



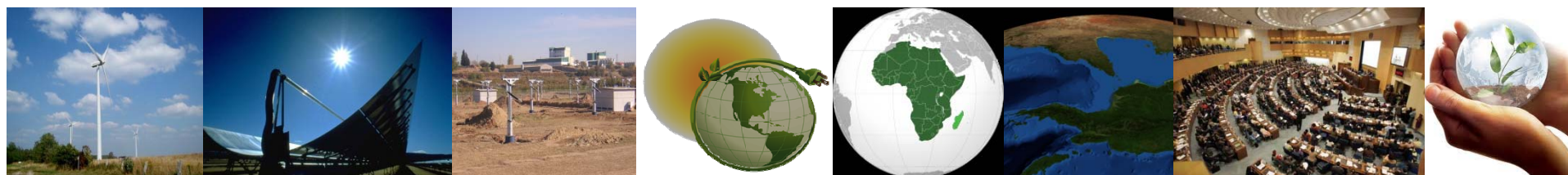
The African Union  
Commission

# 15<sup>th</sup> INTERNATIONAL ENERGY FORUM MINISTERIAL

Algiers

26-28 September, 2016

## Sustainable Energy Access In Africa





# Outline

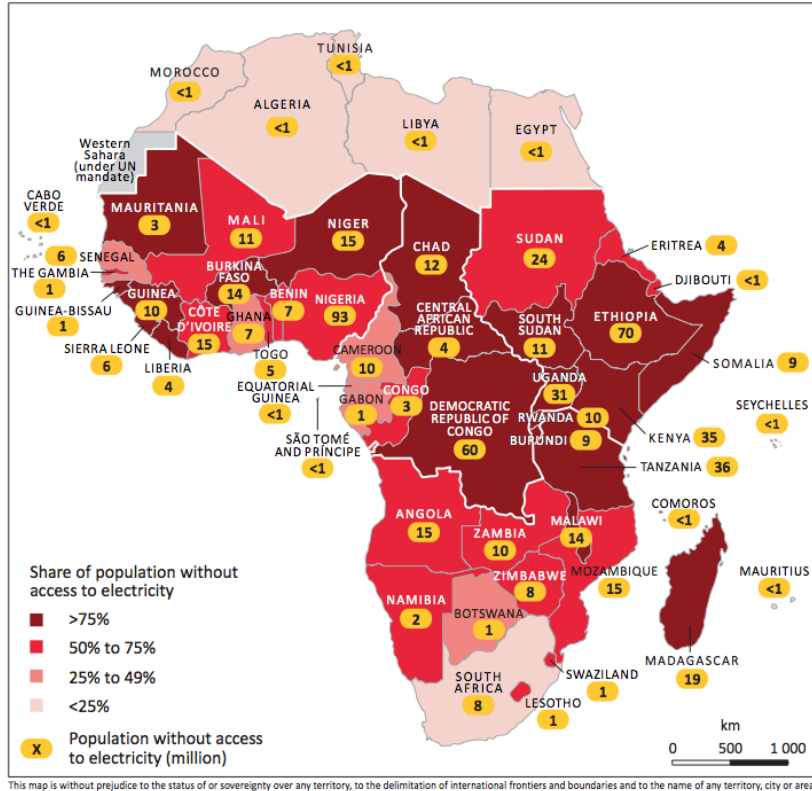
- Energy Status in Africa
- Barriers to Energy Development in Africa
- Long-term prospects : Outlook 2040
- Opportunities
- AUC Programs for Energy Development
- Other Initiatives on Energy Access in Africa
- Recommendations



# Energy Status in Africa

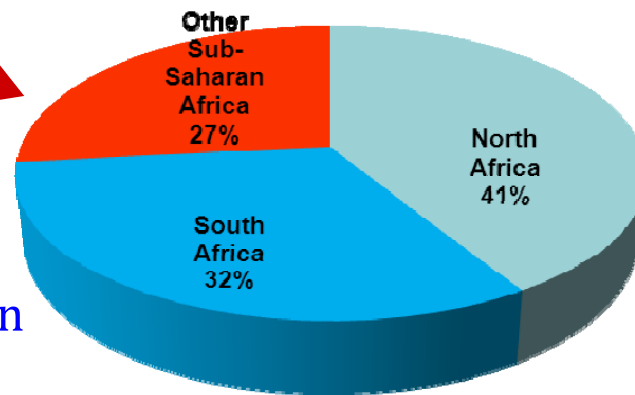
➤ Africa has extremely low levels of modern energy supply and access

