



Discussion Paper: How End-User Subsidies Can Help Achieve Universal Energy Access



Views From the Off-Grid Solar Industry



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Acknowledgement

GOGLA would like to thank GET.invest for supporting this research and all companies who contributed their time to participate in the interviews that have informed this discussion paper.

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Published
January 2021

Written by
Sjef Ketelaars & Susie Wheeldon

Introduction

This paper aims to inform the discussion on how end-user subsidies for off-grid solar solutions fit within the 'toolkit' of public financing solutions to accelerate energy access. Its objective is to share insights from the private sector. It has been compiled following interviews with 25 market-leading companies that, combined, have reached millions of households and businesses with off-grid solar solutions.

The prevailing view of the companies interviewed for this paper is that end-user subsidies will be needed to reach the poorest households with clean energy access. This is a shift in the sector's view compared to June 2015 – when the last Industry Position on subsidies was released by GOGLA on behalf of its Members. At that time, the private sector

hoped that the lower cost of energy access via off-grid solar products, economies of scale and other public financing solutions would be enough to enable access for all.

However, despite this change in view, interviewees still shared strong opinions around the design and implementation of end-user subsidies. Their potential to create negative market distortion – and instead slow-down energy access – is high and must be mitigated. This paper profiles four areas of insights shared by the private sector that it is valuable to consider to unlock the full potential of the off-grid industry in any end-user subsidy scheme: Business Certainty and Clarity, Holistic and Flexible Implementation, Stakeholder Alignment and Market Sustainability.

What is an end-user subsidy?

An end-user subsidy is one that reduces the cost of a product or service to the customer to specifically address the issue of affordability. In the context of this discussion, end-user subsidies describe a mechanism where the price of an off-grid solar product or service is reduced, but not eliminated. For example, where the cost of a solar kit or system is reduced by a certain dollar

amount or percentage of the normal retail price. A current example is the CIZO program in Togo, where the cost to the customer of a system is reduced by US\$4 monthly for 36 months. End-user subsidies are intended to act as an enabler to expanding a long-term, sustainable, off-grid solar market to all households.

Market based solutions are already enabling millions of households to access clean safe solar energy; households that were a decade ago still deemed 'too poor' or 'too remote' to be served by the private sector. It is estimated that more than 420 million people are currently using an off-grid solar lantern, solar home system or appliance for improved electricity access¹. These products are improving health, livelihoods, and opportunity, as well as reducing CO₂e and boosting resilience².

The Global Off-Grid Solar Market Trends Report 2020 showed that the off-grid solar sector is expected to serve a further 600 million people by

2030³, providing the most cost-effective solution to electrifying millions of homes and businesses. Yet even in pre-COVID 19 analysis, projections revealed that almost 230 million people would be missed in the bid to achieve universal electrification – in particular the poorest and most remote. The global shock that COVID-19 has delivered will push another 80 million people into extreme poverty⁴ and has already knocked the off-grid sector off-track in its efforts to reach those locked in energy poverty. The industry holds tremendous promise to narrow the energy access gap – but new interventions must be explored to ensure that hundreds of millions of people are not left behind.

¹ Lighting Global, GOGLA, ESMAP (2020), Global Off-Grid Solar Market Trends Report 2020.

² GOGLA (2020), Powering Opportunity: Energising Work, Enterprise and Quality of Life with Off-Grid Solar.

³ Lighting Global, GOGLA, ESMAP (2020), Global Off-Grid Solar Market Trends Report 2020.

⁴ World Bank (2020), COVID-19 to Add as Many as 150 Million Extreme Poor by 2021 (Press Release).

Introduction

Methodology and objectives

Based on interviews with 25 off-grid solar companies⁵, this paper aims to inform the discussion on how end-user subsidies fit within the ‘toolkit’ of public financing solutions to accelerate energy access. Companies interviewed include those selling solar lanterns, multi-light kits, home systems, irrigation systems and off-grid appliances. The paper consolidates current thoughts and opinions, and provides considerations for donors, governments and other stakeholders who are interested in using end-user subsidies to improve energy access in partnership with the private sector.

Please note that this paper does not provide in-depth analysis of current or upcoming end-user subsidy schemes, provide recommendations on how public funding is best used to promote energy access or make comparisons around the impacts of different types of interventions. Further research is needed to explore these topics. Furthermore, while this discussion paper does share thoughts on end-user subsidy design considerations, it does not present a systematic overview of design principles.

For more information on design principles and lessons learned, please see the following publications and recording:

- [Africa Clean Energy & Open Capital Advisors \(2020\), Demand-Side Subsidies in Off-Grid Solar - A Tool for Achieving Universal Energy Access and Sustainability](#)

