

# Policy & Strategy of the GoS for Energy Sector

---

Plan of presentation

- 1 - Socio-economic context
- 2 - Energy sector overview
- 3 – Potential of Renewable Energies
- 4 – Policy and Strategy



## 1 – Socio-economic context

---

SENEGAL

A low-income country, a sub-saharian country, 197000 Km<sup>2</sup> Population about 10 million habitants; annual growth rate :2,7%.

GDP per capita :US\$ 530.

More than 70% of this population deal with agriculture.

60% of the population live in rural areas.

Main products and goods : Phosphates, Fish, Peanuts, Tourism

Country classified as: HIPP (Heavy Indebted Poor Country), Less Advanced Country, No oil producer

48,5% of the population live under the poverty line but in rural areas this rate is around 56,5%



## 2 – Energy Sector Overview (1/5)

Total consumption: 1,416,000 TEP (0.15 TEP per Capita)

Energy balance:

56.2 % Biomass ( Wood, Charcoal, Vegetable waste)  
 38 % Oil product  
 5.8 Electricity

Insignificant use of Renewable energies ( ar. 3MW installed mainly PV Solar)

Biomass (Wood and Charcoal) is widely used for household energy use such as cooking, boiling, and household industry etc.

That heavy dependence on wood and wood products as energy source led to negative environmental effects such as reduction of arable land and over-exploitation of natural forestry reserve.

The country is still dependent on imported oil used in transportation, industry

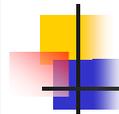


## 2 – Energy Sector Overview (2/5)

Kerosene (by-products of crude oil) is still a major source of energy for lighting in rural and urban areas:

Sources	Rural	Urban
Wood	3.9 %	0.2 %
Kerosene	80.0 %	30.3 %
Electricity	2.6 %	58.3 %
Gas (LPG)	2.3 %	11.0 %
Others	1.1 %	0.2 %

Kerosene is dominant as energy source of lighting in rural area, representing that 80 % rural household was dependent on kerosene. Even in urban



## 2 – Energy Sector Overview (3/5)

### International Comparison of Electricity Cost

	Côte d'Ivoire	Senegal	Indonesia	Malaysia	Thailand
US\$/kWh	0.07	0.11	0.076	0.062	0.07

Source : The challenge of international Integration, World Bank 1997

The electricity cost of the power industry in Senegal was US\$ 0.11 per kWh, which was higher than that of Côte d'Ivoire and South East Asian countries.

Electrification Rate(Roughly):

35 % all the country  
60% Urban area  
12 % Rural area

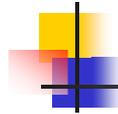


## 2 – Energy Sector Overview (4/5)

The average purchasing power of a rural household for energy consumption  
(Non Electrification Cost)

The average monthly energy expenditure turns out to be about 2,150 CFA (US\$ 3.8) at the lowest and 8,700 CFA (US\$ 15.5) at the highest. 5,000 CFA (US\$ 9.00) is the approximate mean value as the monthly energy expenditure per household.

It can be observed that purchasing power of a rural household is dynamic, exceeding over local income Excessive expenditure would be ascribed partly to the large number of family members and partly to fresh money from relatives (immigrants).



## 2 – Energy Sector Overview (5/5)

### Some Facts for the example:

The extensive use of biomass in traditional and inefficient ways as done in Senegal is one of the most appreciable factor of poverty manifestation and affect in large part women and children in rural areas (the most deprived group).

The women are the primary users of household energy. This forces this group to spend hours gathering fuelwood ; in rural sub-saharan African region ( Senegal indeed) many women carry 20 kg of fuelwood an average of five km per day; plus the conditions of use; the effects on health ( respiratory diseases, obstetrical problem, blindness etc.) is further unacceptable.



## 3 – Potential of Renewable Energies

Senegal has important resources in the field of renewable energies. Its geographic location is good enough to favour sunshine almost permanently (3.000 h/ year ) and with an average daily irradiation estimated at 5,8 kwh /m<sup>2</sup> per day. This offers favourable conditions for the development and exploitation of solar energy .

