REPUBLIC OF RWANDA

MINISTRY OF INFRASTRUCTURE

RURAL ELECTRIFICATION STRATEGY

May, 2016

Contents

1 INTRODUCTION

1.1 Background

The strategic framework for Rwanda's energy sector is established in the Energy Sector Strategic Plan (ESSP) and the National Energy Policy (NEP), which set targets up to 2017/18. These documents recognize the essential role of electricity access in accelerating economic development, as well as improving health outcomes and standards of living for people in Rwanda. The target for electricity access is for 70% of households to have access by 2017/18, to be met through a combination of on-grid and off-grid supply. 100% access to electricity is targeted by 2020.

Advancing technology means that there is an ever-expanding range of ways for households to access electricity: a solar lantern that can also charge a phone or radio; a larger solar home system that can light an entire house and power appliances such as a television; and a grid connection that can power large-scale commercial and industrial use. In recognition of this, a key principle of this Strategy is to provide the most appropriate form of electricity access to households. A pathway will be established such that as households' energy requirements increase in line with the country's economic growth they can graduate to costlier, higher-powered forms of electricity.

The financing and implementation of this Strategy will be undertaken in partnership with the private sector, where competition will help drive down costs and improve customer choice. This builds upon the significant private sector interest in both solar home systems and mini-grids in Rwanda and across Africa. In order to maximize impact, Government resources will be used in a targeted fashion to: i) help provide a basic level of electricity access to those with the lowest income; ii) reduce the risks perceived by the private sector in providing systems on finance through the establishment of a risk mitigation facility; and iii) provide social goods such as education, information dissemination and standards to support the private sector and protect consumers.

The Rural Electrification Strategy can be considered as four distinct programmes:

1. Government will establish a mechanism focusing on low-income households that will facilitate their access to solar systems providing modern energy services, something increasingly considered a basic necessity.

2. Government will establish a risk-mitigation facility targeting the private sector such that solar products will be made available on financial terms that the population can afford.

3. Mini-grids will be developed by the private sector with Government playing a key role in identifying sites and establishing a framework through which these can become financially viable investments.

4. Government will continue to roll out the electricity network via EARP, focusing on connecting high consumption users and driving economic growth.

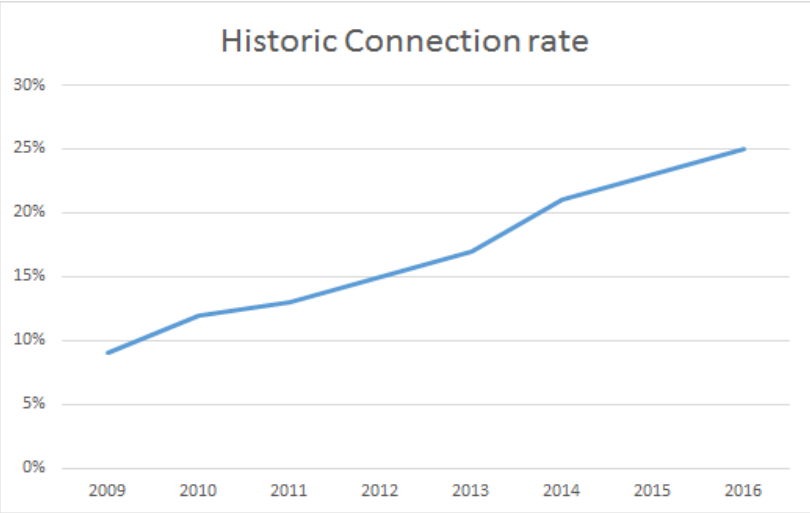
The implementation of the Strategy is expected to channel hundreds of millions of dollars of investment by the end of 2017/18 in both the on-grid and off-grid sectors, providing access to upwards of a million households.

1.2 Progress of EARP and aligning access technologies to consumer needs

Progress of EARP

The access priority over the last seven years has been on extending the national distribution system across the country and providing consumers with access to grid electricity, as indicated in Figure 1, below.

