Republic of Senegal

Un peuple un but une foi

MINISTERE DE L'ENERGIE

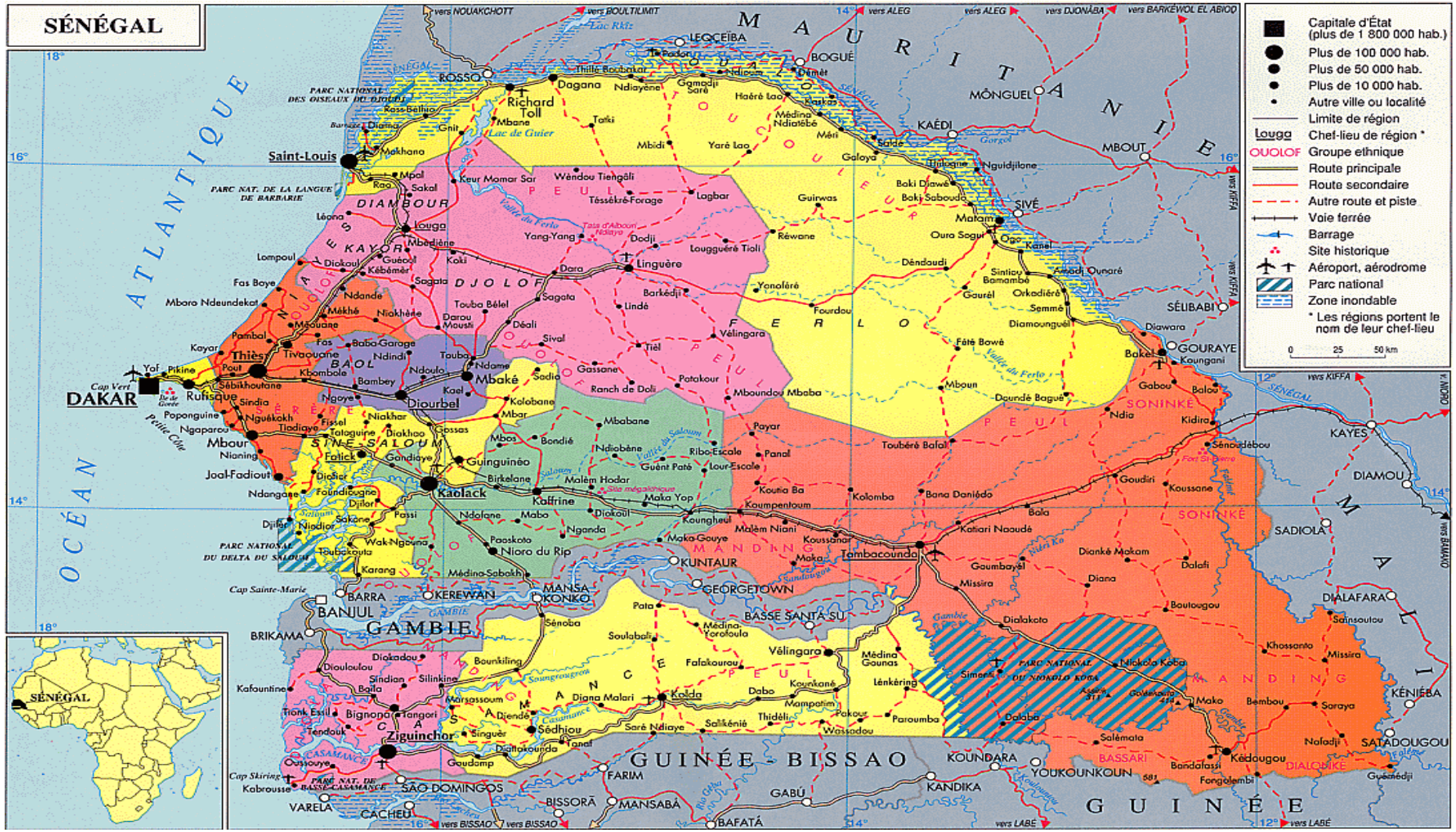
ENERGY POLICY

Mamadou SAMBOU/Direction of Energy

Ministry of Energy and Mines

Japan, June, 2013

General information



General information

- AREA: 196.722 km2
- CAPITAL: DAKAR
- POPULATION: More 12 Million habitants
- INTERIOR PRODUT GROSS PER CAPITA: about 1000 $ US per capita

Energy Policy and current measures

Senegal has developed a new letter of policy development in the energy sector (LPDSE), which provides guidelines of the Government in the energy sector over the period 2005-2012.

❖Sectoral approach to energy policy

The sectoral vision of target energy sector is characterized by perfect energy availability at the lowest possible cost and ensuring universal access to modern energy services in accordance with the principles of social and environmental acceptability.

In 2017, Senegal aims to achieve the electrification rate of 50% in rural areas, 95% In urban areas and 70% of national level.