The country also has a considerable potential of winds, mainly on a strip of 30 to 40 km located along the coastal area (more than 300 Km of length) where the wind speed varies from 3 to 5 m / s.

Concerning hydroelectricity, the studies carried out in this field, in the framework of the OMVS<sup>[1]</sup> and OMVG<sup>[2]</sup>, reveal the existence of several sites with considerable hydroelectric potentials. These sites are mainly located on the Senegal and Gambia rivers as well as in their tributaries .

As regards to biomass , the wood resources have been strongly used by the overexploitation of the forests massifs for the sake of domestic cooking needs. However, the non ligneous resources give more promising prospects of development in the use of modern biomass.



## 4 – Policy and Strategy (1/9)

---

Today, Senegal is in a transitional stage of development of the energy sector with the implementation of strong reforms started since 1998.

Internal movement to liberalize power sector coincided with the global boom for privatization of infrastructure development primarily led by the World Bank. The basic strategy for the sectors transformation was traced back to “lettre de politique de développement du secteur de l’énergie” (the energy sector policy document) in which the following three elements were clarified as the general government policy :

Disengagement of the state

- Involvement of local communities
- Enhancement of private initiative.

One of the of the major challenges for Senegal is to adequately increase the energy providing services, hence the need to resort to diversified technological solutions among which the **renewable energies** which exist in quantity in the country.



## 4 – Policy and Strategy (2/9)

---

These important changes are in line with the overall adjustment of the economy for the prospect of poverty alleviation. Therefore, the **Poverty Reduction Strategic Paper (PRSP)**, is now under new understanding which makes it to be aimed at a better link between energy and the strategic development sectors (education, health, agriculture, water and industry )

**NB:** Access to energetic services for a wider number of people is a vital issue in any strategy of development and poverty alleviation

As such , the issue of the **development of renewable energies in Senegal** is in line with **local development** plan and **poverty alleviation** in order to better contribute in achieving the **Millennium Development Goal (MDG)** .

The most visible effect has been not only the creation of new bodies to regulate the sector or to take responsibility for rural electrification (**ASER – Senegalese Agency of Rural Electrification**) but also the confection of «**The National Strategy for the Development of Renewable Energies for Poverty Alleviation**»



## 4 – Policy and Strategy (3/9)

---

### ASER – Senegalese Agency of Rural Electrification

2.4 **1 - Market Arrangement toward the public-Private Initiative Rural Electrification**  
Rural electrification concessions (country divides in 18 concessions will be ruled by private operators) – Rate RE : 30% (2015) and 60% (2025)

**2 – The concept of PREMs (Projets Energétiques Multisectoriel – Multi-sectorial Energetic Projects)** and the launching of the **CIMES (Comité Intersectoriel pour la Synergie entre l’Energie et les autres Secteurs Stratégiques – Inter-sectorial Committee for a Synergy between Energy and the others Strategic Sectors)**

the emergence of new and increased energy needs of mainly of productive uses much more than traditional domestic needs (lightening, audio and TV). The observed result of this is the existence in rural areas of a demand for electricity service that has not been met. This leaves a broad, unoccupied field of opportunity for off-grid systems

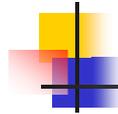


## 4 – Policy and Strategy (4/9)

---

### The National Strategy for the Development of Renewable Energies for Poverty Alleviation

The overall objective of the strategy is the development of renewable energies in order to alleviate poverty. This strategy aims at a better integration of renewable energies in the overall development policies and in perfect adequacy with expounded principles of the MDG of the PRSP and NEPAD : to reach more than **15%** of renewable energies by the year 2025 when assessing the energy sector.



## 4 – Policy and Strategy (5/9)

---

### The National Strategy for the Development of Renewable Energies for Poverty Alleviation

#### 1-REINFORCEMENT OF THE INSTITUTIONAL AND LEGAL FRAMEWORK

##### Achievements

- Diversity of organisations working in the field
- Better coordination between stakeholders since the 1998 reform
- Many decrees, orders and circulars initiated for the development of Renewable Energies (RE) since the 80s .