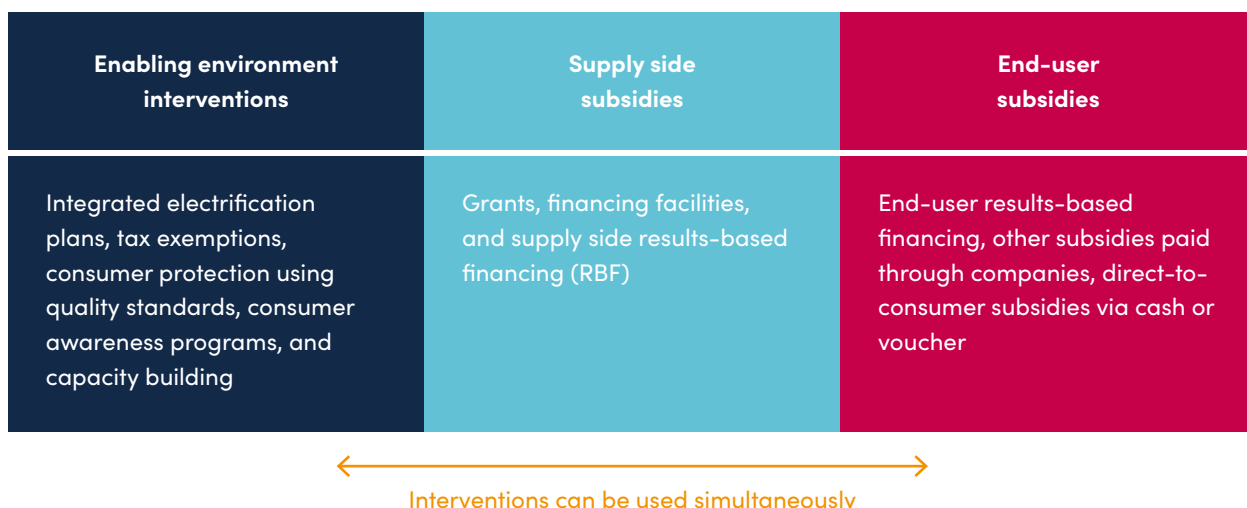
- [EnDev \(2020\), Accelerating Energy Access Markets with RBF: Looking Back and Beyond 7 Years of Implementing the UK Aid Financed EnDev RBF Facility \(Webinar Recording\)](#)
- [IIED \(2020\), Energy for All - Better Use of Subsidies to Achieve Impact](#)
- [Tearfund \(2020\), Designing Sustainable Subsidies to Accelerate Universal Energy Access. How End-User Subsidies Fit Within the ‘Toolkit’ of Public Financing and Market Enabling Interventions](#)

How end-user subsidies fit in the ‘toolkit’ of energy access interventions

End-user subsidies are part of a broader ‘toolkit’ of interventions that can be used to increase energy access and affordability. This toolkit can be divided into three categories: 1) enabling environment interventions, 2) supply side subsidies and 3) demand side or end-user subsidies (Figure 1).

Enabling environment interventions include developing national electrification plans, building workforce capacity, providing tax exemptions⁶, and adopting quality and consumer protection standards. For example, inclusion of off-grid solutions in national electrification planning helps establish a consistent and coherent framework for decision making in areas of government where decisions that impact the affordability of solar

Figure 1 - Possible interventions to increase energy access and affordability⁷



⁵ Interviews were conducted with C-level staff in October, November and December 2020. The duration of each interview was approximately one hour.

⁶ Tax exemptions can also be considered a supply side subsidy since foregone tax revenue has an impact on government finances.

⁷ Adapted from Africa Clean Energy & Open Capital Advisors (2020), Demand-Side Subsidies in Off-Grid Solar - A Tool for Achieving Universal Energy Access and Sustainability.

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products are made. This avoids sudden changes in policy, especially those which have a direct impact on the cost of business. Tax and tariff exemptions provide another of the most effective interventions for reducing the cost of off-grid solar products and enhancing their affordability, and consumer protection and product quality standards ensure that customers have access to good quality products and services and transparent (pricing) information.

Supply side subsidies – such as grants, financing facilities, and supply side results-based financing (RBF) – are extended to businesses to reduce costs or risk and support companies to scale up operations and increase access for customers in challenging markets. They help bring costs down, so companies can provide a consistent price for their products, even when it costs them more to reach and service a customer.

Demand side or end-user subsidies are targeted to customers with the purpose of directly reducing the retail cost of a product or service and increasing affordability for the poorest and most vulnerable people. Examples are cash transfers or voucher schemes targeting low-income customer segments⁸. Although RBF is often used to deliver supply-side subsidies, results-based financing mechanisms can also be used to deliver end-user subsidies where funds are provided to companies when they have provided proof that they have sold a product or service to a customer at a reduced price.

Determining the right approaches to accelerate access via off-grid markets

Every market, whether nascent or mature, benefits from interventions that create a robust **enabling environment** as this helps to create certainty, increase the predictability of the policy environment, and attract investment. It is a critical enabler of any other mechanism to advance energy access. A strong enabling environment provides a positive signal from national governments and institutions that they recognize the value of a sustainable, scalable, and impactful off-grid market. This helps to encourage companies to set up, or expand, business operations and to deliver services to energy poor homes and businesses at scale.

For subsidies, the reality is more complex. Which type of subsidy should be used, when and how, in large part depends on the target population, state of the market and the particular barrier to energy access that the subsidy mechanism aims to address. To help determine the right intervention, it is therefore useful to differentiate between the different market segments that companies are trying to reach: the commercial market, financially challenged market (where customers are unable to afford products or services), logistically challenged market (where customers are too remote or difficult to reach) and the non-commercial market (Figure 2).