Energy Policy and current measures

❖ **Strategic objectives of the energy sector:**

Strategic objectives:

New energy policy that makes the analysis of the national and international context and sectoral vision has the following strategic objectives:

- Ensure the supply of energy sufficient country in the best conditions of quality and durability and cost;
- Operate energy diversification to reduce vulnerability to hazards including those exogenous world oil market;
- Promote the development of renewable energy;

Energy Policy and current measures

• Expand people's access to modern energy services by ensuring a more equitable distribution of effort, giving priority to disadvantaged regions and vulnerable;

• Promote energy efficiency.

Strategic areas

For the implementation of the new policy, the Government intends to develop a strategy that will be split by sub-sector with the following main areas:

•To ensure energy security and increase access to energy for all to spur strong economic growth and equitable social development;

Statistics on the demand and supply of energy

- ❖ Develop an energy mix as the basis for the crisis, involving coal, natural gas, hydropower, interconnections and renewable energy

- Continue and accelerate the liberalization of the sector;

- Improving the competitiveness of the sector in order, firstly, to make energy accessible in terms of price, the largest number of consumers, while preserving the profitability of energy service providers and, secondly, to reach a progressive wasting of financial support from the state;

- Accelerate the reform of the regulatory and governance frameworks;

- Make the necessary innovations to increase financial flows in the sector through strategic engagement with public and private sources.

Statistics on the demand and supply of energy

❖ **National energy resources**

- Heavy Oil Dome Flora (in Casamance), with an estimated 100 million tons of reserves

- Natural gas and light oil Diam Nadio / Kabor (Dakar region), with an estimated 400 million m3 of natural gas

- Exploration underway in the sedimentary basin at the north side of the Atlantic Ocean, with convincing results discovery of oil and gas.

- Important peat reserves along the coast from Dakar to Saint Louis (Niayes), studies have shown that you can produce annually from 20 to 40 000 tons of peat briquettes burnt for twenty years to meet the needs domestic cooking.

Statistics on the demand and supply of energy

- Hydropower Potential: In the sub-regional projects, the Organization for the Development of the Senegal River (OMVS) and the Organization for the Development of the River Gambia (OMVG): estimated at 2,000 MW potential

- Solar Potential: 3000 hours of sunshine, with a total irradiation of 5,8 kWh/m2/day

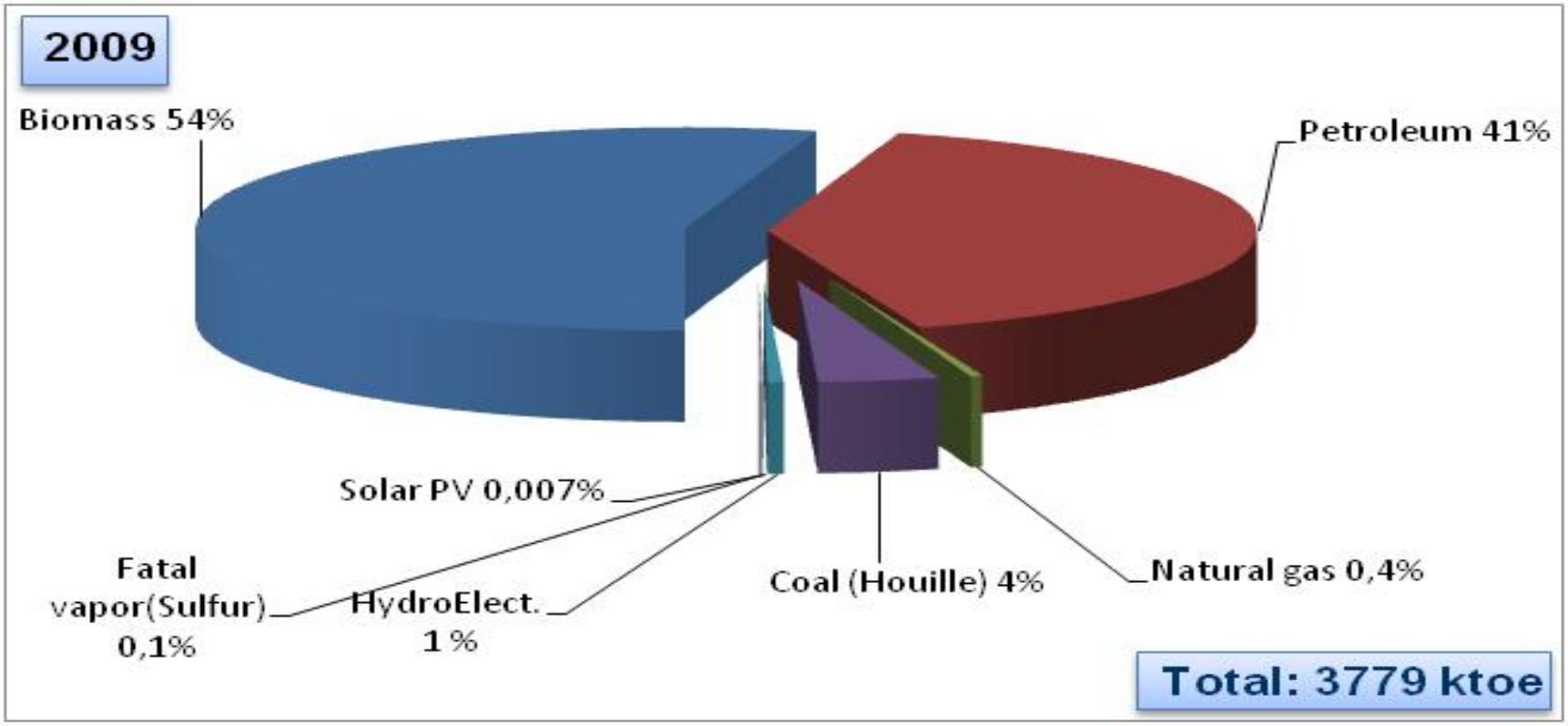
- Wind Potential: average wind speed of about 6m / s at 50m above sea level on the high side