## Electricity



Source: EIA, 2014

Northern Africa and South Africa account for most of the Capacity



Low Generation Capacity

Total Generation Capacity is only 138 GW in Africa (less than 3% of the World's Total)



# Energy Status in Africa

- Low Access to Electricity
  - Only about 31% of the Sub-Saharan African population has access to electricity
  - Electrification rates as low as 9 – 20% in many Sub-Saharan African countries
- Inefficient Transmission and Distribution Systems
- Erratic Power Supply
- High Generation costs
- Low Electricity Consumption
  - Per capita electricity consumption in Africa is 5 times less than world average
- About 80% of SSA population depends on biomass for cooking
- Low efficiency in heat conversion of traditional stoves (10 – 15% efficiency)



## Barriers to Modern and Sustainable Energy Access in Africa

### Financial Barriers

- Insufficient capital flow
- Low levels of private sector participation
- Current spending in the **Power Sector** is much less than required
  - SSA countries spend much less than 3% of their GDP on their power sector (75% of the spending used as operating costs)
- The PIDA Programme also estimates investments needs at **US\$43 billion per year**, with only about 25% of this amount available per year



## Barriers to Modern and Sustainable Energy Access in Africa

- Policy barriers
  - Lack of policy responses
  - Low levels of political will
- Regulatory & Institutional barriers
  - Lack of effective regulations
  - Low capacity to design and implement policies and regulations
- Market barriers
  - Poverty
  - High investment costs
- Technical barriers
  - Low technical skills and capacity
- Information barriers
  - Low public and institutional awareness



## Long-term Prospects: Outlook 2040

- **Power Demand** will rise at an average **6% per year** up to year 2040
- **Power Demand** will **increase by five-fold** by 2040 while **per capita electricity consumption** will **increase three-fold** by 2040
  - Power demand will increase from **590 TWh** in 2010 to more than **3,100 TWh** in 2040
  - The **Installed Power Generation Capacity** must increase from **125 GW** in 2010 to almost **700 GW** in 2040 to meet demand
- This increased demand will require **adequate regional infrastructure** as proposed in the **PIDA Programme**
- Investment needs are US\$40 – 43 billion per year
  - Currently, about **75%** of the yearly investment needs **before 2020 are not met**
  - If the financing gap is not filled, by 2020, 35% of the power demand will not be met



## Long-term Prospects: Outlook 2040

- The investments needed will deliver more than **61,000 MW of hydro power** and **16,500 km of interconnecting power lines** by 2040
- Prior to 2020, improving **Transmission and Distribution** infrastructure is the priority
- **Energy efficiency policies** can save about:
  - 139 GW in Generation Capacity by 2040
  - 634 TWh in Electricity Generation by 2040
- System integration can save 17% on production costs over the period





# The Opportunities: Energy Resources Potential of Africa

- Africa has significant **Energy Resources** to address its Energy Access Challenges

Energy Type	Reserves	Regional Distribution
<b>Renewable Energy</b>		
<b>Hydro</b>	<b>1,834 TWh/yr</b>	<b>Central Africa: 57%</b> <b>Eastern Africa: 32%</b> <b>Other Africa: 11%</b>
<b>Biomass</b>	<b>Woody biomass: 70 billion tonnes</b>	<b>All regions</b>
<b>Solar</b>	<b><sup>1</sup>Solar insolation: 1800 - 2850 kWh/m<sup>2</sup>.a</b>	<b>Most of Africa</b>
<b>Wind</b>	<b><sup>1</sup>Wind speeds: Southern Africa (6 - 8 m/s) <sup>2</sup>Northern Africa (5 - 8.5 m/s)</b>	<b>Most attractive sites in the Northern and Southern coasts</b>
<b>Geothermal</b>	<b>15,000 MW</b>	<b>Eastern Africa</b>



## Programme for Infrastructure Development in Africa (PIDA)

- **PIDA** – dedicated to facilitating continental integration through improved regional infrastructure
- **PIDA** – result of extensive analysis, consultation and agreement with all African stakeholders and Development partners
- **PIDA** – builds on the REC master plans and priorities
- **PIDA** – prioritized and divided into 3 phases: short term (2012-2020), medium (2020-2030) and long-term (2030-2040)
- **PIDA** – covers 4 sectors: **Energy, Transport, Information & Communication Technology (ICT) and Water (Trans- boundary)**