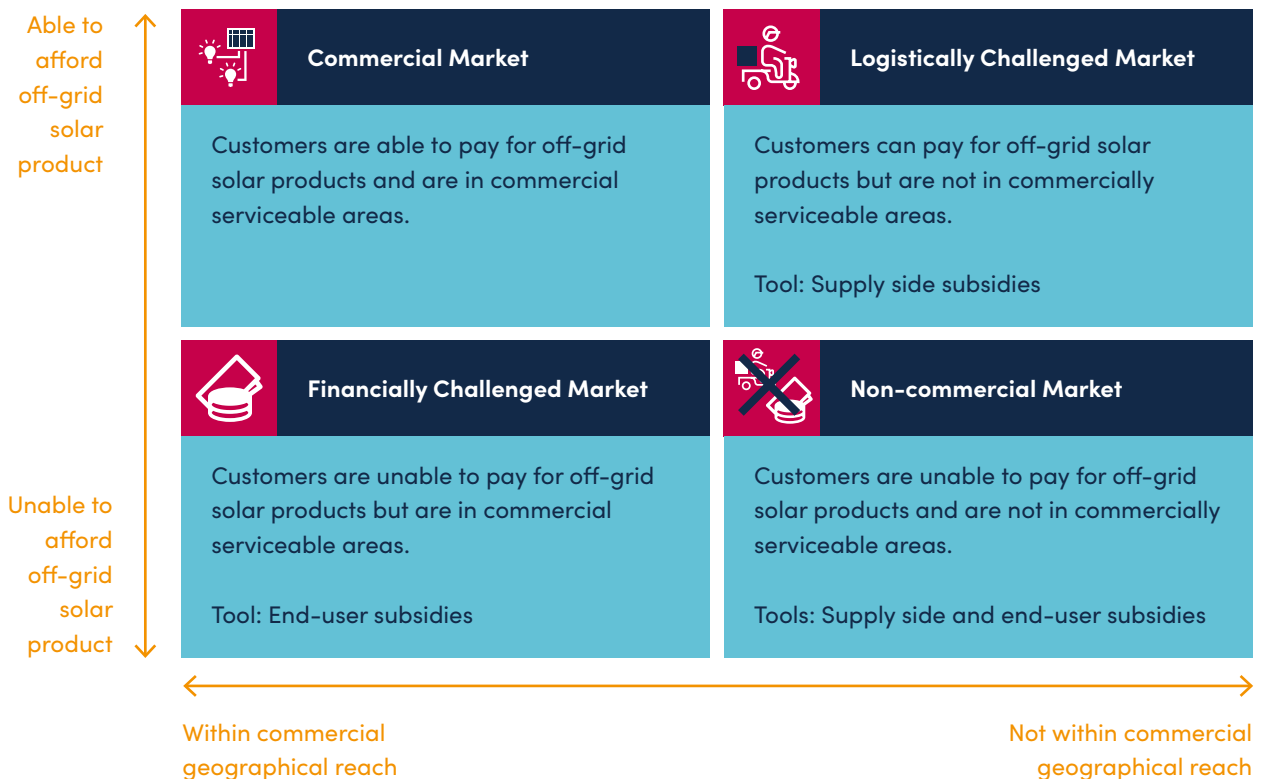


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⁸ A cash transfer is a direct transfer payment of money to a beneficiary. Cash transfers are either unconditional cash transfers or conditional cash transfers. Vouchers provide access to pre-defined commodities or services, and may be denominated either in cash, commodity, or service value.

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Figure 2 - Four different market types⁹



Supply side subsidies are especially effective in reaching customers in logistically challenged markets, as they allow companies to scale and explore nascent but potential markets in remote areas. Supply side result-based financing schemes (RBFs) in particular, such as the KOSAP scheme in Kenya¹⁰ or the Beyond the Grid Fund in Zambia¹¹, incentivize companies to start operating in remote regions that are not commercially viable without a subsidy. In financially challenged markets, which are commercially serviceable but where customers are unable to pay for off-grid solar products, end-user subsidies might be considered. While in non-commercial markets, it may be most effective to carefully deploy both supply side and end-user subsidies to reach poorer customers while also encouraging companies to operate in a hard-to-reach areas¹².

Supply side subsidies can be a great tool to close the access gap and develop commercial markets. They can also help improve affordability, by allowing companies to offer products at a consistent market price, rather than a higher price that represents the true cost of selling the product in a challenging region. However, the current market price may still be too much for particularly low-income households. In Rwanda, Energising Development (EnDev) experienced that only using supply side subsidies through an RBF were not sufficient to reach certain customers. This led the Rwandan government to introduce an **end-user subsidy** pilot program in 2019 in partnership with the EnDev program. The scheme has provided off-grid solar products to 31,000 households who were unable to afford them at the standard market price¹³.

9 Adapted from Africa Clean Energy & Open Capital Advisors (2020), Demand-Side Subsidies in Off-Grid Solar – A Tool for Achieving Universal Energy Access and Sustainability & GOGLA (2019), Providing Energy Access through Off-Grid Solar: Guidance for Governments.

10 The Kenya Off-Grid Solar Access Project (KOSAP) is part of the government's commitment to provide universal access to electricity in Kenya by 2022. It is a US\$150 million RBF and debt facility – supported by the World Bank – that targets 14 of the 47 counties in Kenya.

11 The Beyond the Grid Fund for Zambia (BGFZ) is a €20 million multi-year RBF aiming to increase energy access, improve livelihoods and catalyze economic activity in rural and peri-urban areas.

12 For a more in-depth analysis of the four different market types, please see Africa Clean Energy & Open Capital Advisors (2020), Demand-Side Subsidies in Off-Grid Solar – A Tool for Achieving Universal Energy Access and Sustainability & IIED (2020), Energy for All - Better Use of Subsidies to Achieve Impact.

13 Energising Development (EnDev) (2019), Country Factsheet Rwanda, For specific learnings around RBFs, please see the EnDev RBF Facility Webinar Series.

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In addition to the Rwandan government, other governments and donors, including those in Togo, Kenya and the Democratic Republic of Congo, have recently launched, or are developing, end-user subsidy pilots and programs¹⁴.

While these end-user subsidy schemes provide a clear way to address the affordability challenge for the poorest households, there are concerns around the potentially market distortionary effect of end-

user subsidies. If not planned and administered properly, end-user subsidies can negatively affect the market and, in a worst-case scenario, slow down or even reverse overall electrification efforts. The potential for end-user subsidies to create negative market distortion is explored in the box below and is a consideration that contributes to many of the comments from private sector companies shared later in this paper.

Why it is critical to mitigate the risk of market distortion created by end-user subsidies

While there are hundreds of millions of people who may not be reached with clean energy access if we do not address the challenge of affordability, there is an even greater number of people who are expected to have their energy needs met through the expansion of the commercial off-grid market¹⁵. It is therefore crucial that end-user subsidies do not undermine the viability of off-grid solar markets or discourage investment.

