern Ghana were paying the lifeline tariff. In March 2018, the lifeline tariff was fundamentally changed from a volume-differentiated tariff to an increasing block tariff, meaning all electricity consumers now benefit from a lower rate on the first block of energy usage. As of 2019, the lifeline tariff rate is USD 0.06 per kWh (GHS 0.03/kWh). Lifeline customers also pay a USD 0.40 (GHS 2.13) monthly service charge that is lower than the service charge for consumers using above 50 kWh a month.

While Ghana's lifeline tariff structure attempts to reduce the cost of electricity for low-consuming households, it is not currently an efficient measure to ensure that the poor and vulnerable have access to and use electricity. This includes households that are not connected to the national electricity grid; those who have relatively high levels of power consumption because they own outdated and inefficient appliances; and those with shared meters, which are common in the shared housing systems in various low-income settlements in Ghana.

The government should introduce a program that ensures that electricity grid connections are subsidized and meters are made available to different households within shared living compounds. The government should also undertake research to reassess the electricity consumption of poor and vulnerable households with a view to revising the 50 kWh per month threshold of the lifeline tariff.

SOLAR PV ELECTRIFICATION

Several solar PV programs have been implemented in Ghana since the 1990s aiming to increase access to electricity in off-grid, island and remote areas that are geographically isolated or distant from the national electricity grid. The National Rooftop Solar Programme (NRSP) was launched in 2016 with the aim to relieve peak load on the grid. The *Improving Rural Energy Access through Solar Home Systems in Ghana* program was initiated in 2007 by the Global Partnership on Results-Based Approaches (GPRBA). The goal was to improve access to solar energy for 15,000 households in isolated islands in the Volta Lake enclave through the provision of SHSs and PV lanterns. The project exceeded its target of 15,000 households and supported the purchase of 8,831 SHSs and 7,991 lanterns for 16,500 households, benefiting approximately 100,000 residents in remote, off-grid areas in the Volta Lake area (Stojanovski, Thurber & Wolak 2017). This and other programs have increased access

to electricity for lighting, storing vaccines/medicines in health centers, and productive uses for livelihood activities. However, they have suffered from politicization and weak targeting of poor and vulnerable households.

The government should adopt innovative approaches that will support the poor and vulnerable to build the needed financial capacity to be able to afford solar PV services, especially in rural areas.

LIQUEFIED PETROLEUM GAS (LPG) PROMOTION PROGRAMS

Programs promoting the uptake of LPG have been implemented in Ghana with the aim of curbing deforestation and promoting healthier cooking methods. Between 1989 and 1998, the government supported connections for LPG use by distributing cylinders free of charge to households that could afford to fill them, located mainly in urban centers. Between 1998 and 2013, the focus of programs shifted to supporting consumption through a subsidized LPG price. When the subsidy was removed in 2013, support was again focused on connections, with an emphasis on rural areas.

Currently, Ghana's LPG access rate is 25 percent, half of the national target of 50 percent by 2020, and highly skewed by LPG use in urban areas and by wealthier households (GSS 2019). In 2017, the rate of household LPG usage had risen, but only moderately in some areas. In the Northern region, close to 3 percent of households used LPG as their main cooking fuel, while in Greater Accra, over half of households list LPG as their main fuel (GSS 2019). This is partly explained by the limited number of LPG refilling stations in Ghana, especially in the poorer northern regions (Asante 2018). Programs promoting the uptake of LPG have operated in rural and semi-urban areas with the aim of curbing deforestation and promoting healthier cooking methods (Ministry of Energy 2018). These have benefited some poor and vulnerable households, but as with electricity, were not specifically targeted and might have excluded households from the beneficiary lists because of their lack of political voice. Political interference in the selection of beneficiaries has underpinned the programs' weak targeting (Asante et al. 2018). Low uptake by poor and vulnerable households has also suffered because of a lack of public awareness about the programs and the rising cost of LPG following the reform of general price subsidies.

In general, LPG promotion programs are positive initiatives and have increased households' access to and usage of LPG. However, the use of LPG as a fuel for cooking remains skewed towards urban centers and higher-income households. The government should prioritize the establishment of refill or LPG service stations in close proximity to communities, especially in rural areas, to make LPG easily accessible to all users. Further, it should adopt innovative approaches to subsidize LPG consumption solely for the poor and vulnerable without the risk of subsidy capture.

IMPROVED COOKSTOVES (ICS)

Several programs led by private and public actors have promoted the adoption and use of improved cookstoves (ICS) in Ghana. Following early government-sponsored programs to distribute ICS, the private sector capitalized on what it saw as a business opportunity, resulting in the mass production of different models. The distribution of ICS has been limited by the concentration of their production in urban areas such as Accra, Kumasi, Takoradi and Cape Coast, and geographical constraints as a result of carbon credit structures. While multiple companies were distributing thousands of ICS in Ghana as of 2019, there is no coordinated framework to guide their actions or specifically target poor and vulnerable people with additional support. In addition, there is little education on the benefits of purchasing and using ICS, particularly in rural communities in Ghana.

A clear policy on ICS is needed to address critical barriers in their adoption and uptake. The government should initiate the development of a comprehensive program to ensure effective synergism of all the various ICS programs run by individual stakeholders to increase their level of coordination and sustainability. The Ministry of Local Government and Rural Development (MLGRD) and the Metropolitan, Municipal and District Assemblies (MMDAs) should be involved in the implementation of ICS programs. ICS programs are currently run by the central government through the various Ministries and Agencies with little coordination, whereas the MLGRD and the MMDAs work directly with communities on the ground.

CONCLUSION AND WAY FORWARD

Ghana has embarked on several social assistance programs with the aim of enhancing the welfare of the poor and vulnerable. Taken together, these programs have been successful in increasing electrification rates and access to clean cooking technologies. However, there are many hurdles to overcome to ensure that the poor receive the benefit of future ESNs. Challenges include the absence of proper targeting of the poor and vulnerable, poor coordination among the stakeholders involved in programs, and a lack of sustainability measures. Other programs have been ineffective due to poor education and the relatively high cost of technology that has excluded the poor and vulnerable.

The following recommendations are aimed at enhancing ESNs in Ghana:

- The weak targeting that has plagued most energy access programs should be addressed so their key objectives of serving the interests of the poor and vulnerable can be achieved. This could involve transitioning towards means testing to determine beneficiary eligibility.
- Future ESNs should be developed as complete programs with long-term perspectives to ensure sustainability over time.
- The government and other stakeholders involved in ESN programs should educate the public, in particular poor households, on opportunities to participate in various ESN programs and how they can benefit from them.

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