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**Renewable Energy investment
Potentials in the ECOWAS Region**

By

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Presentation Outline

- “ Introduction – Background on ECOWAS
- “ Resource Availability
- “ Opportunities
- “ Investment potentials
- “ Investment Challenges

ECOWAS Region Member States



ECOWAS: Background

- . 15 countries with a land Area of 5 Million m²
- . Climate from Semi-Arid to Humid Tropical
- . Population >> 262 million people,
- . 60% of population lives in rural areas
- . Most of the countries in the region are currently categorized as LDCs and also Highly Indebted Poor Countries (along with very low HDI)

ECOWAS Energy Potential

- The Region has enormous energy potential
 - 30% of Africa's proven recoverable crude oil reserves (3,017 Million tonnes)
 - 31% of African natural gas reserves proved recoverable (3,581 Million m³)
 - **23,900 MW of hydropower potential, only 16% exploited**
 - **Solar exposure > 5 kWh/ m² /day**
 - **Wind speeds of 5-6 m/s recorded in some locations**
 - **Enormous biomass potential ?**
- However, Energy Resources are unevenly distributed
 - 98% hydrocarbon potential in Nigeria

ECOWAS Energy Potential (Contd.)

. Despite its high energy potential, the region ranks very poorly in relation to other parts of the world in Access to modern Energy Services

“ Share of Biomass in total energy consumption 80%

“ Access rate to electricity 25%

“ Per Capita Electricity consumption 88kwh

“ (Continental Average 563kwh

“ Access rate to LPG 5%

“ Low consciousness of Energy efficiency

“ Energy intensity/GDP =0.5toe/\$1000

“ Global Average =0.32toe/\$100,000

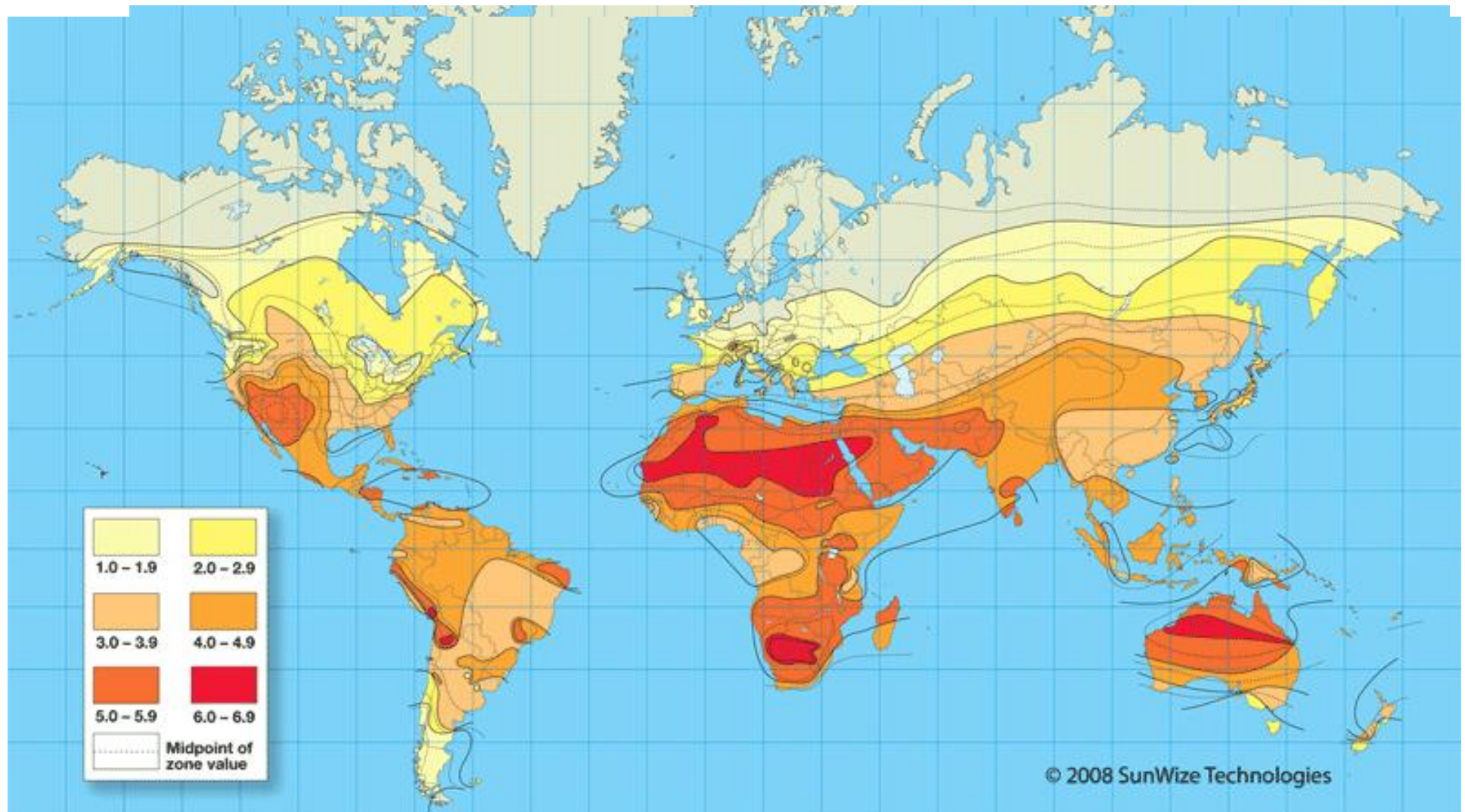
. Lack of access to modern energy imposes significant productivity constraints, the provision of social services and the fight against poverty (Source: ECOWAS)