##### Constraints

- Weaknesses in harmonising actions
- Poor implementation of measures

##### Reinforcement actions

- Creation of a strong body in charge of renewable energies
- Improvement of the institutional and regulatory environment for a better involvement of the private sector



## 4 – Policy and Strategy (6/9)

---

### The National Strategy for the Development of Renewable Energies for Poverty Alleviation

#### PHOTOVOLTAIC & THERMAL SOLAR

#### BIOMASS

#### WIND

#### MRICO-HYDRAULICS

- lack of accompanying policies (taxation )
- lack of specific funding mechanisms
- low involvement of the private sector
- low dissemination of productive mature adequate technology applications  
an almost lack of local production units equipment for RE uses



## 4 – Policy and Strategy (7/9)

---

### The National Strategy for the Development of Renewable Energies for Poverty Alleviation

- High cost of technologies
- Social inadequacy for certain technologies (cooking )
- Lack of local industries
- Low partnership between private sector and research institutes



## 4 – Policy and Strategy (8/9)

---

### Suggestions and Critics

- The rural population is assumed to be poor. Most of them have seen some increase in the price of a unit of electricity since reform.
- Due to difficulties in meeting subscription charges. It is difficult for low-income consumers to adopt the habit of setting money aside for a monthly outlay.
- Mechanisms should be put in place to facilitate access of the poor to electricity. Subsidies should be set in accordance with poverty levels and user profiles.

## 4 – Policy and Strategy (9/9)

### Suggestions and Critics

- The reforms that have been undertaken have not been sufficiently implemented, or have not been implemented long enough for definitive conclusions to be drawn. But the trend shows that in Senegal we are on a new interesting challenge.

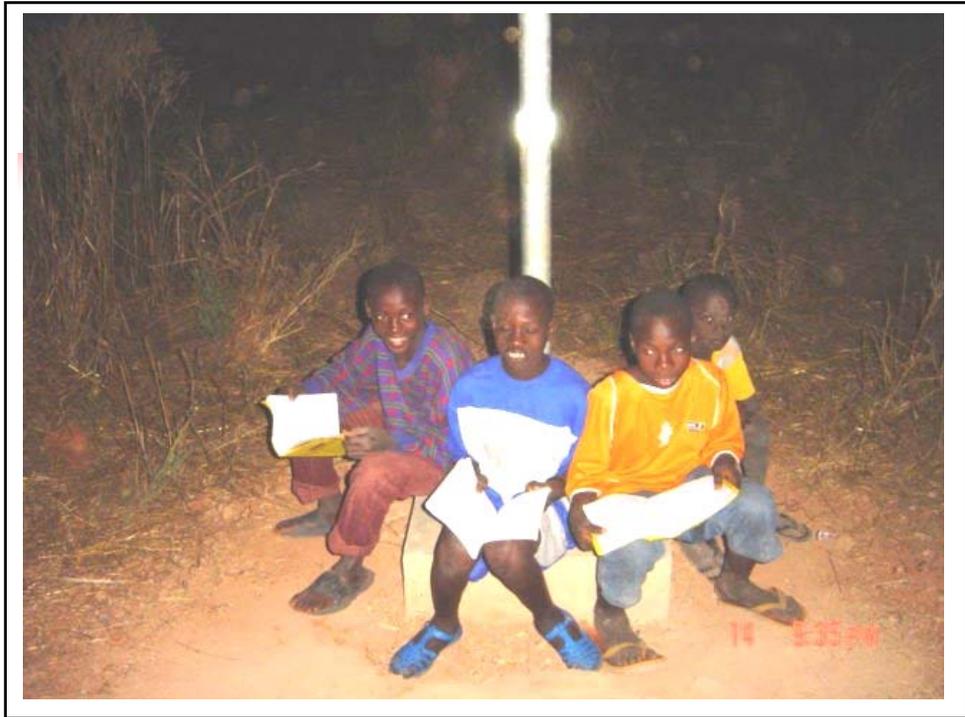
Raise in RE rate

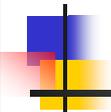
Beginning of manufacturing adequate RE equipment (PV mills)

Compulsory introduction of PREMs in Rural Electrification programs

**etc.**







---

THANK YOU