



ENERGIZING FINANCE
RESEARCH SERIES



Dalberg



**ENERGIZING FINANCE:
TAKING THE PULSE 2021**

POLICY BRIEF

GHANA



The Energizing Finance research series consists of in-depth primary research and analysis by Sustainable Energy for All (SEforALL) and partners that examines supply and demand for finance across two key areas of energy access: electricity and clean cooking.

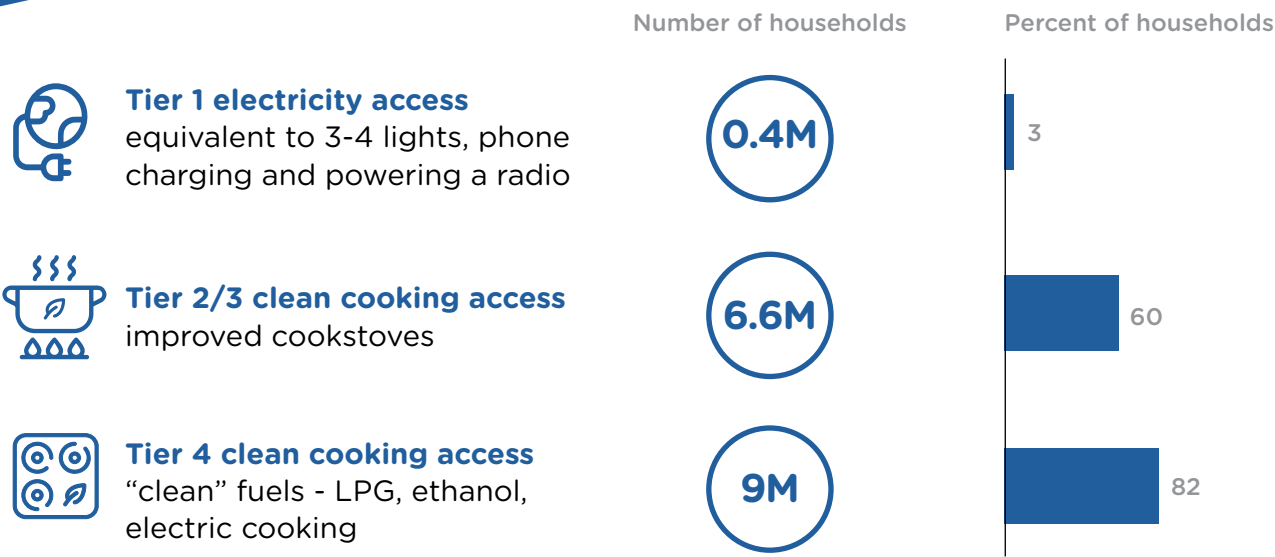
Energizing Finance: Taking the Pulse 2021 estimates the finance needs of enterprises and consumers to reach universal energy access by 2030 in three countries: Ghana, Mozambique and Vietnam.

Taking the Pulse shines a light on both the volume and type of capital - debt, equity, grants and affordability gap financing – challenges to achieving universal access and recommendations on actions required to achieve SDG7. This Policy Brief is based on Taking the Pulse analysis for Ghana.

Cover photo: Dominic Chavez/World Bank

Based on Ghana’s historical trends and business-as-usual programmes and financing, **0.4 million households will not have access to electricity** and **between 6.6-9 million households will not have access to clean cooking** by 2030.

2030 households without access



Universal energy access can yield significant economic, health and emissions benefits



Achieving universal access to electricity in Ghana

Electrification in Ghana has progressed rapidly over the past 20 years and is on track to meet the government target of 90 percent access to electricity by 2030, primarily driven by grid expansion and international finance.