## Programme for Infrastructure Development in Africa (PIDA)

### PIDA Priority Action Plans (PIDA-PAP)

- **PIDA-PAP** comprise the 15 energy projects which need to be implemented and completed prior to 2020
  
- The PIDA- PAP Projects
  - 6 power generation projects (hydro)
  - 4 power transmission corridor projects
  - 1 petroleum product pipeline project
  - 1 gas pipeline project

**Total cost: USD 40 billion**





## Geothermal Risk Mitigation Facility (GRMF)

- AUC work programme, with its mandate given by Ministers for Energy from the 11 countries of the East Africa Rift System (EARS) - *Addis Ababa Declaration on Geothermal Energy (June 2009)*
- The AUC is helping Member States to develop Geothermal Energy through the provision of grants for Surface Studies and Drilling activities

## African Bioenergy Policy Framework and Guidelines

- Joint Initiative of the African Union Commission (AUC) and the United Nations Economic Commission for Africa (UNECA)
- It aims to provide principles and guidelines for RECs and African countries to guide policies and regulations that promote a viable sustainable bioenergy sector the Africa. It was adopted by the AU January 2013 Assembly of Heads of State and Government



# Solar Energy Development in Africa Programme

## Solar energy study map

- The 14th AU Summit mandated the AU to prepare a study for exploitation of solar energy potential in the Sahara desert
- The first phase of the study for the Sahara and Shale region has already been completed and validated





# Africa Renewable Energy Initiative

- The Africa RE Initiative was launched at the Cop 21 in Paris, France in December 2015.
- The Africa Renewable Energy Initiative (AREI), a transformative, Africa-led effort to accelerate and scale-up the harnessing of the continent's huge renewable energy potential by building integrated solutions to the challenge of widening access to clean energy services for improved human well-being;
- The Initiative stresses the need to quickly adopt modern energy systems that are renewable and built around interconnected small and larger-scale generation sources;
- AREI seeks to achieve at least 10GW of new capacity by 2020 and – as an aspiration goal – an additional RE generation of 300 GW by 2030;
- The Africa Development Bank and the African Union Commission have already initiated actions towards the implementation of the AREI, including the:
  - Establishment of the Interim Delivery Unit to be hosted by the AfDB
  - Establishment of the Trust Fund for the Initiative at the AfDB too.



## Other Initiatives on Modern Energy Access

- Other Initiatives/ Partnerships that are contributing to Modern Energy Access in Africa include:
  - Africa-EU Energy Partnership
  - Sustainable Energy for All (SE4ALL) Initiative
  - Power Africa Initiative
  - IRENA
  - World Bank



# Recommendations for Member States

- Policy
  - Development of Coherent, consistent and favorable policies in the energy sector
  - Establish clear and achievable targets in the energy sector
- Regulatory & Institutional
  - Improve fiscal incentives, Feed-in-Tariffs (FiTs)
  - Create conducive environment for private sector participation
- Financial & Market
  - Strengthen financial and capital markets
  - Capacity building for domestic and international finance sourcing
  - Creation of new markets (e.g. renewable energy markets)
  - Adequate pricing of energy
- Technical
  - Technology transfer
  - Technical cooperation
  - Technical capacity building and training
- Information
  - Public education
  - Data collection and creation of databases for energy planning and expansion





# AUC Action Plan

- Policy, Regulatory and Institutional
  - Enhance engagement with Member States and all other relevant stakeholders
  - Promote the development of clear and consistent policies for Member States
  
- Financial & Market
  - Mobilisation of financial resources for projects
  - Mobilisation of domestic and international private sector investors
  
- Technical
  - Engage more in capacity building and training for Member States
  - Promote and advocate for Technology Transfer and Technical cooperation
  - Promote local manufacturing and maintenance of energy technologies
  
- Information
  - Engage in data gathering and creation of databases
  - Engage in energy planning
    - AFREC has already set-up National Focal Points for data collection
    - Capacity building on data collection have also been planned



The African Union  
Commission

MERCI  
OBRIGADO  
THANK YOU

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