There are various ways in which end-user subsidies can distort a market. One example is where the reason for, and benefits of, an end-user subsidy scheme are not clearly communicated to the off-grid population. This can unintentionally send a signal to other consumers that the value of an off-grid product should be lower than the full retail price. Customers that do not benefit from the scheme may therefore feel that they are paying too much for their products or services – leading to dissatisfaction and changing customer behavior. Customers who can afford

products may delay a purchase, holding out for reduced-cost goods in the future, while current PAYGo¹⁶ customers might default on products they have already purchased. Another issue that can negatively impact market growth, is where a subsidy scheme lacks a clear exit strategy. This can make it difficult for companies to plan their approach to expanding and supporting a long-term commercial market (see Market Sustainability).

Buoyant, competitive off-grid solar markets empower customers by providing them with product choice and allowing them access to new products and services that go even further than meeting their basic energy needs¹⁷. The off-grid solar sector is also creating thousands of jobs¹⁸, and is supporting governments and donors to reach energy access and other development goals. Effective end-user subsidy schemes must help to preserve and catalyze long-term, sustainable off-grid solar markets¹⁹.

14 For example, the CIZO scheme in Togo and the Energy and Cash Plus initiative by Energy4Impact and UNICEF in Kenya.

15 Lighting Global, GOGLA, ESMAP (2020), *Global Off-Grid Solar Market Trends Report 2020*.

16 PAYGo refers to a business model that allows users to pay for their product via consumer financing over time. A PAYGo company will typically offer a solar product for which a customer makes a down payment, followed by regular payments over a certain period. In most cases, the repayment period is between 24 to 36 months.

17 Research shows that customers move in a non-linear or cyclical fashion from one product to another and may stack products (e.g. they may own several solar lights, or a solar home system as well as solar lanterns). For more information, please see Kizilcec et al. (2021), *Examining the Journey of a Pay-as-You-Go Solar Home System Customer: A Case Study of Rwanda and GOGLA (2020), Powering Opportunity: Energising Work, Enterprise and Quality of Life with Off-Grid Solar*.

18 GOGLA (2019), *Off-Grid Solar. A Growth Engine for Jobs and Power for All (2019), Powering Jobs Census 2019: The Energy Access Workforce*.

19 For an overview of off-grid solar subsidy schemes, including lessons learned, please see Tearfund (2020), *Designing Sustainable Subsidies to Accelerate Universal Energy Access*.



**Considerations
from the private
sector**

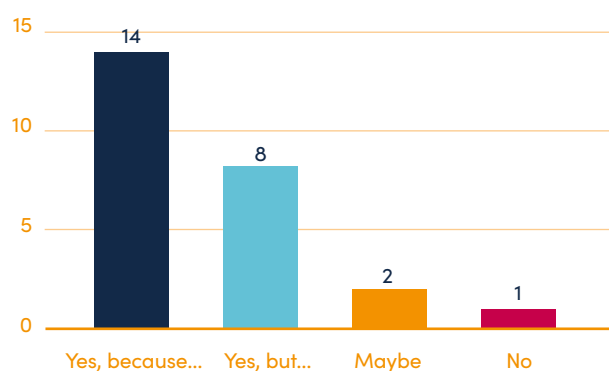


Considerations from the private sector

When the last Industry Position on subsidies was released by GOGLA in 2015²⁰, the prevailing view among leading off-grid solar companies was that the PAYGo business model, economies of scale, lower cost of off-grid solar products and other public financing solutions, would be enough to enable the sector to reach the poorest and most remote households. However, as the market matures, there is growing consensus that even with these mechanisms, the actual cost of quality off-grid solar kits, home systems and irrigation will remain too high for the poorest households.

For many companies (and other stakeholders), it has become clear that end-user subsidies will be necessary to ensure every household is able to afford a product that will bring them Tier 1 access or above²¹. The interviews undertaken for this paper revealed that 22 out of 25 companies agree that end-user subsidies will be necessary to achieve universal energy access (Figure 3).

Figure 3 - Will end-user subsidies be necessary to reach the poorest, most remote households to achieve universal energy access?



Some companies (14) were very outspoken on the need for end-user subsidies, with one company saying: 'If we genuinely believe in the importance of universal energy access, this is what it's going to take'. Other companies (8) did see the need for end-user subsidies but expressed greater concerns about the potential challenges of implementing such mechanisms. This was illustrated by a company that said: 'If we need to reach universal energy access within a certain timeframe, yes. But if it distorts the market it can be a disaster'. A smaller group of companies (3) were less sure about the need, or benefits of, end-user subsidies, with one company saying: 'I think it is too difficult to manage. The targeting, verification, distribution of funds and accountability challenges – I just don't see how you can make it work. However, I am keeping an open mind'.

Despite only three companies having reservations about the need for end-user subsidies, all interviewees underlined specific challenges which need to be addressed for a program to work effectively alongside a sustainable, long-term commercial market.

The challenges shared within the interviews have been consolidated into four main categories within this discussion paper:

Business Certainty and Clarity – to enable the industry to operate effectively and reach more energy poor households.

Holistic and Flexible Implementation – to ensure that the use of public funding is optimized.

Stakeholder Alignment – to create the best conditions for success.

Market Sustainability – to ensure that the impact of end-user subsidy schemes are long-term and can catalyze even greater benefits.

²⁰ Please see the Industry Position here: [GOGLA \(2015\), Industry Opinion Towards the Use of Public and Donor Funding in the Off-Grid Lighting Industry](#).

²¹ The Multi-Tier Framework (MTF), developed by ESMAP, is an approach to monitor and evaluate energy access in a non-binary fashion, measuring the quality of access rather than merely access to any source of electricity. Energy access is measured using a tiered spectrum, from Tier 0 (no access) to Tier 5 (the highest level of access). For more information, please see [ESMAP & SEforALL \(2015\), Beyond Connections: Energy Access Redefined](#).