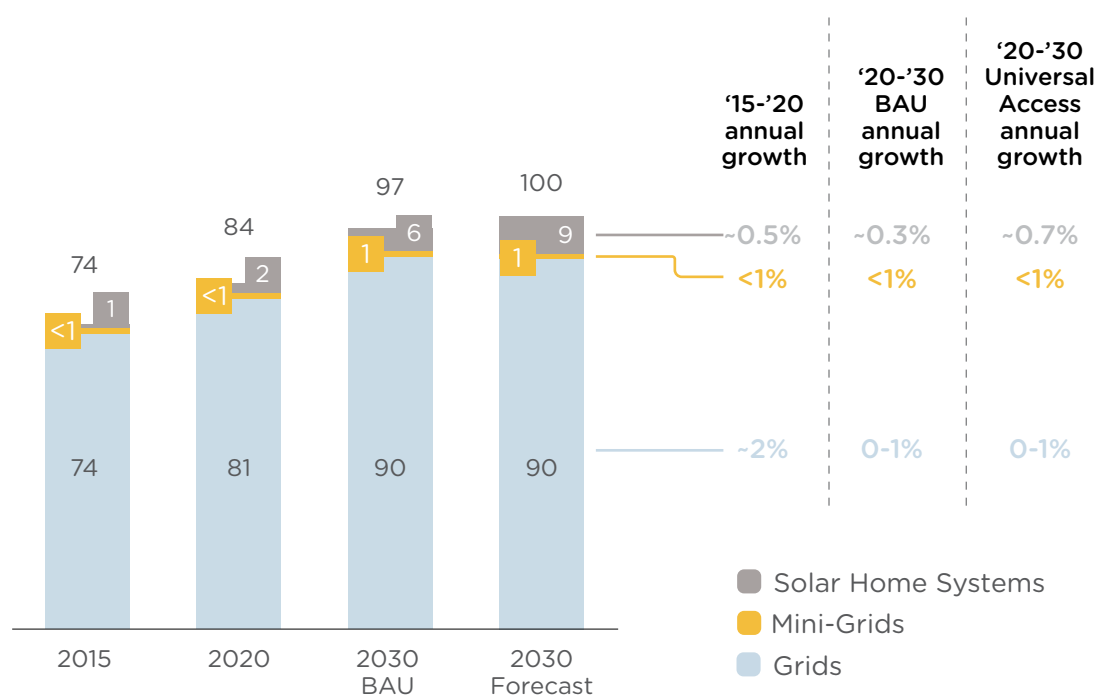
In a business-as-usual (BAU) scenario, Ghana is expected to reach 97 percent electrification by 2030, leaving 370,000 households without electricity access - mostly in remote areas and facing higher household affordability challenges.

Filling this 3 percent baseline or “Tier 1” electricity gap¹ will primarily be achieved through standalone solar. The government-led mini-grid electrification

programme that currently envisages 300 mini-grids, will provide access to less than 1 percent of households.

Only about USD 22 million in additional finance (beyond the BAU scenario) is required to achieve universal Tier 1 electrification, including incentives for the private sector to reach consumers in the hardest to reach areas (45 percent or USD 10 million) and addressing the household affordability gap (55 percent or USD 12 million). Beyond funding, it will be critical to resolve broader ease-of-doing-business factors to help set the stage for private sector growth, including changes to the regulatory framework for mini-grids and technical assistance for local companies to build capacity and overcome entry barriers.

FIGURE 1
Estimated Ghana electricity access 2015-2030e (percent of population)²



¹ The World Bank's Multi-Tier Framework defines Tier 1 access as 12 watt-hours of electrical energy per person per day and lighting performance of 1,000 lumen-hours per person, enough power to illuminate three to four lights, charge a phone, and operate a radio.

² Grid (Tier 3 – Tier 5), Mini-Grids (Tier 3 – Tier 4), SHS (Tier 1 – Tier 2). Source : World Bank, stakeholder interviews