Renewable energy Resources

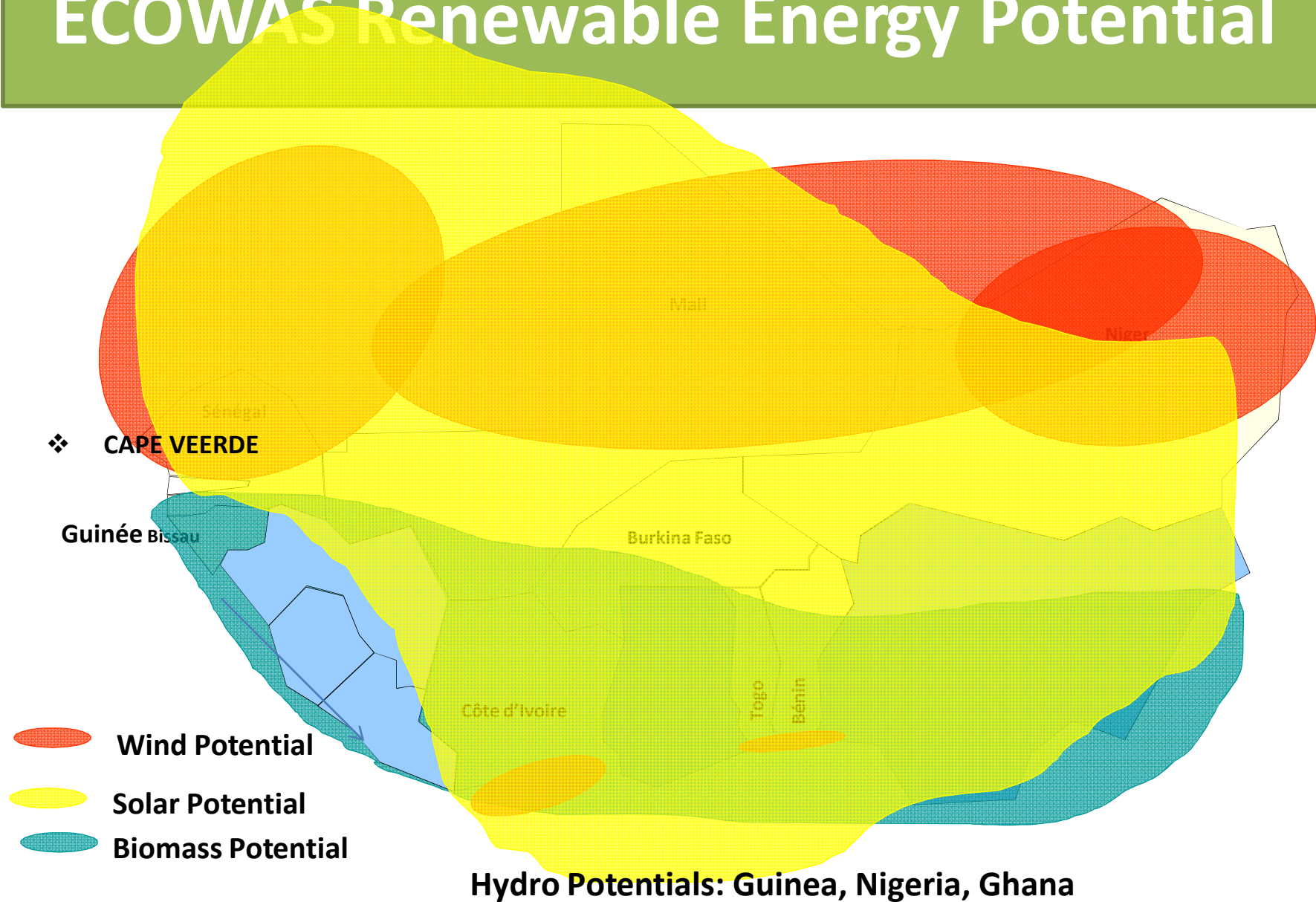
Resource availability – R E is location specific