Considerations from the private sector

Business Certainty & Clarity

To enable the off-grid solar industry to operate effectively and reach more energy poor households

When asked what they would need to ensure the success of any end-user subsidy program, a common theme highlighted by interviewees was the need for a scheme to enhance, rather than reduce, business certainty and clarity. As one company put it: 'The greater clarity and certainty a program can provide, the more chance we have to build effective and sustainable business models that can create impact'. Several factors that can help create certainty were mentioned and are detailed below.

Expanded program size and duration

First, to support companies to integrate reaching riskier and more vulnerable households into their business plans at the scale needed to achieve energy access goals, interviewees advised that programs should be equally as ambitious in terms of size and length. A number of companies highlighted that subsidy programs are often relatively small – around US\$1-3 million – and that in some instances they are running in parallel in the same country or region²². One interviewee explained: 'We are currently participating in two subsidy programs, while two more are coming. That does not make sense. No one wants to work together, everyone wants to do their own thing, but this is not cost-effective'. While companies recognized that well-designed, pilot programs can be critical for establishing approaches and exploring subsidy design, they advised that larger programs – in the order of US\$50-300 million – would allow them to create long-term business models and distribution infrastructure to reach lower income customer groups. Interviewees recognized that this would require serious commitment from governments and donors but advised that investment in larger programs – if done in conjunction with careful and inclusive subsidy design – would also lead to far greater impacts, reduce transaction costs and allow for a greater focus on sustainability.

Interviewees also mentioned that programs should be longer in duration. Currently, many subsidy schemes run for 1-2 years, but companies indicated that 3-5 years would be much more effective and sustainable. A longer timespan is also key to enabling companies to build the subsidy into their

business model, create predictable cashflows, build economies of scale, and develop the infrastructure needed to ensure sustainability once the program ends. One company advised: 'Why five years? It feels manageable from a commitment standpoint. It provides us certainty and allows us to create the necessary infrastructure, but also puts enough pressure on companies to create results'. Another company advised that they would only join a subsidy scheme if it was long-term enough for them to fully plan and integrate into their current operations. As a PAYGo operator they expressed concern that short term, modestly funded, schemes could result in them bringing more risky customers onto their balance sheet, ultimately leading to a greater chance of those customers defaulting and sliding back into energy poverty, whilst at the same time undermining the quality of their wider customer portfolio.

Efficient administration

Almost all companies highlighted the need for efficient, simple and clear administrative processes. Companies advised that in respect of current subsidy schemes, there is often a fundamental mismatch between how much certainty donors want in terms of data provision, impact verification, impact projections etc. and what companies can offer without incurring significant costs. Too much administration increases overheads and locks out companies who cannot agree or adhere to complex requirements. One company explained: 'RBFs are often more structured like grants. They want us to know what we will do in 2, 5 or even 7 years' time. We can make predictions but how would I know? Some programs need full blown research into income and poverty levels. We get questions like: how much does your software deprecate in poor versus rich areas? When the ask is too much, it makes it unattractive to participate'.

Strong fund management & timely disbursements

Another common challenge that was raised by interviewees was that of a time lag between the expected and actual timing of funding disbursements. One company said: 'From a business standpoint, we can't count on them. We do not know when payments come, there is so much delay in the process'. Another company mentioned: 'Disbursements can take 6, 9 even 12 months and then we receive a certain amount, but

22. Please note that comments encompassed experience from supply side subsidy schemes, as well as end-user subsidy schemes.

Considerations from the private sector

it is not clear why. There is a lack of transparency. Sometimes you do not get paid if customers don't answer the phone when the verification company calls, even though you know that they have a system'.

To help companies plan effectively and allow smaller organizations to enter subsidy schemes, companies should be able to count on payments and factor these into their operations. Companies stressed the need for a strong, trusted, third-party fund manager and / or implementation partner to be involved in any scheme to ensure that funds are administered effectively. A strong fund manager should be able to create a clear and consistent process for calculating subsidy payment amounts, handle funds and disbursements efficiently, and set up a simple and effective process for impact verification.

Appropriate targeting

Companies further stressed that it is important to make sure that the subsidy is targeted to ensure there is no competition between the subsidized and the commercial market. It also increases program efficiency, avoids unnecessary expenditure of public funds, and mitigates the potential for market distortion. However, it is fine line between creating a program that is relatively simple and cost-effective while being smart (i.e. complex) enough to ensure that the subsidy is reaching only those people who need it most.

Programs commonly target specific populations based on geography, demographics or economic status²³. Interviewees advised that, in practice, geographic targeting is often the easiest targeting mechanism as this does not require significant levels of data on income levels or vulnerability. This can work particularly well where all, or most, people in a target geography are expected to need subsidy, as it reduces the likelihood that funds will inadvertently go to those households and businesses who do not need the support. However, companies also highlighted that for a scheme to be effective, good communication about the subsidy scheme and actions to mitigate leakage²⁴ would still be needed.

Demographic targeting makes use of data such as age, gender, profession, or family size. It can be used to target certain vulnerable groups, for example disabled people or elderly, but governments need to have a clear understanding of correlations between demographic groups and affordability to target the right households. Furthermore, as with geographical targeting, affordability varies within a demographic group, and companies emphasized that governments and donors need to be aware that demographic targeting can be prone to racial, ethnic, or other discrimination.