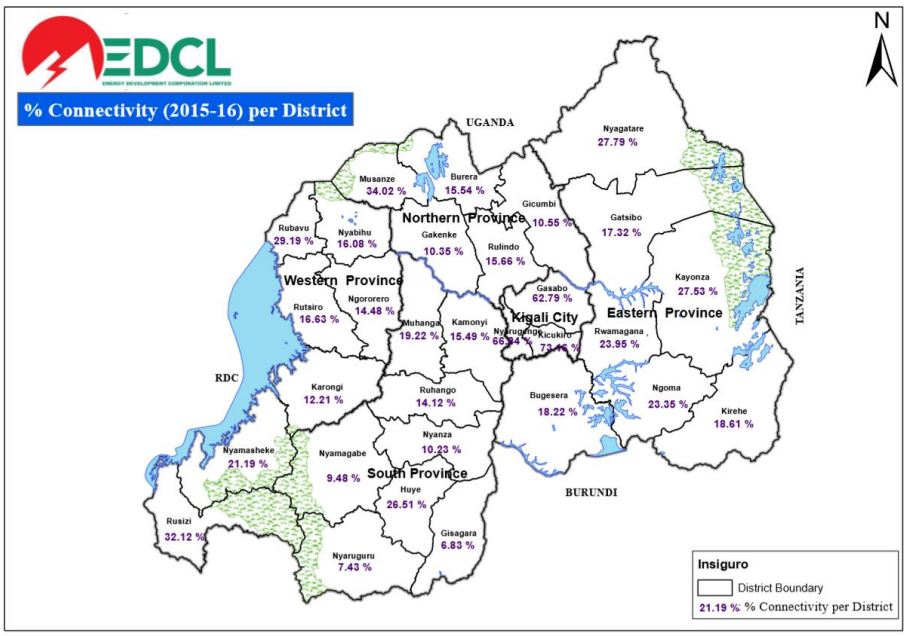
Figure 1. Percentage of the population with grid access (source: EARP)



These efforts have been led by the *Electricity Access Roll-out Programme (EARP)*, under which access has increased from 364,000 households in June 2012 to 590,000 households (24% of the total) by June 2016.

As illustrated in Figure 2, below, EARP has extended the national grid into every district in the country. This will continue to act as the power backbone, providing power to large users and driving economic growth.

Figure 2. National grid access provision (source: EARP)

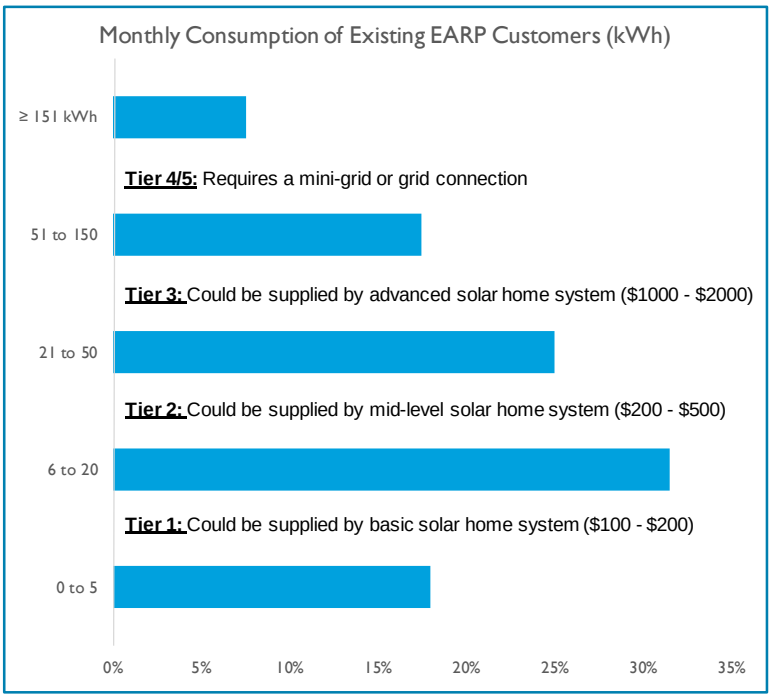


Aligning access technologies to consumer needs

Figure 3, below, indicates the percentage of consumers connected under EARP by consumption level. The relatively low rates of consumption (almost half of consumers are currently using less than 20 kWh per month) means that, in addition to the need to source large amounts of finance up front, these consumers will require continuous subsidies as the revenue they produce for EUCL is insufficient to cover the financing and maintenance costs of their connection. The ESSP estimated that a consumer would need to use approximately 130 kWh per month in order to fund the cost of their own connection.

In order to meet consumer needs, a more holistic approach to energy access is required. This is the focus of this Rural Electrification Strategy.

Figure 3. Levels of household consumption (Source EDPRS 2)



1.3 The emergence of alternative approaches to access provision

Two emerging technologies, standalone solar systems and mini-grids, have recently started to be delivered at large scale across Africa, and there is significant scope for these technologies to be used in Rwanda to rapidly scale up electricity access. A brief description of the technologies, the status of emerging industries in Rwanda and the problems that are being encountered is outlined below.

Standalone solar systems

These systems consist of solar panels that harvest the energy of the sun, storing it in a battery so that it can be used both during daytime and in the evening. A range of products are available at sizes and prices to suit different budgets and consumption patterns:

- High-quality solar lantern with a port to charge a mobile phone ($25 - $45)
- Basic solar home system consisting of multiple light fixtures throughout a house and the ability to power a radio or energy-efficient TV ($200 - $500)
- Advanced solar home system able to provide power more in line with a grid connection, powering devices such as a refrigerator ($1000 – $2000)

The observed consumption rates of consumers connected through EARP, and significant improvements in the technology and cost of off-grid solutions, make it clear that off-grid solutions should play a more important role in expanding electricity access.