- . Solar: PV and Thermal
- . Wind: Electrical and mechanical
- . Hydro: Large, small & mini/micro
- . Biomass: solid and liquid bio-fuels, agro-industrial waste, MSW

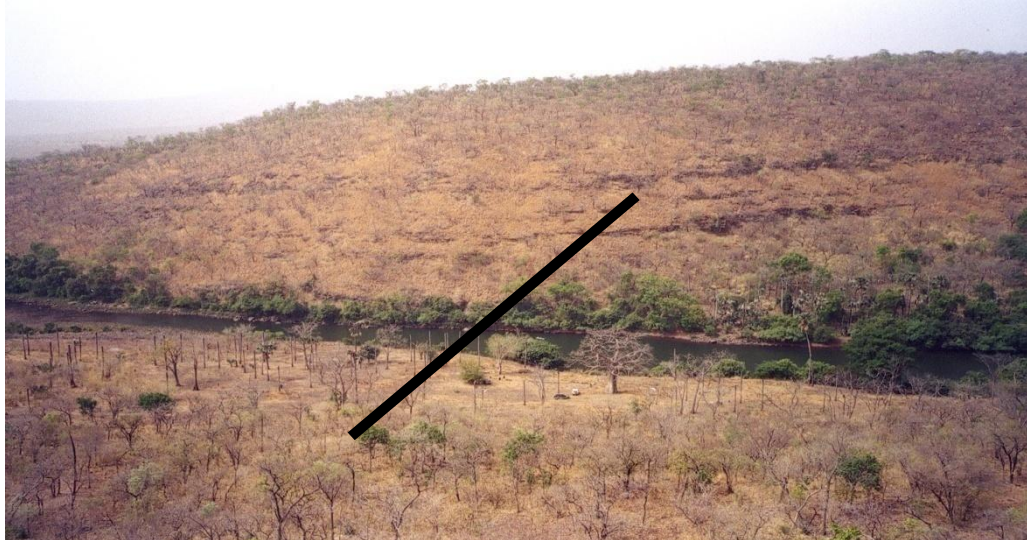
Solar Map of the World



ECOWAS Renewable Energy Potential



Hydro Potentials



Opportunities For Socio-economic Development

- . Meeting the MDG targets – The Energy Matrix
- . Residential: Lighting, heating, cooking, water pumping,
- . Commercial/business: lighting, heating, cooling/refrigeration, water pumping, electricity generation, telecommunication
- . Industrial applications: production using electricity (motors, pumps), refrigeration, distillation, processing, etc