Economic targeting only targets those who are unable to afford an off-grid solar product or service. While this can be the most efficient form of targeting to ensure that funding is directed to the households that need it most, this is only true when there is adequate income level, or social security, data for it to be effective. Several interviewees mentioned that targeting towards low-income groups works best in countries with the institutional capacity to collect accurate income data, or where there is a social protection or classification system in place. The example of the Ubudehe program²⁵ in Rwanda was mentioned by some interviewees. Other interviewees suggested that exploring proxy data, such as mobile money usage, could help to estimate income levels²⁶. However, the prevailing view shared was that – if a safety net scheme or other scheme that assesses income level or need is not available in a country – then economic targeting could be both challenging and expensive.

Given the complexity of effective targeting, it is interesting to note two interviewees proposed that – rather than spending time and resource on targeting – a non-targeted end-user subsidy scheme for off-grid solar solutions could provide a simpler and more efficient way to accelerate access. An overview of such a universal subsidy scheme is shared in the box at the next page.

23 [SEforALL \(2020\), Energy Safety Nets: A Guide for Policy Makers.](#)

24 'Leakage' refers to the situation in which people who would have bought products at commercial prices, instead purchase products at the subsidized amount. It can hamper commercial market growth and reduces the efficient use of public funding.

25 The Ubudehe program classifies the Rwandan population into four categories based on income levels.

26 For a more in-depth analysis on targeting and verification, please see [Africa Clean Energy & Open Capital Advisors \(2020\), Demand-Side Subsidies in Off-Grid Solar – A Tool for Achieving Universal Energy Access and Sustainability.](#)

Considerations from the private sector

Universal end-user subsidy result-based financing scheme

Some energy access stakeholders, inspired by the Universal Energy Facility for mini-grids championed by SEforALL, are discussing the concept of a Universal RBF, a large-scale, non-targeted, subsidy program to make solar kits and home systems affordable for all. Creating one program that can be adapted to the requirements of new geographies and is universally applicable, could solve several key subsidy design challenges. Advocates suggest that it would provide governments and donors with maximum return on investment in terms of impact per dollar spent.

It goes beyond the scope of this paper to discuss this approach in detail, or to provide comment on its practicability, but a few key elements of such a scheme are noted below.

A large scale and long-term universal scheme would be adopted at the country-level and

would be open to all companies selling quality-verified products on a first come, first serve basis. Every household in participating countries would be eligible and it would be mandated that the RBF subsidy must be used to reduce the price of the off-grid solar product or service. The end point for the scheme would be 'universal access to basic electricity provision', with sustainability relying on the scheme establishing a long-term market to service customers, and a much-reduced cost for customers to get replacement parts for their solar products.

Such an approach could solve many of the targeting, verification and administration challenges discussed in this paper, but such a program would require significant commitment and resources from donors and governments.

Streamlined verification

In addition to a clear and appropriate approach to targeting, companies also highlighted the importance of streamlined impact verification, undertaken by a capable and independent actor. As one company explained: 'We participated in a scheme where they had a very challenging verification system. [The verifier] called a sample of clients and asked them to read back a 20-digit number from the system. If one was out, then it didn't count as a sale. We ended up dropping out of the program because it just wasn't efficient'.

One way to simplify verification mentioned by several interviewees was to use the PAYGo business model to simplify and reduce the cost of verification. As one company explained: 'We

already collect a lot of data on how much energy households use, and how much money they spend and save. This makes it relatively easy for governments and donors to monitor and verify where the subsidies are going and what kind of impact they have'. A platform developed by REEEP, implementation partner for the Beyond the Grid Fund in Zambia, was also highlighted by one interviewee as providing a streamlined and efficient way to demonstrate the number of beneficiaries that have been reached. However, while digital platforms can be both effective and relatively low-cost, companies also advised that they may not be applicable for use with all products which could limit the participation of some companies in a scheme.

Considerations from the private sector

Holistic and Flexible Implementation

To ensure that the use of public funding is optimized

Even though most companies were in favor of end-user subsidies, interviewees made clear that a holistic approach is key to maximizing the impact of public funds. Companies advised that, to ensure efficiencies, end-user subsidies should be planned alongside other interventions and that the stage of market growth should be taken into consideration when determining when an end-user scheme will be the most effective.

Evaluating market stage & dynamics

In order to avoid disrupting commercial markets and ensure that funds are focused on those households that need them most, several companies advised that it is critical to evaluate market stage and dynamics to ensure that end-user subsidies are the most effective mechanism for addressing a country's most immediate energy access challenges, (e.g. to ensure that the most important issue to address is one of affordability, and not one of access to products, awareness about the technologies or enabling environment for which a different mechanism would be better suited).

One company stated: 'It can be dangerous to implement an end-user subsidy in markets that are not mature. It can attract companies that are only interested in benefiting from the subsidy, not in creating a sustainable market. I feel that it takes at least five years for a market to get to the point where end-user subsidies make sense'. This highlights the tension between the objective of establishing a sustainable market and that of rapidly reaching the poorest (see Stakeholder Alignment). Interviewees advised that stakeholders must carefully balance development of commercial markets – which are also vital for achieving energy access – with increasing affordability for the poorest.

Using end-user subsidies alongside other interventions

As well as highlighting the importance for any future end-user subsidy schemes to take into account market dynamics, was the view shared by interviewees that any such schemes should also be considered alongside other interventions.

For example, tax and tariff exemptions remain one of the simplest, and most effective interventions for reducing the cost of off-grid solar products and enhancing their affordability – without which, the impact of other interventions is reduced. One company active in Kenya explained: 'We participate in the KOSAP scheme. The government suddenly reinstated 16% VAT on off-grid solar products in July 2020 this year which had big impact on our business²⁷. It basically diminishes whatever we get out of KOSAP, and we pass the cost of taxation on to the customer, making products less affordable. It just doesn't make sense'.

Conflicting policy measures – and especially taxation – can significantly reduce the effect of any subsidy program. Some interviewees suggested that governments should therefore consider the removal of tax and tariffs as a critical part of their support for energy access via off-grid solar solutions and aim to build cross-ministry cooperation to ensure that any subsidy schemes are as effective as possible.