FIGURE 2
**Cost of universal Tier 1 access to electricity
(USD million)**

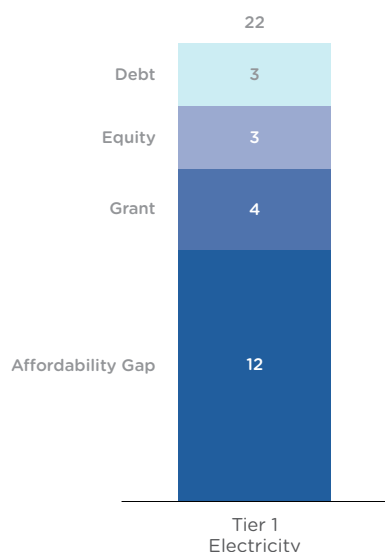
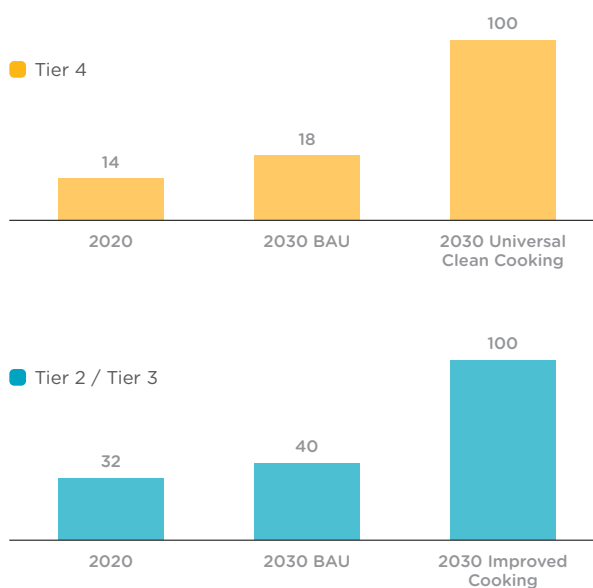


FIGURE 3
Clean cooking access 2020-2030e (percent of population)³



Achieving universal access to clean cooking in Ghana

Ghana has seen slow, steady growth in access to clean cooking, but overall access remains low. About 14 percent of the population currently cook with clean fuels and technology (Tier 4) and 32 percent are using improved cookstoves (Tiers 2/Tier3).⁴ Growth has been primarily driven by government-supported LPG expansion, coupled with a growing market for improved cookstoves.

Despite ongoing efforts, at the current pace (BAU), by 2030 only 40 percent of the population will reach Tier 2/Tier 3 access, and only 18 percent Tier 4 access. It is estimated that the full transition from wood and charcoal to clean fuels could take 50 years or more.

Universal access to clean cooking fuels and technologies (Tier 4) can be achieved through several “clean” fuels, including LPG, the focus of the government’s strategy to date, ethanol and electric cooking. These fuels have significantly lower emissions and more positive health benefits than improved cookstoves alone.

Achieving 100 percent access to Tier 4 clean cooking requires USD 10-13 billion and varies based on the type of fuel, primarily driven by the cost of fuel and subsidies to enable household affordability of fuel and stoves. Other major cost drivers include midstream and downstream infrastructure needed to bring clean fuels (LPG) to new areas, including the development of new bottling plants, storage, cylinder upgrades, and behavioural change campaigns. This cost does not account for any additional investment for production or importation of LPG.

Accelerating universal household access to Tier 2/Tier 3 improved cookstoves (ICS) that use wood or charcoal as fuel, but have significantly lower emissions compared to traditional cookstoves, requires USD 299 million in new funding. About USD 146 million (49 percent) is needed to close the affordability gap, and USD 152 million (51 percent) would address the finance needs of the private sector to manufacture and distribute these improved stoves. Climate finance could play an important role in financing.

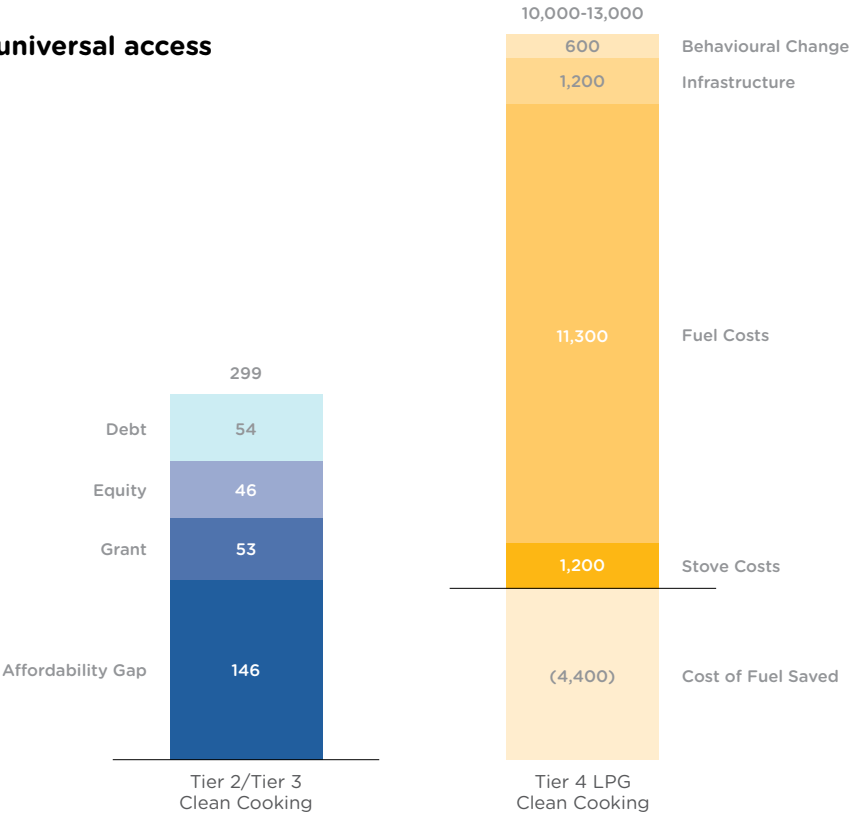
¹ Authors’ calculations.