Opportunities

PUT THE REGION AT WORK – REVIVES ECONOMIC ACTIVITIES PARTICULARLY IN THE RURAL AREAS

- . Jobs especially in the rural areas– stem rural/urban drift
- . Income generation – increase (rural) cash incomes – reduce poverty
- . Stem flight of capital/enhance balance of payment – reduces individual and national poverty

Opportunities

- . Reduce import bills especially for energy imports
- . Enhances the environment using clean energy
- . Reduces the risks of diseases and health/fire hazards
- . Enhance the condition for education for children, especially the girl child
 - “ more time for studies using efficient and safe lighting
 - “ use of RE for time saving devices – water pumping, dehauling machines), participate in e-learning using internet

Opportunities

Increased food security

(with the availability of energy for water production especially after the rainy season)

- “ Most of the Sahel work force are lead to virtual redundancy because the only rainy season has ended,
- “ no or limited water for agricultural/horticultural production;
- “ water for livestock,

Opportunities

Increased food security (Contd.)

- “ Transportation of produce to markets enhanced
- “ food processing and preservation enhanced
- “ post harvest losses due to lack of processing/ preservation facilities – fish, cereals, fruits and vegetables

Opportunities

- . Enhance market conditions for farmer for access to information on**
 - “markets, new and better products
 - “better production skills
 - “protection methods and treatments,
 - “etc

Investment Potentials: Lighting

Homes, streets, schools, health facilities, markets



Investment Potentials: Heating/cooking

- “ Improved cooking stoves
- “ Bio-charcoals
- “ Briquettes
- “ Ethanol Stoves
- “ Jatropha oil (testing)
- “ Biogas
- “ Solar cooking
- “ Solar water heating
- “ Woodlots



Heating/cooking (Contd.)



Mechanical Force:

Water Pumping, Milling/Dehauling, etc

- ” Wind Electricity
- ” Hydro Electricity
- ” Bio-fuelled
Generators (MFP)



Cooling/Refrigeration

- “ Solar PV
- “ Solar Thermal
- “ Wind Electricity
- “ Hydro Electricity
- “ Bio-fuel



Water Pumping

- “ Solar PV
- “ Wind Water pumping
- “ Generators powered by bio-fuels



Water Pumping



Communication

- “ Solar PV
- “ Wind Electric
- “ Bio-fuel generator
- “ Hydro-power



Products and Services -

Satellite Communications Module



A satellite communications and data module is available. The communications module operates using the renewable power generated by the Mobile MaxPure, thus turning your unit into a 3-way utility with power, water and communications capabilities. Please contact us for more details.†

Transportation

- “ Bio-fuels
 - . Bio-diesel
 - . Bio-ethanol
- “ Biogas for transport
- “ Electric cars (charged from RE sources)
- “ Hydrogen



Other Investment Potentials

- “ Distillation
- “ Industrial Drying
- “ Desalination

Investment Challenges

“ Legal and Regulatory framework

“ Legislation on RE & EE

“ Regulations (codes and standards)

“ Capacity (Institutional and human)

“ Investment Incentives

- . Clear & Transparent Registration
- . Clear Investment Codes

“ Infrastructure

- . Communication facilities
- . Financial facilities

Opportunities: More than 200 million people need energy & fossil fuels market are volatile

Obrigado !

Merci !

Thank You !