A growing market for these systems is developing in Rwanda. However, given the high capital costs for these systems compared to average earnings, the vast majority of prospective consumers cannot afford to pay for the systems outright. This has led to suppliers of systems acting as sources of finance.

The key challenges faced by the stand-alone solar market are:

- the affordability of the systems for consumers and the need for them to be able to access finance to pay for the systems in instalments;
- the repayment risks the private sector perceive selling products to consume on credit;
- the lack of standards in the market place, which has led to substandard products being sold, reducing consumer confidence; and
- the awareness of consumers on the range of products and financing options available and the perception that solar home systems are a “second class” of energy.

This Strategy outlines initiatives to address each of these issues.

Mini-grids

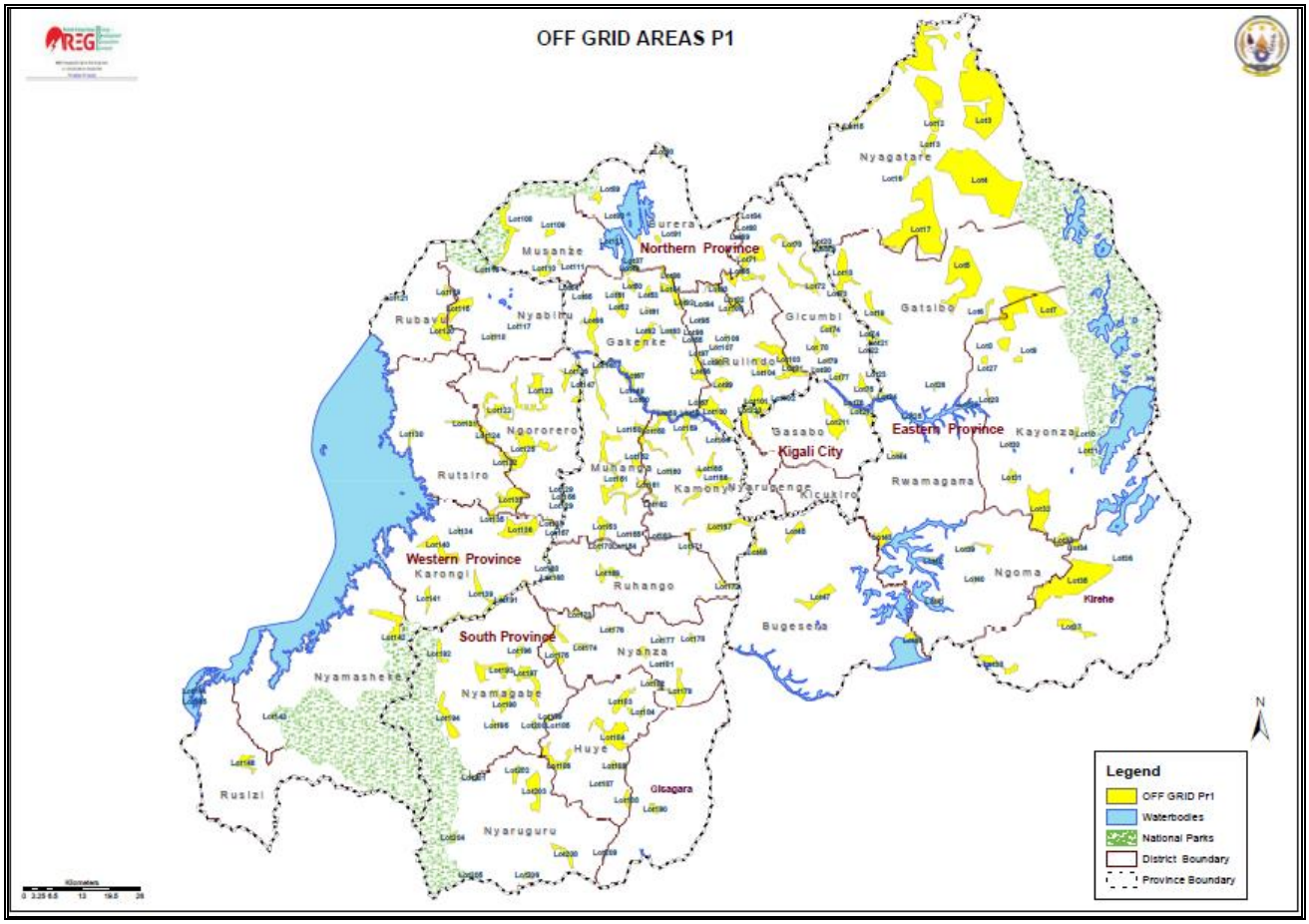
A mini-grid is a standalone distribution network that is not connected to the national power system. Mini-grids require at least one source of generation, which is connected to businesses and households.

These mini-grids can be based on a range of technologies. Solar and hydro have the advantage of very low operating costs, but have high upfront cost and the availability of power is intermittent. Diesel generators can produce power when it is needed, but have significant operational costs and complexities associated with the purchase of diesel.