⁴ For clean cooking, this report utilizes the MTF framework to define access Tier 2/Tier 3 levels as access to improved cookstoves through industrially manufactured improved cookstoves; and access to Tier 4 levels as access to clean fuels and technology/modern energy cooking services through LPG, ethanol, and electricity. It should be noted that households with Tier 4 access also have Tier 2/Tier 3.

Many ICS players are small companies with limited scale, no access to lower cost international finance and limited local commercial funding. As a result, grants will remain a core source of funding for

many players until 2030 to support private players’ expansions into last-mile areas. Improvements in the ease of doing business will be critical to support market expansion.

FIGURE 4
**Ghana cost of universal access
 (USD millions)**



Key challenges for universal electricity and clean cooking access

Primary challenges for Ghana’s progress towards universal energy access include:

Customer affordability. It is estimated that 38 percent of the population is unable to afford an improved cookstove on a cash basis, and one percent of the population is unable to afford a standalone solar system. For clean cooking, this challenge is compounded by the availability of low-cost substitutes (35 percent of households continue to use wood-based traditional stoves) and a resulting reluctance to shift to improved stoves.

Last-mile delivery in the hardest to reach areas. The households with affordability challenges are also the ones living in harder to reach areas. This carries additional distribution costs for clean cooking and SHS distributors, resulting in low

access to clean cooking and electricity solutions in these areas.

Private sector finance. Local enterprises tend to be pre-commercial and face all challenges small- and medium-sized enterprises face in developed markets as well, including access to finance and equity, in particular, to finance growth; this is complicated by the fact that they are energy companies in a maturing industry less understood by financing institutions.

Lack of government strategy for other “clean” fuels or access to carbon finance. The government strategy for clean cooking is primarily focused on LPG and improved cookstoves. It does not define a pathway for other “clean” fuels or support mechanisms to leverage carbon finance.

GHANA RECOMMENDATIONS

Electricity

Affordability Gap and Financial Need



- Consider a single USD 22 million financing facility to ensure universal Tier 1 electricity access that provides both demand side subsidies (USD 12 million) and funding to incentivize the private sector to serve remote, last-mile communities, such as results-based finance (USD 10 million)

Clean Cooking

Affordability Gap



Financial Need



- Commit USD 146 million in demand-side support to address household affordability gaps
- Expand PAYGO and consumer finance to improve household affordability
- Consider results-based mechanisms to incentivize private sector expansion in harder to reach areas
- Assemble USD 153 million in the form of new grant, debt and equity funding, including access to concessional finance for clean cooking enterprises
- Support expansion of the ICS sector through subsidies and additional support for research and development
- Develop a national clean cooking strategy that incorporates a pathway for “clean” fuels beyond LPG as well as support for ICS sector growth
- Create a national carbon credit scheme to aggregate emissions savings and increase access to carbon finance
- Support local lending to the private sector through guarantees, first-loss schemes, etc.

Private Sector Support



Cross-cutting

Gender Balance



Increased Coordination



- Expand research and development for more efficient and gender-specific, human-centred design
- Improve coordination between electricity, clean cooking and climate efforts to accelerate growth and leverage the right mix of capital to close energy access gaps



Investors



Government



Development Partners

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Please cite this work as follows: Sustainable Energy for All (SEforALL) and Dalberg Advisors 2021. *Energizing Finance: Taking the Pulse 2021 Ghana Policy Brief*.

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