Similarly, other interventions may be more effective than an end-user subsidy scheme when addressing different market barriers. For example, a supply side subsidy may be more effective for encouraging a company to go to a specific region where the community is able to afford off-grid solutions but the cost of reaching them is prohibitively high. As such, it is important to recognize the specific, and interlinked, roles that different interventions can play when determining how an end-user subsidy scheme can be employed most effectively.

Ensuring a program can respond flexibly to changing market conditions

Interviewees also advised that having in-built flexibility to an end-user program is crucial, particularly if it is a multi-year intervention. A scheme should be smart enough to be able to react to changing market conditions, which can happen quickly in the off-grid solar market. One company gave an example of a program that aimed to subsidize solar fridges, but by the time that the program started, these products were already commoditized, and subsidization was no longer necessary. Another company participated

27. In Kenya, the largest market for off-grid solar globally, off-grid solar products had been exempted from VAT since 2004.

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in an RBF, but because of devaluation of the local currency, the impact of the subsidy decreased significantly, making it difficult to achieve the planned impact. To be as effective as possible, a

subsidy scheme should have a clear mechanism for enabling discussion on changing market conditions that has the ability to respond to any such changes.



Considerations from the private sector

Stakeholder Alignment

To create the best conditions for success

Interviewees advised that engaging all stakeholders and understanding their needs and objectives to help inform subsidy design criteria is another crucial part of a successful subsidy scheme.

Maximizing engagement to ensure effective program design

Each subsidy scheme involves multiple stakeholders, including governments, companies, development partners, fund managers and customers. For a subsidy scheme to be successful, stakeholders need to develop a joint understanding of the objective of any initiative, ensure there is commitment to roles and responsibilities and develop long-term partnerships.

Interviewees advised that stakeholder consultation during the design stage of any program can lead to the most effective program design as it provides a forum for discussion on market dynamics and barriers, practical, logistical and implementation issues. It also creates an opportunity for all stakeholders to get a shared understanding of each other's objectives. Done effectively as part of a streamline planning process, effective engagement can be used to expediate, rather than delay, program design.

One company advised: 'These design conversations can take up years. I understand that it is complex and that you need to forge strong partnerships, but it often takes ages. We need to speed this up'. Another company stated: 'Governments have a short-term focus. Ministries often need to show progress in one year, and donors do not fully understand that. We sometimes see that a donor country lead never even met the Minister of Energy, and the private sector can get stuck in between. We also see that large donors can be quite territorial; they only support schemes they designed themselves, even if they have big flaws. This needs to change'.

Creating more, yet targeted, opportunities for stakeholders to share their perspectives and feed knowledge into design discussions can be invaluable in ensuring the success of any future program. Establishing an effective process for multi-stakeholder engagement can also help to find a 'sweet spot' between lengthy design conversations and programs that are implemented too rapidly, as a result of external time pressures. A joint commitment to time-bound progress – in which all parties also commit to specific roles and responsibilities – will help ensure that stakeholder consultations are seen as a practical and valuable way to advance energy access by all parties.

Using an integrated approach to create a win-win for on and off-grid infrastructure

While end-user subsidies are relatively new in the off-grid solar sector, they have been tried and tested in on-grid settings and in adjacent sectors. As one company said: 'Subsidies have been instrumental in scaling energy technologies all over the world. The conversation is not new, it is a tried and tested method in many different areas. As the off-grid solar sector we can learn from that, we shouldn't reinvent the wheel'.

By bridging knowledge and engagement between the on-grid and off-grid sectors, it is possible to share insights and learnings and to develop integrated plans to reach the poorest customers that provide a win-win for both parts of the electrification sector.

As one company advised: 'Almost all public utilities in Africa are subsidized but many are struggling financially. Off-grid solar companies can serve those clients that utilities are losing money on or find it difficult to reach. We are creating the energy infrastructure that utilities can find difficult to develop, and this infrastructure is built for years to come'.

Learning from, and optimizing the use of, both on and off-grid electrification solutions when developing interventions such as end-user subsidies can reduce the cost, time and complexity of reaching universal access targets.

Considerations from the private sector

Ensuring transparency & accountability

Private sector companies also agreed that for optimal subsidy design, processes and partnerships should be transparent to promote accountability, encourage stakeholder participation and maximize outcomes for customers. In particular they highlighted the need for transparency around targeting and verification, company and product selection and disbursements of funds. They also advised that schemes should incorporate robust monitoring and evaluation processes to enhance accountability and ensure that funds are properly managed.

While subsidies can help drive energy access, companies shared concerns that schemes can also be misused. For example, by the misappropriation of funds, favoritism and people taking advantage of weak systems and processes for personal gain. This can happen by stakeholders on all levels. One company said: 'We've seen fraud in the past. We participated in a scheme, but before the scheme started the money was already allocated to companies that bribed officials. Auditors colluded with companies, installations were never done, and ghost solar systems were subsidized'. Another company said: 'Energy is a political tool. Governments have a certain agenda and subsidies can be used for political or personal gain'. And a third company stated: 'Subsidies can increase prices. Prices that are submitted in tendering processes can be inflated to make room for contingencies but sometimes also because of corruption'.

As mentioned earlier, an experienced third-party implementation partner and / or fund manager can help to prevent system abuse and improve administration and fund management. In the KOSAP scheme, for example, the Kenya Ministry of Energy contracted SNV to manage Phase 2 of the program. SNV subcontracted SunFunder to manage the debt fund, while SNV is managing the RBF component. Both organizations have experience in managing similar programs, have a good understanding of the local context and strong relationships with both the government and international donors.

Digital tools and platforms noted previously can also help to increase transparency. These can be used to monitor disbursements, targeting and verification, and to track and show progress.