Mini-grids are expensive, costing around $1000 - $1500 for each connected consumer, around 50% higher than connecting consumers to the national network under EARP. As a consequence, mini-grids should only be used in specific circumstances, where: i) given the distance or other geographical constraints they are cheaper than connecting to the national network; and ii) there is sufficient demand to justify the investment.

Figure 4, below, indicates those areas that are likely to be sufficiently far away from the national network for consideration for a mini-grid. Additional work will take place during 2016 to identify specifically where the demand and the availability of indigenous generation sources such as small-scale hydro makes the delivery of mini-grids a viable option.

Figure 4. Potential mini-grid installation areas; source EARP



In scaling up the availability of mini-grids, two key challenges exist:

1. Identifying relevant sites: The cost of mini-grids means that they are only viable in very specific circumstances. Given that these are long-term investments, an understanding of both demand and the likely proximity of EARP is required.

2. Sharing of the risks with the developer and operator: Where mini-grids are developed and operated by the private sector, a number of risks are presented. As well as general finance and construction risk, mini-grids present a number of demand and generation risks which need to be allocated between Government and the private developer, such as: What if the projected demand doesn't materialise? What if the Rwandan franc depreciates? What if the river a small hydro was based on stops flowing? A clear framework is required on the allocation of these risks.

A revised approach to the measurement of energy access

There is a requirement to align targets with the revised approach to measuring access. Historically, energy access has been measured as the percentage of households connected to the grid. In recognition of the fact that a grid connection will not be the most efficient form of access for many households, and the emergence of alternative technologies, this Strategy proposes the use of the SE4ALL Multi-Tier Framework to define five levels of access, as illustrated in Table 1, below (a more detailed presentation of the framework can be found in Annex 2).

Table 1. Energy usage tier levels

Level	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Energy usage	Household lighting, radio and phone charging	Household lighting, radio, phone charging and basic appliances (TV or fan)	Tier 2 plus medium appliances such as low power refrigeration	Tier 3 plus high power appliances such as pumping	24/7 high power suited to commercial and industrial uses

Under the ESSP, 48% of households were targeted for on-grid connection by 2017/18. Under the revised targets, access from larger solar home systems and mini-grid connections will also be taken to satisfy this element of the target, since they can also provide appropriate high-quality electricity access. The 48% target is therefore reframed as including both on-grid and any other system providing Tier 2 or higher access levels.

To achieve the targets highlighted in the ESSP, 22% of households will gain access to at least Tier 1 energy service. Government will facilitate distribution of a range of standalone solar systems that will provide this basic level of access to those on the lowest income (through Programme 1 of this strategy). These systems will be Lighting Global quality-verified and, alone or in combination, will be able to provide Tier 1 access to households. In doing so, they will not only offer high-quality light in homes, but they will also allow for the charging of basic electronic devices such as mobiles phones or small radios.

The revised targets for electricity access are presented in Table 2, below.

Table 2. Revised breakdown of the 70% access target

<table>
<tr><th></th><th>Revised Target proposal - 2017/18</th><th>Original Targets (EDPRS 2 & SSP) 2017/18</th><th>2020 Targets</th></tr>
<tr><td>Tier 0 (no access)</td><td>30%</td><td>30%</td><td>0%</td></tr>
<tr><td>Tier 1</td><td>22%</td><td rowspan="2">(off-grid) 22%</td><td rowspan="4">100% Access</td></tr>
<tr><td>Tier 2</td><td rowspan="2">48% (of which approx. 31-35% grid)</td></tr>
<tr><td>Tier 3</td><td rowspan="2">(grid) 48%</td></tr>
<tr><td>Tier 4-5</td></tr>
<tr><td>Total Access</td><td>70%</td><td>70%</td><td></td></tr>
</table>

In addition to providing energy access, a key target of Programme 1 is the eradication of kerosene, which would deliver significant expected health, economic and educational benefits for households.

2 OBJECTIVES, PROGRAMMES, PRINCIPLES AND THEMES

2.1 Objectives

Advances in technologies, along with reductions in cost, mean that off-grid solutions can be the most cost-effective way of providing essential energy services for a significant proportion of households. Because off-grid systems can be scaled to meet demand requirements, they can provide an affordable and flexible way for households to start progressing up the energy ladder, particularly for those on low incomes. It is in this context that MININFRA has developed this Rural Electrification Strategy. The overarching objectives of the Strategy are outlined below:

Primary objectives of the Rural Electrification Strategy

1. Ensure that by 2018, 70% of Rwandans have access to electricity and that by 2020, 100% of Rwandans have access to electricity. A range of options from standalone solar systems through to isolated mini-grids and grid connection will be available.

2. Government will encourage households to access the most appropriate form of electricity based on their income levels and usage patterns, and ensure that as households' energy needs increase in line with economic growth they are able to access technologies aligned with these increased needs.

3. Consumers will continue to be connected to the national power system through EARP and the task of wiring up the country will continue. Government resources will be channeled to driving economic growth.

