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# Renewable Energy: Unique Solutions and Risks

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# Introduction

- The burning of fossil fuels over the last 200 years has caused concentrations of carbon dioxide in the atmosphere to rise and has contributed to global warming..
- The incremental use of renewable sources of energy, has greatly contributed to less carbon foot print and the global order is now considering this as a matter of priority.
- Increased reliance on renewable sources of energy is a key element of efforts to avert climate change.
- Renewable sources of energy are replenish-able over a short period of time, and mainly generated from natural resources wind, wave, solar, biomass and tidal power.

# Good News?

- Renewable energy brings social and economic development, energy access, secure energy supply, climate change mitigation, and the reduction of negative environmental and health impacts
- Investment in renewable energy projects is outpacing investment in new fossil fuel-powered generation capacity.
- Governments and companies around the world are investing heavily in developing technologies to harness the power of clean renewable energy sources
- With these steps, renewables can play a greater role than either nuclear or carbon capture and storage by 2050

# Key Renewable energy sources

- Bioenergy
- Direct Solar Energy
- Geothermal Energy
- Hydro Power
- Ocean Energy
- Wind Energy

## **Risks and Challenges**

- Political
- Regulatory
- Financial

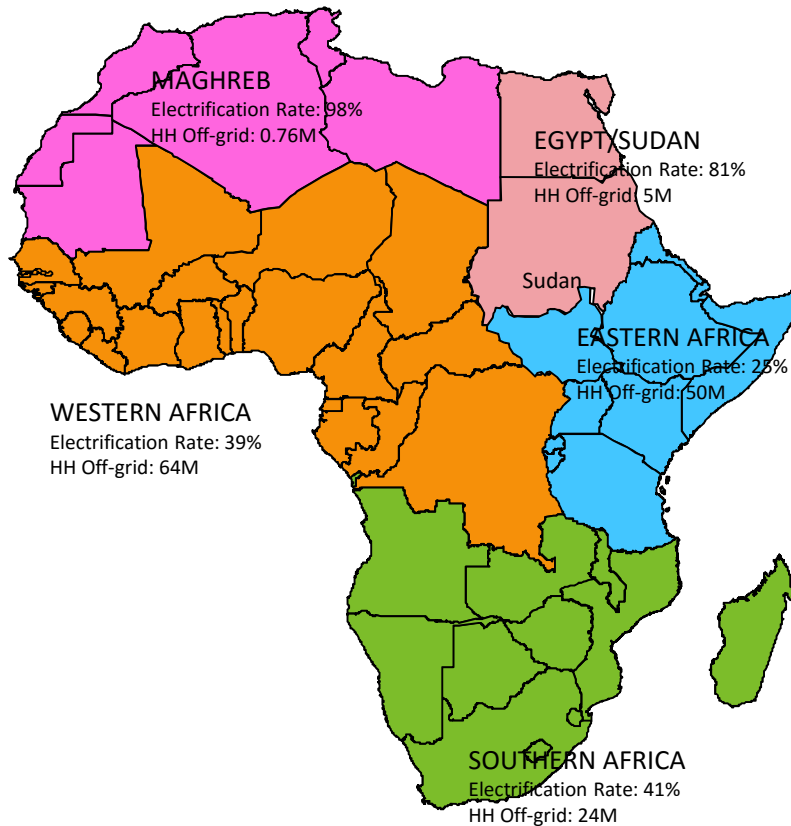
# Unique Solutions

- Renewable energy, proper design, implementation and monitoring of sustainability frameworks can minimize the regulatory risks.
- Environmental bodies should help develop regulations to the deployment of renewable energy technologies.
- Renewable energy incentives and Political pressure to invest in less emission-intensive energy production
- Availability of Centrally assembled and evaluated PV Historical Insurance Claims, PV technologies and prototype test data



# Overview of Households Without Electricity

*79% of off-grid households exist between East and West Africa*



## East Africa specifically

- Has an **electrification rate of 25%**
- **50 million households** are living off-grid
- **4 East African countries** are in the list of top 10 off-grid countries in Africa :
  - **Ethiopia:** 68.8 million people off-grid
  - **Tanzania:** 38.6 million people off-grid
  - **Kenya:** 34. million people off-grid
  - **Uganda:** 30.4 million people off-grid