Recognizing tensions in subsidy design and ensuring a shared understanding of objectives

Aside from energy access itself, the wider range of objectives behind any scheme also have implications for its design. One aspect that came up in several interviews was a concern that schemes may seek rapid scale through larger market leaders and thus be designed in a way that precludes some smaller, often local, companies from joining. Interviewees explained that current schemes tend to favor larger, international companies, creating frustration among smaller companies. Larger companies are better connected and better capitalized, giving them an advantage over smaller companies who do not have the same capacity while, at the same time, governments and donors often prefer to have a small portfolio of larger companies as it is comparatively low-risk and reduces transaction costs.

One company advised: 'Subsidies are often given to larger companies who don't need it that much. I understand that we try to maximize impact by giving money to established companies, but in the end, this creates monopolies. It should be possible for smaller and local companies to participate; these schemes are also an opportunity to develop the local economy'.

In addition, some interviewees also mentioned that for smaller companies looking to join subsidy schemes the costs of obtaining a VeraSol certification²⁸ – often necessary to participate in a program – are prohibitive. Others advised that payment structures can also stop smaller companies from participating in a scheme. For example, when a scheme only pays a small amount upfront, creating challenges for smaller companies with less capital that may be unable to join a scheme without experiencing cash flow issues.

However, on the flip side of this issue, other interviewees highlighted that larger companies are more commonly those who spend more time working with government and development partners to help to establish subsidy schemes and other catalytic initiatives – and that the speed and scale of energy access that larger companies can achieve are also critical to achieve energy access goals in the next decade. As one company put

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it: 'Nobody wants to be politically incorrect, and we all say these programs need to be open to all companies. We must be honest though, this not always effective and decreases speed'.

It can be balancing act between ensuring that smaller, often local, companies can actively participate in end-user subsidy schemes and for schemes to embrace the capacities of larger companies. Governments and development partners need to be aware that these tensions exist when they engage with the private sector and design subsidy schemes – and need to work with the market to determine their own objectives and priorities.

Clear communication with customers

Further to understanding between companies, governments and donors, clear communication between suppliers and customers is also paramount. Interviewees advised that customers need to be able to understand the benefit of the subsidy so that they value the products correctly. If an end-user subsidy is perceived as a 'hand-out', or when end-user subsidy induced price reductions are not communicated clearly, this can jeopardize the sustainability of the market in the long-term as it creates non-commercial price expectation. One company said: 'You need to make sure that customers understand the benefit of the subsidy, otherwise you will experience problems once the price is slowly increased later. Something tangible, like a voucher, can help in this respect'.

Customers must also be informed on eligibility criteria, available products, and the overall objective of the subsidy program. It was mentioned that in regions where certain products are not yet widely used – for example solar water pumps – additional awareness campaigns might be needed. One company stated: 'In some regions where we operate many people never heard of a solar water pump. The benefits of lighting products are often easier to understand for people, but with solar water pumps, you need awareness campaigns for a program to be successful'.

Market Sustainability

To ensure that the impact of end-user subsidy schemes are long-term and can catalyze even greater benefits

To build sustainable markets, a common issue raised by interviewees is the fact that end-user subsidy programs need to include a clear exit strategy – either by phasing out subsidies or by converting them into longer term initiatives²⁹. As one company put it: 'Subsidies are easy to deploy, but hard to retract. Customers can get accustomed to the subsidy and they can create artificial demand. Creating the habit of paying for electricity is at the core of our business model. If you remove this, it distorts the market. If you decide to implement an end-user subsidy, it is essential to have an exit strategy'. Another company mentioned: 'Getting customers back to market rates once the subsidy disappears can be very challenging. I don't have a quick answer, but donors and governments need to be very careful and design these programs considering the long-term sustainability of the market'. For a program to be successful, thinking about what happens after it ends is crucial.

To further improve the sustainability of the program and market, several companies also noted that end-user subsidy schemes should only subsidize long-lasting, high-quality products. Products should meet minimum product standards for quality and be coupled with warranty protection (notwithstanding the challenge that only accepting quality verified products into a subsidy scheme may have on ensuring that all companies can participate). Some interviewees also mentioned that programs should not only focus on connections but on after sales as well. One company explained: 'I feel uncomfortable with just focusing on the connection. We also need to focus on after sales, and make sure customers are happy with their product 2, 3, 4 years later'. Components need to be easily accessible in case they break down, and circularity programs can recycle components to reduce e-waste.

Whilst companies did not profess to have the answer to the issue of sustainability, its importance was mentioned by nearly all interviewees and it remains one of the most significant subsidy design challenges.

29. For example, some successful end-user subsidy schemes in Latin America have been integrated into on/off-grid cross subsidy mechanisms.

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What's next?

The thoughts and opinions we have heard illustrate that the private sector recognizes the role that end-user subsidies can play in bridging the 'affordability gap', but also that many companies have concerns related to the potential for such schemes to negatively distort commercial markets that are also enabling energy access. Stakeholders need to address these concerns together, and we hope that the shared insights from the private sector companies interviewed can help to inform discussions on designing and implementing effective and efficient subsidy programs in the future.

To drive off-grid energy access, end-user subsidies are an important tool for reaching hundreds of millions of people living in energy poverty. To effectively unlock their impact, and maximize this alongside other critical mechanisms, strong commitment is necessary from governments, development partners, investors, NGOs and private sector companies. GOGLA is currently exploring several opportunities to facilitate discussion, exchange knowledge, support pilots and to bring together resources on this topic – and will continue to gather views and insights from its Membership and convene key stakeholders. To learn more, or to work with us, please contact our Head of Policy, Patrick Tonui, at info@gogla.org



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Johan Cruijff Boulevard 83-95,
1101 DM Amsterdam
The Netherlands

info@gogla.org
+31 20 240 0729



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