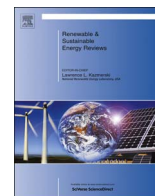




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# Addressing the renewable energy financing gap in Africa to promote universal energy access: Integrated renewable energy financing in Malawi



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## ARTICLE INFO

## Article history:

Received 13 January 2014

Received in revised form

2 February 2016

Accepted 3 May 2016

## Keywords:

Climate finance

Clean Development Mechanism (CDM)

Feed-in Tariff (FIT)

Millennium Development Goals (MDGs)

Rural electrification

Sustainable Energy for All Initiative

## ABSTRACT

The Sustainable Energy for All Initiative is a global initiative launched by the United Nations Secretary-General in 2012 with a goal of providing universal access to modern energy services by 2030. To achieve this goal, substantial financial and technological investments will be required at a rate far exceeding historical levels. Sub-Saharan Africa has a 30.5% electrification rate and policy reform issues to improve electrification have been poorly implemented thereby sprinkling doubt as to whether the region would be able to achieve 100% access to electricity for all by the year 2030. Sub-Saharan Africa faces a tough challenge in-order to achieve universal access to modern energy services since the region fails to attract energy sector investments. There is also a general perception that the region contributes very little to global greenhouse gas emissions hence offers few opportunities to reduce these emissions consequently missing out on attracting climate finance projects.

A guarantee of power purchase has been shown to attract energy sector investments. However, guarantees of power purchases such as Feed-in Tariffs, are experiencing slow market growth in developing countries because of a range of technical, regulatory and financial barriers. Using Malawi as a case study of a developing country, this review provides a perspective from a Sub-Saharan Africa Least Developed Country as to the various electrification, renewable energy deployment and climate change management challenges that still require urgent attention. This study shows that despite the perceived regulatory and financial challenges, Malawi can integrate and use a combination of (adapted) price guarantee schemes, cross subsidies and environmental taxes in-order to support initiatives aimed at supporting the country's development of renewable energy sources and hence indirectly support the Sustainable Energy for All Initiative.

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## 1. Introduction

Even though the provision of affordable modern energy and energy services are highly regarded as catalysts for economic development, improving peoples' livelihoods, and promoting sustainable development, it has been noted that access to modern energy and energy services is lacking in many developing countries. An estimated 1.3 billion people, approximately a fifth of the world's population, lack access to electricity at home and the vast majority of these people live in rural areas of Sub-Saharan Africa (SSA) and South Asia [1] (Fig. 1). In SSA, 81% of the region's population relies on traditional biomass fuels for cooking and heating [2]. This is in spite of the traditional use of biomass having several disadvantages such as being associated with significant amount of time spent, mainly by women and children, on fuel-wood collection; indoor air pollution; and deforestation and soil degradation [2]. Arguably, these disadvantages will likely be exacerbated as some projections show that the number of people relying on traditional biomass will increase by 10%, from 585 million in 2009 to 645 million in 2030 under a business-as-usual scenario, as the rate of electricity connections will not be able to keep pace with population growth [3].

In what can be considered as a response to the deficient energy provisions noted in developing countries Ban Ki-Moon, Secretary-General of the United Nations launched the Sustainable Energy for All Initiative in 2012 as a multi-stakeholder partnership between governments, the private sector, and civil society. The initiative's three interlinked objectives to be achieved by 2030 are:

1. Ensure universal access to modern energy services;
2. Double the global rate of improvement in energy efficiency; and
3. Double the share of renewable energy in the global energy mix.

Energy sector initiatives, programmes and reforms aimed at improving people's access to modern energy and energy services are not a new phenomenon. However, the success of these initiatives, programmes and reforms has not always been positive and encouraging. Issues such as incomplete policy reforms, limited capital investment, lack of technological knowledge, constricted power generation planning and low rates of electrification [5,6], continue to undermine the development of the energy sectors. Moreover, policy reform issues to improve electrification have been poorly implemented and this sprinkles doubt as to whether

some regions would be able to achieve 100% access to electricity for all by the year 2030 and beyond [7]. With an estimated 68% of current total anthropogenic greenhouse gas (GHG) emissions emanating from energy related-activities [7], there is also a great threat that increases in energy access and demand can potentially lead to rises in anthropogenic emission of GHGs which result in climate change [8]. This re-enforces the notion that improved access to modern energy can be beneficial to society but only if undertaken in a sustainable way. Consequently, renewable energy sources such as solar power, biomass power, wind power, hydro-power and geothermal energy should be utilised to their full potential to avert further accumulation of GHGs, promote sustainable development, secure energy supply, support efforts to attain the Millennium Development Goals (MDGs), and contribute to social and economic development [9,10].

On a regional scale, different countries have different per capita incomes, energy endowments, economic structures, population sizes and distribution, technologies, and institutions [11] as such require different types of interventions to enable them to develop sustainable energy sectors and to ensure that the goals of the Sustainable Energy for All Initiative are achieved. Africa faces a huge challenge in-order to reach the universal energy access by 2030 goal because electricity generation capacity needs to grow at an annual rate of 13% – a significant increase in annual growth in generation capacity of less than 2% over the past two decades [12]. Every country in Africa has surplus energy resources, but financing difficulties have prevented the vast majority of countries from being able to fully exploit their energy potential. Consequently, some studies assume that universal electrification can be achieved by 2050 by countries with at least 60% current electrification and that countries below this level can achieve at least 80% electrification [13]. With these observations in mind, it can be seen that many countries in Africa (Table 1) are not going to be able to attain universal access by 2030 hence the need to explore and assess what other frameworks and instruments can be utilised in-order to complement the Sustainable Energy for All Initiative lest it fails. Arguably, the energy access challenge is more critical in SSA Least Developed Countries (LDCs). SSA is noted as the most physically and economically backward developing and poverty-stricken region in the world because it has experienced slower rates of development due to the low access to modern energy use in the region [7]. This review is therefore aimed at evaluating energy sector challenges in SSA in-order to improve stakeholder's

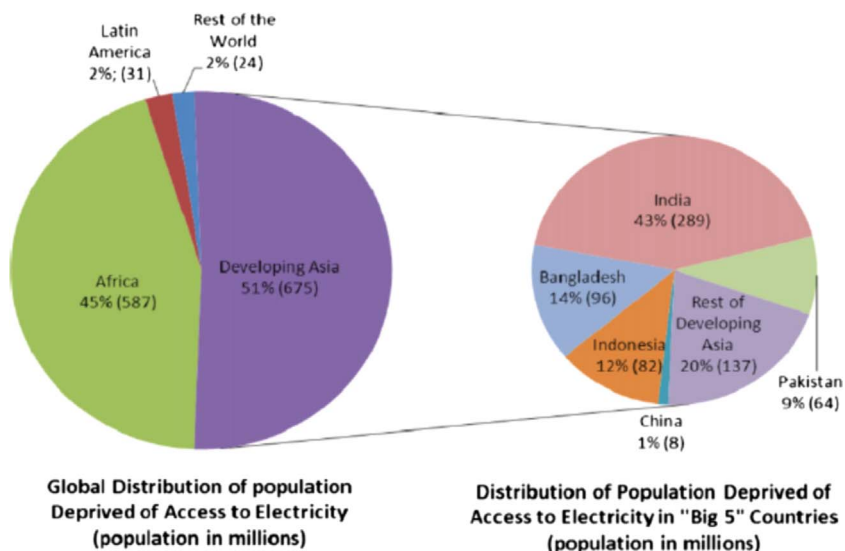


Fig. 1. Population without electricity.  
Source: Rehman et al., 2012 [4].

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