2.2 Programmes

In order to ensure that "each household will be able to access the most appropriate form of electricity based on their income levels and usage patterns", this Strategy is broken out into four discrete programmes based on the consumer and technology, as below.

Programmes under the Rural Electrification Strategy

1. Government will establish a mechanism focusing on low-income households that will facilitate their access to solar systems providing modern energy services, something increasingly considered a basic necessity.
2. Government will establish a risk-mitigation facility targeting the private sector such that solar products will be made available on financial terms that the population can afford.
3. Mini-grids will be developed by the private sector with Government playing a key role in identifying sites and establishing a framework through which these can become financially viable investments.
4. Government will continue to roll out the electricity network via EARP, focusing on connecting high consumption users and driving economic growth.

2.3 Driving principles

This Strategy has been developed in line with the following driving principles:

- **Rural electrification must be driven by economic efficiency:** Implementing policies and practices for extending service should take into account the aim of offering electricity service to all rural consumers at the lowest possible cost. This will enable the efficient use of scarce financial resources and minimise the need for subsidies to bridge the gap between supply cost and affordable tariffs for low-income rural consumers.
- **The private sector will take a lead role in financing and delivering off grid energy access:** There is significant private sector interest in the delivery of rural electrification technologies such as solar home systems and mini-grids, and this interest will be harnessed as much as possible, leading to a number of advantages:
  - The strain on government resources will be minimised.
  - The power of competition will be leveraged to deliver better consumer choice, value and service.
- **Government financial support will only be used to address affordability gaps and market failures:** Government finance will be used where it is required to enable the private sector to operate or to bridge affordability issues for the lowest earning households of the population. In general, Government support will only be used to:
  - enable the lowest earning house-holds entry level energy access as a basic necessity;
  - establish a risk mitigation facility for the private sector to provide finance to the remainder of the population; and
  - supply social goods to support the program such as education/promotion and support in the supply chain, and work to establish an enabling framework within which the private sector could operate.
- **Finance will be targeted at ensuring consumers have the most appropriate, cost effective technology for their needs:** Given the range of new standalone technologies on the market and the variety of consumption requirements of different households and businesses, there is an opportunity to better align Government's electricity access interventions with customer needs. This Strategy is intended to ensure that Government financial support is well targeted, giving people the power they need while making the best use of limited Government resources.
- **The project is intended to be financially sustainable:** Whilst these programmes will initially require funding from Government and its development partners, they are expected to catalyse a sustainable private-sector-led market for off-grid energy provision. Once these companies have proven the market's viability, they will be able to take on a greater share of the investment risk. This will allow for more limited Government interventions going forward, alleviating the fiscal burden.

2.4 Cross-cutting themes

There are five cross-cutting themes that will be addressed in each of the programmes:

1. **Consumers will be encouraged to gain access through the most efficient option:** The introduction of standalone solar systems and, in some areas, mini-grids, means that many consumers will now have more than one option through which they can receive access to electricity. It is important that consumers select an option that will service their needs and represents an efficient use of both their and Government's resources. By way of example, if a household only requires access to power a small number of lights and charge a mobile phone, it is not an effective use of Government money to subsidise a grid connection (the subsidy cost could range between $500 and $900). Instead, it would be more efficient for the household to purchase a solar home system, and in the future graduate to a grid connection. The levels of Government support to each of the connection options will be calibrated to ensure that the selection that is most financially prudent for a household is also most economically sensible for the country.

2. **The private sector and competition will be used:** The delivery of solar home systems will be led by the private sector to help to reduce the financial and delivery burden placed upon Government and stimulate economic activity in the private sector, including job creation and the establishment of a set of Rwandan entrepreneurs. Additionally, a competitive market will be established to:

   - help drive costs down;
   - increase customer choice and encourage innovative approaches to be developed that may better fit the Rwandan market; and
   - diversify the risk associated with relying on one vendor to roll out the systems.

   These benefits will be realised by establishing a "level playing field" for all qualifying companies and transparent and standard processes for accessing the support provided by Government and development partners. In addition, the effectiveness of the market will be continually monitored to ensure it is working effectively and delivering on these benefits.

3. **Standards and Consumer protection will be put in place:** Whilst this Strategy seeks to attract a wide range of private companies and a multitude of different products there is a need for certain service levels and standards to be enforced to both protect consumers and mitigate against the risk of inferior products or suppliers. To do so, standards will be set and enforced in two key areas:

   I. Minimum technical standards of equipment:

      - For standalone solar systems these standards will be aligned with the "Lighting Global" accreditation to ensure that only accredited products can be sold and qualify for Government support.

- Where mini-grids are installed the distribution network must confirm to standards agreed with EUCL to “future proof” these grids, such that they can subsequently be connected to the national electricity network.

II. Quality of Service Standards:

- Suppliers of solar home systems who wish to be eligible for Government support identified in this Strategy must confirm to certain standards around maintenance and repair of the system and system replacement in the event that it is faulty. These standards will be developed as part of the implementation of this Strategy.

