

**ASSESSING THE FACTORS LIMITING THE LARGE SCALE USE OF  
SOLAR POWER IN KABWERI COUNTY**

**BY**

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## **DECLARATION**

I **Wamalisya Mulani** hereby declare that this work is out of my effort and to the best of my knowledge. I greatly affirm that it has not been presented in any other academic institution for any study program.

**Signed**.....

**Date:** ...../...../.....

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## **APPROVAL**

This project report on factors limiting the large scale use of solar energy in Kabweri county has been produced under my supervision and is worthy for examination

Signature.....

Date...../...../.....

Supervisor: MADAM LAYILA NAMAKULA

## **DEDICATION**

This project is dedicated to my beloved parents that are Mr. Bwanga Saadi Nabyama and Ms Mudondo Farida, Brothers Bwanga Saadi, Bwanga Saadi Farouk, Bwanga Eryasa, Nghangha Fahad plus my only two sisters Mudondo Hasifa, and Ikayi Joweria. I also dedicate to my best friends Kitemu Julius and Demuni Julius not forgetting my other colleagues from Busitema University majorly from the faculty of Science and Education in that all your good advice and effort has made me reach a successful journey

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## **ABBREVIATIONS**

**PV** Photovoltaic

**TC** Town council

**MEMD** Ministry of Energy and Mineral Development

**GDP** Gross Domestic Product

**GWH** Giga Watt Hour

**UNBS** Uganda National Bureau of Statistics

**LPG** Liquefied petroleum gas

**MW** Mega Watt

**ST** Solar Thermal

**REA** Rural Electrification Authority

**RET** Renewable Energy Technologies

**S H S** Solar Home Systems.

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## **ABSTRACT**

Solar Energy is the energy from the Sun. The Sun is a big ball of heat and light resulting from nuclear fusion at its core. In each day, the sun so called the biggest star in solar system radiates about 10,000 to 15,000 times more energy to the planet earth than we can all collectively use (Msafiri, 2009). Solar power is the conversion of sunlight into electricity, either directly or using Photovoltaic panels which is a method of generating electricity by converting the suns radiation into direct current electricity using semi-conductors. Uganda envisions transforming itself into a newly-industrializing, middle-income country by 2040, with a globally competitive and prosperous economy and high quality of life in a clean and secure environment. To achieve this vision, energy is identified as one of the foundations and catalyst of the socio-economic transformation envisaged in the country. This objective of this study is to assess the extent to which the level of knowledge and awareness of solar technology influences adoption of domestic solar technology to investigate the extent to which the level of income of households influences adoption and finally to which extent the availability of alternative power source influence adoption and large scale use of solar energy in Kabweri county. The study employed descriptive survey design and a stratified random sampling was used to identify a sample and data was collected using questionnaires and structured interview schedules. A sample of 400 households was studied from a target population of 6050 households; only 350 household heads responded which represented 87.5% of the sample population. The findings indicate that the community has not adopted much to solar technology with only 8.6% using solar in the area.

# CHAPTER ONE: INTRODUCTION

## Introduction

This chapter intends to cover up the background of study, research problem, and objectives of the study, significance and the definitions of some terms used.

## 1.1 Back ground of the study

### 1.1.1 Solar radiations

Solar radiation is radiant energy emitted by the sun from a nuclear fusion reaction that creates electromagnetic energy. The spectrum of solar radiation is close to that of a black body with a temperature of about 5800K. About half of the radiation is in the visible short-wave part of the electromagnetic spectrum. The other half is mostly in the near-infrared part, with some in the ultraviolet part of the spectrum.

### 1.1.2 Solar power

This is the power created as the result of conversion of solar radiations from the sun using photovoltaic cells or indirectly using the concentrated solar power systems. These systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam.

### 1.1.3 Renewable energy

Renewable energy is energy from sources that are naturally replenishing but flow-limited; renewable resources are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time (<https://www.eia.gov/energyexplained/renewable-sources/>). Renewable energy originates from the natural resources such as, wind, rain, sun radiations geothermal energy. There has been a rapid growth in new renewables because of increased uptake of the relevant technologies. The share of renewables in electricity is about 20%, and it is estimated that about 16% of global electricity comes from hydroelectricity. Global investments in renewable energy, increased by 32% in 2010, to a record US\$211 billion.

The increase was mainly because of wind-farm development in China and small-scale solar PV

installations in Europe (UNEP, 2011). Africa achieved the largest percentage increase in investment in renewable energy among developing regions excluding the three big economies.

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