# Using the energy of the sun to power lighting solutions can make a true difference

- Philips launched new solar powered lighting solutions in October 2014
- **Emission free lighting:** Aimed at providing a [healthier and safer home environment](#) compared to the constant fire risk caused by the use of candles or kerosene lanterns.
- **Affordability:** More [affordable](#) as compared to traditional lighting methods (Kerosene)
- A far [healthier environment](#) where children and adults do not have to inhale kerosene fumes.
- Improve children's [study environment](#) and [increase study time](#) hence impacting positively on their [education](#) and [environment](#)



# Philips Solar Lighting Portfolio

~ Philips solution



- **Philips Lifelight**
  - 60 lumens
  - 1W Solar panel
  - USB port for phone charging
  - 3 light setting

- **Philips Lifelight Plus**
  - 150lumen light
  - 2.5W Solar panel
  - USB port for phone charging
  - 3 light setting
  - \*\*Up to 20 hours of light



- **Philips Lifelight Home**
  - 2 lights each 150lumen
  - 4W Solar panel
  - USB port for phone charging
  - 3 light setting
  - \*\*Up to 40 hours of light



**PHILIPS**

# Philips Solar Lighting Portfolio

*10 times brighter than a kerosene lamp*



Brightness  
=



**PHILIPS**





# Cooking Methods Today

*The challenge faced by households across Africa*

- **2.6 BILLION** people worldwide depend on traditional cook stoves or open fires for cooking
- **75,000 people EVERY WEEK**, get sick or even die as a direct result of inhaling smoke
- **3.9 MILLION TONES** of wood fuel is burnt daily
- There is a **DAILY LOSS of 200KM<sup>2</sup>'s** of forest
- **Communities** in rural areas **do not know the benefits of clean cooking** alternates or cannot access or afford them.

# Philips Introduces a clean efficient cooking solution for communities in Africa

- Philips has invested in the design and manufacturing of an innovative fan driven cook stove (Jiko)
- These specially designed cook stoves reduce smoke and carbon monoxide emissions by more than 90% compared to an open fire
- The cook stove utilizes pellets, wood or other biomass for cooking in a healthy, environmental friendly and fuel efficient manner



**PHILIPS**

# Philips' innovative fan driven cook stove (Jiko)

## *Main Benefits*

### Clean Fuel

- Utilises small pieces of wood or natural biomass pellets/briquettes, dung

### Cost Effective

- **Fuel savings of 50 – 70% of fuel costs.**
- NO paraffin, kerosene

### Less effort

- No need to fetch big pieces of firewood

### Health benefit

- Clean Cooking with **smoke reduction of 90%.**
- **Carbon monoxide (CO) reduction over 90%**

### Fast Cooking

- **Boils 5L of water in 20minutes.** Constant and controllable heat

### Efficiency

- **Fan powered by rechargeable battery**
- **>7 days cooking without charging**



**PHILIPS**



# Innovation “In Africa for Africa”

*Philips products are being researched and developed from the Philips Africa Innovation Hub in Kenya*

Wide market research was and is being conducted in Kenya

- To understand the end consumers needs
- To develop solutions that address key challenges confronting African society
- The innovations we’ve showcased today are just the start...



**PHILIPS**



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**PHILIPS**

# THE COMMUNITY LIGHTING/LIFE CENTRES (CLC)

**1. Enhancing education in off – grid areas by:-  
extending study hours in the evenings**





## 2. Enhancing Rural – Healthcare programs .. increasing mortality rates



#### 4. Enabling Community productivity in the evening thus: - creating a vibrant profitable mini economy.





## 5. Enabling Community Sport & Youth development in the evening - improving social development



**PHILIPS**

.....Enabling social & economic development



**PHILIPS**



# The standard Philips “Community Light Center”

Pico grid u to 800W of solar power and 1000m2 LED lighting



**It includes:**

- **Mobile charging facility**
- **Small businesses options**
- **Dimming & remote control options**

# The Full size football pitch

Up to 3KW power – using latest LED floodlighting  
Great Quality light = Av 15 Lux covering 7000m<sup>2</sup>



# The Market place

Solar power LED Lighting. Great Quality Light – good for selling



**PHILIPS**

# The “Philips Community Life Center”

Rural healthcare solutions, LED lighting , clean water and healthy cooking.



**PHILIPS**