- Mini-grid operators will similarly be required to commit to “quality of service” standards such as maximum levels of outages.

4. **Recycling and Environmental protection will be established:** The increased penetration of modern electricity access will make a number of products such as kerosene lamps redundant. There is some residual value in the materials that make up these products and a private sector led approach to recycling these redundant objects will be developed in parallel with entering into agreements with private suppliers.

5. **Local capacity and enterprise will be developed: Recycling and Environmental protection will be established:** The need for a nationwide supply chain and the opportunities in retailing and installing solar home systems represent an excellent opportunity to develop local enterprise and employ Rwandan nationals. Equally, after installation, there will be a need for technicians to maintain the units and a secondary market is likely to develop in the future for spare parts such as batteries. To ensure the programmes outlined in this Strategy deliver as much economic benefit as possible, Government will encourage training and capacity development of local staff. Additionally, ways of attracting Rwandan capital into the programmes will be investigated as it would also help to retain some of the profits from the programmes in the country.

3 DETAILED DESCRIPTION OF PROGRAMMES

3.1 Policy statements for programmes

Programme 1: Government will establish a mechanism focusing on low-income households that will facilitate their access to solar systems providing modern energy services, something increasingly considered a basic necessity.

Households with the lowest income that would not be able to purchase a solar system present a significant repayment risk to the private sector. In recognition of the economic, social, and health benefits that basic access to electricity provides, Government of Rwanda, with the support of development partners, will establish a mechanism to allow low-income households to access modern energy services through a basic solar system.

Government will take the lead in the identification of key beneficiaries of the proposed mechanisms.

Key policy statement 1

- Government will establish a mechanism focusing on low-income households that will facilitate their access to solar systems providing modern energy services, something increasingly considered a basic necessity.
- Households will be able to choose from a range of products and systems from a number of accredited suppliers. This market-led approach will help to drive down costs, allow for innovation and increase customer choice.

Programme 2: Government will establish a risk-mitigation facility targeting the private sector such that solar products will be made available on financial terms that the population can afford.

For households in Rwanda that are not connected to the grid, a standalone solar system would be of significant benefit, both in terms of well-being (through transitioning away from the negative health effects of primary fuels), and financially (through savings in the costs of primary fuels and purchasing very high cost electricity such as batteries or paying for phone charging).

Unfortunately, the uptake of solar home systems by these households is extremely low. The discussions with the private sector have indicated that it has proven difficult for them to provide systems on financial terms these consumers can afford (such as monthly repayment plans). This is because the risks inherent in providing systems to these consumers drives up the cost of capital for the suppliers and results in them either being unable to provide the systems or having to sell them at such a high price only the wealthy can afford them.

To address these challenges, a risk-mitigation facility will be established to encourage the private sector to expand coverage in the market and provide products on financing terms that are affordable. In developing this risk-mitigation facility, MININFRA will engage with both the private sector and development partners.

Key policy statement 2

Government will establish a risk-mitigation facility to encourage the private sector to increase sales of solar products and services, the risk-mitigation facility will:

- be targeted such that finance is used as effectively as possible to deliver the maximum number of households connected for the least support;
- ensure that the level of support a company receives is directly correlated with its delivery on Government targets;
- encourage companies to make solar products, solar home systems, or services available on repayment plans; and
- be granted in return for a commitment from the company to meet certain criteria, such as sales targets and quality and scope of service.

Programme 3: Mini-grids will be developed by the private sector with Government playing a key role in identifying sites and establishing a framework through which these become financially viable investments.

Mini-grids are small distribution systems isolated from the national power system which includes a source of power generation. This generation is usually provided by hydro or solar, often in conjunction with either battery storage or diesel generation to handle the intermittency of power output presented by renewables. It is likely that they could play a role in energy provision in Rwanda but, given the large investment costs (an EU study for Rwanda estimates around $1500 per connection – more than grid access), there are a number of pre-conditions that need to be met to make them viable. These include:

1. **Distance from the grid:** Where a connection is available to the national electricity network a mini-grid is unlikely to be financially viable, since the costs of power generation in a mini-grid are usually much higher. In deciding where to locate a mini-grid it must be determined whether this is the least-cost option for providing Tier 3 power to households and businesses. This will, in a large part, be determined by the proximity of the grid.

2. **Demand:** Given the large fixed costs of a mini-grid in both the network and the generation technology, there needs to be a demand that is both high, and spread across the day for it to be viable. Most households consume power during the evening but for a mini-grid based on solar or hydro to be viable it is likely that there would need to be a large demand during the day too.

Given the constraints above, the relatively small size of the country and the planned extent of EARP, it is suspected that mini-grids are likely to be financially viable in a limited number of cases. The identification of sites eligible for the development of mini-grids will be led by REG. As a first step a number of candidate sites will be identified. This will be informed by the sites of potential mini-hydro projects, geographically isolated centers of demand such as mobile phone towers or water pumping stations and the rural settlement plans. A detailed feasibility study will be undertaken on these candidate sites and those where a mini-grid represents the least-cost option for power provision will be tendered out to the private sector.

Key policy statement 3

- In order to reduce costs and de-risk investment for prospective mini-grid developers, Government will first identify eligible sites and undertake a financial and technical feasibility study. Where the provision of access through a mini-grid represents the least cost option, Government will undertake measures to stimulate demand, through either policy or investment. These sites will then be tendered out to private developers.

Programme 4: Government will continue to roll-out the electricity network via EARP, focusing on connecting high-consumption users and driving economic growth.

Unlike the other programmes detailed in the Strategy, EARP is not new. However, modifications to EARP are likely to be required to establish a coherent and holistic approach to rural access. One of the key objectives of this Rural Electrification Strategy is to ensure that *"each household will be able to access the most appropriate form of electricity based on their income levels and usage patterns".* This means that a number of the consumers who were initially targeted to receive an "on-grid" connection will now be better served through access to a solar home system or mini-grid connection. This approach would allow the limited financial resources available for EARP to be channeled to those with a sufficiently high consumption to justify the connection costs and to uses which will drive economic growth.

Achieving this is likely to require two modifications:

1. **Planning:** EARP will need to be revisited to ensure the limited financial resources are targeted at connecting those areas most likely to drive economic growth. This will require a review of EARP to align it with government policies around resettlement, urbanisation and the development of rural industries such as agro-processing.

2. **Policy:** It is currently cheaper for a consumer to connect to the grid than to purchase a Tier 2 solar home system. This, in many cases, would more efficiently serve the consumer's needs. As part of the implementation of the Rural Electrification Strategy, key issues such as the connections policy will need to be reviewed to ensure the financial and societal incentives are aligned with ensuring households choose the most appropriate source of electricity for their needs.

4 DETAILED IMPLEMENTATION PLAN

4.1 Institutional Framework

Before presenting the roles and responsibilities of Government institutions, it is worth clarifying the separation of roles between the private and public sector, presented in Table 3, below:

Table 3. Roles and responsibilities of Government and the private sector

Roles and responsibilities of Government	Roles and responsibilities of the Private Sector
Government will: - provide Tier 1 access to those households with the lowest incomes; - de-risk investment by the private sector through the provision of a risk-mitigation facility; - establish the enablers for the market to expand including the development of an institutional and regulatory framework and increased consumer awareness; - disseminate information; - enforce quality standards; - provide fiscal incentives to transition, as well as disincentives to remain on primitive fuels; and - establish a policy and regulatory framework to incentivize the private sector to recycle redundant items such as kerosene lamps and used batteries.	In order for the private sector to benefit from the Government programmes developed during the implementation of this Strategy, they must: - for standalone solar systems, provide only products certified by Lighting Global (or another appropriate and agreed internationally recognized standard where Lighting Global not available); - for mini-grids, conform to standards set by the Rwanda Standards Board - commit to a minimum service and warranty period for units (details to be agreed); - offer solutions to Government for the recycling of old kerosene lamps; and - report to EDCL quarterly, providing sales and other relevant information (details to be agreed).

Within Government, the successful implementation of this Strategy will require clear institutional arrangements to be developed to cover coordination, implementation, financial intermediation, and monitoring and evaluation.

A summary of potential institutional roles and responsibilities is illustrated in Table 4, overleaf:

Table 4. Potential institutional roles and responsibilities for the EDF

Function	Institution	Roles & Responsibilities
Coordination Hub	MININFRA	- Key decisions on strategy and implementation - Ownership and responsibility for delivering targets
	Technical Working Group (TWG) on Access (Chaired by MININFRA)	- Sector coordination and communication - Delegated responsibility for implementation decisions - Manage monitoring and reporting - Supported by Panel of Experts and Private Sector
	Private-Sector Body (e.g., PSF sub-group on energy)	- Private sector body to provide coordinated partnership with government through the TWG and other sector coordination activities - Engage with government in developing the enabling environment and market growth activities
Technical Hub	EDCL	Manage the technical aspects of the program including: - Monitoring vendor performance (including sales volumes) - Leading the dissemination of information - Zoning areas as "priority off-grid" to expand the market for private companies
	Rwanda Standards Board	- Setting product quality standards - Certifying vendors - Enforcing product quality standards
	RURA	- Monitoring prices and the level of competition in the market - Setting regulations for the off-grid and mini-grid sectors
Financial Hub	MINECOFIN	- Provision of finance for social goods, energy access for the Vulnerable and a contribution towards guarantees and other risk mitigation instruments.
	FONERWA	- Coordination and mobilization of donor funds - Accessing international climate finance - Channeling funds to appropriate windows
	Institution TBD	- Provide loans to the private companies - Manage risk-mitigation facility
Local implementation	MINALOC	- Support in identifying mini-grid locations - Set and monitor dissemination targets at a district level
	DISTRICTS / SACCOs	- Support in the dissemination of information - Support in monitoring vendor performance and product quality standards - Help to enforce payment - Coordination and tracking Ubudehe scheme and implementation Management of possible theft insurance

4.2 Financing the Programmes

A number of sources of finance are available to support this strategy. Government recently successfully bid for $50m of climate financing under the Scaling up Renewable Energy Program (SREP), part of the Climate Investment Funds. This money is targeted towards developing private sector-led off-grid and mini-grid markets in Rwanda. In addition, Government has agreed sector budget support with the EU, amounting to €180m over six years. A portion of this is expected to be channeled towards the implementation of this Strategy. It is expected that Government sources of finance will be leveraged by private sector investors, who will bring commercial sources of equity and debt to support their investments in the sector. This combination of public and private sources of finance is expected to be sufficient to support the investments necessary to achieve the goals of this strategy.

4.3 Communication Plan

Communicating this Strategy with key partners is critical to ensuring smooth implementation. Stakeholders such as Government institutions, civil society, development partners, and the public at large must be aware of the Strategy and its benefits, and the challenges that may be met during its implementation.

The Communication Plan is expected to be implemented by MININFRA and will involve conducting regular meetings with energy-sector stakeholders as well as holding press conferences and talk shows at different media houses and road shows. The Communication Plan is tailored to specific stakeholders as summarized in Table 5, below.

Table 5. Summary of Communication Plan

Stakeholder	Messages to be communicated	Channel
Government institutions and Development partners	- New roles and responsibilities of the different government institutions - Expected outputs for the different quarters - Impacts on rural electrification	- Meetings - Sharing of annual Reports
Private sector	- Market changes to promote greater cooperation - New developments, including the formation of a procurement cycle and development of new processes for procurement - The focus on fair and competitive procurement and a contestable market	- Meetings - Conferences
General public	- Information on the programmes and products available - The impacts of the Strategy on their health, the livelihood of the community, and the economy	- Media houses, print and electronic (newspapers, radio and television stations) - Road shows

The details on the specific dates on when these activities above will be carried out are in the detailed Implementation Roadmap (Annex 1).

Annex 1: Implementation Roadmap

The table below illustrates the planned implementation plan for each of the programmes until June 2018.

	15/16	16/17				17/18			
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Straetgy approval and enabling arrangements									
Recruitment of project implementation staff									
Education and sensitisation campaing		Prep	**Launch**						
Programme 1: Provide Basic Energy Access to those on the lowest income									
Develop institutional arrangements									
Develop template contract with Vendors									
Sign contracts with vendors									
Launch									
Implementation									
Phase 1									
Phase 2									
Phase 3									
Anticipated connections			**5,000**	**10,000**	**50,000**	**100,000**	**200,000**	**370,000**	
Programme 2: Provide Solar Home systems on Credit through establishing Risk Mitigation Facility									
Develop Standard Risk Mitigation / Guarantee Facility									
Enter into Agreements with Vendors									
Implementation									
Quarterly targets 1									
Quarterly targets 2									
Quarterly targets 3									
Quarterly targets 4									
Quarterly targets 5									
Quarterly targets 6									
Planned Connections				**30,000**	**80,000**	**130,000**	**230,000**	**330,000**	**530,000**
Programme 3: Minigrid system development									
Identify candidate mini-grid sites									
Undertake financial and tehnical feasibility									
Agree on short list for tender and Government measures to stimulate demand									
Prepare tender documentation (including PPA / concession)									
Undertake Tender									
Financing and construction of first site (s)									
Financing and construction of second site(s)									
Planned Connections									
Programme 4: Allign EARP									
Part 1: Policies and pricing									
Develp detailed propsoals on EARP policies and connection pricing									
Implement revised EARP policies / pricing									
Part 2: Planning update to align with economic uses									
Review and update EARP plans in line with "economic uses"									

Annex 2: The SE4ALL Multi-Tier Framework

Attributes Indicator		Tier 0	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
		No Access	Basic	Advanced			
Capacity	Power		V. Low Power Min 3 W	Low Power Min 50 W	Medium Power Min 200 W	High Power Min 800 W	Very High Power Min 2 kW
	AND Daily Capacity		Min 12 Wh	Min 200 Wh	Min 1 kWh	Min 3.4 kWh	Min 8.2 kWh
	OR Services		Lighting of 1,000 lmhrs/day + phone charging	Lighting, fan, TV, + phone charging possible			
Duration	Hours per day		Min 4 hrs	Min 4 hrs	Min 8 hrs	Min 16 hrs	Min 23 hrs
	Hours per evening		Min 1 hrs	Min 2 hrs	Min 3 hrs	Min 4 hrs	Min 4 hrs
Reliability						Max 14 distruptions per week	Max 3 disruptions per week of total duration < 2 hours
Indicated Minimum Technology					Mini-grid		
						Main grid	