- Potential significant biomass (toe / year): Typha australis (211100), rice husk (32160), bagasse and molasses (97205), peanut shell (52820), stems (but sorghum and millet) (232453) biogas (40837), animal waste (50279).

Statistics on the demand and supply of energy

❖ **The supply of primary energy**

Energy supplies in Senegal which totaled 3780 ktoe in 2009 (Source energy-Senegal information system).



Statistics on the demand and supply of energy

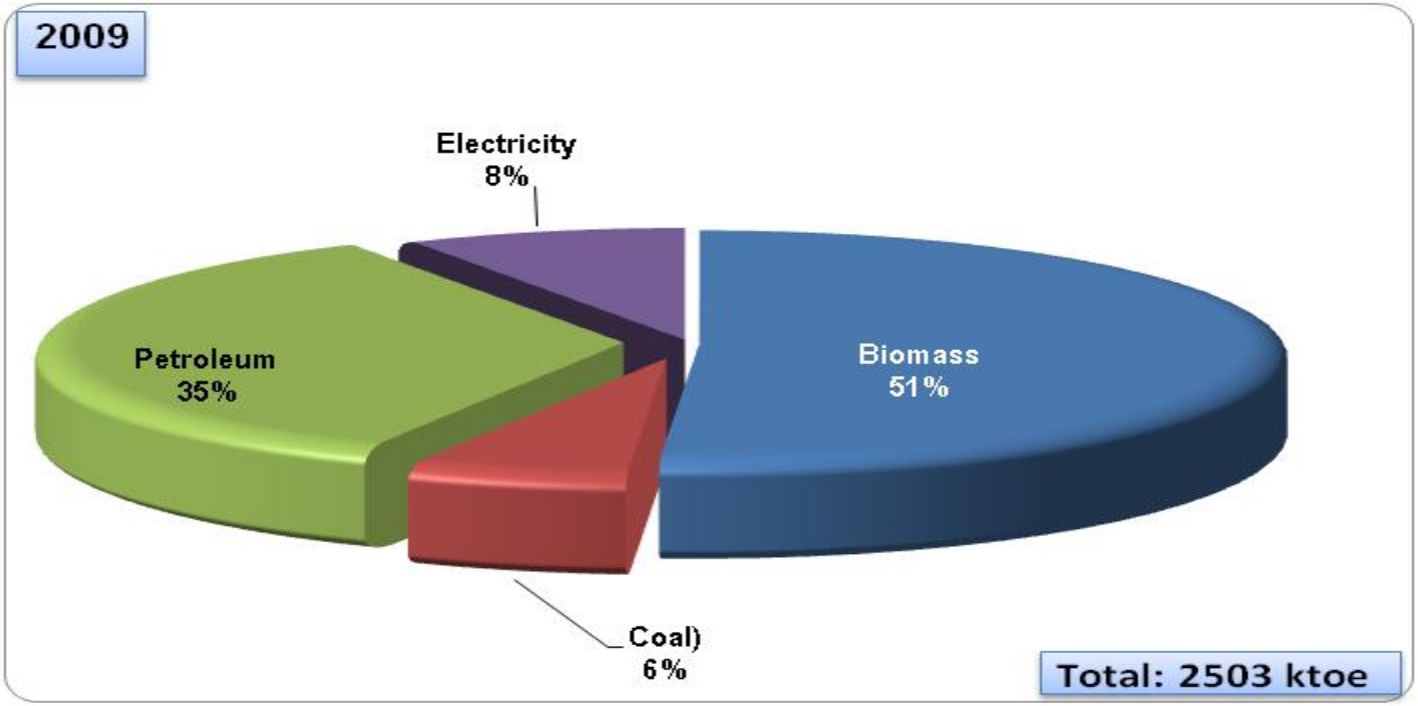
Petroleum, petroleum products and mineral coal are imported.

Biomass consists mainly of firewood (97%), the rest is bagass and peanut hull.

❖**Energy demand**

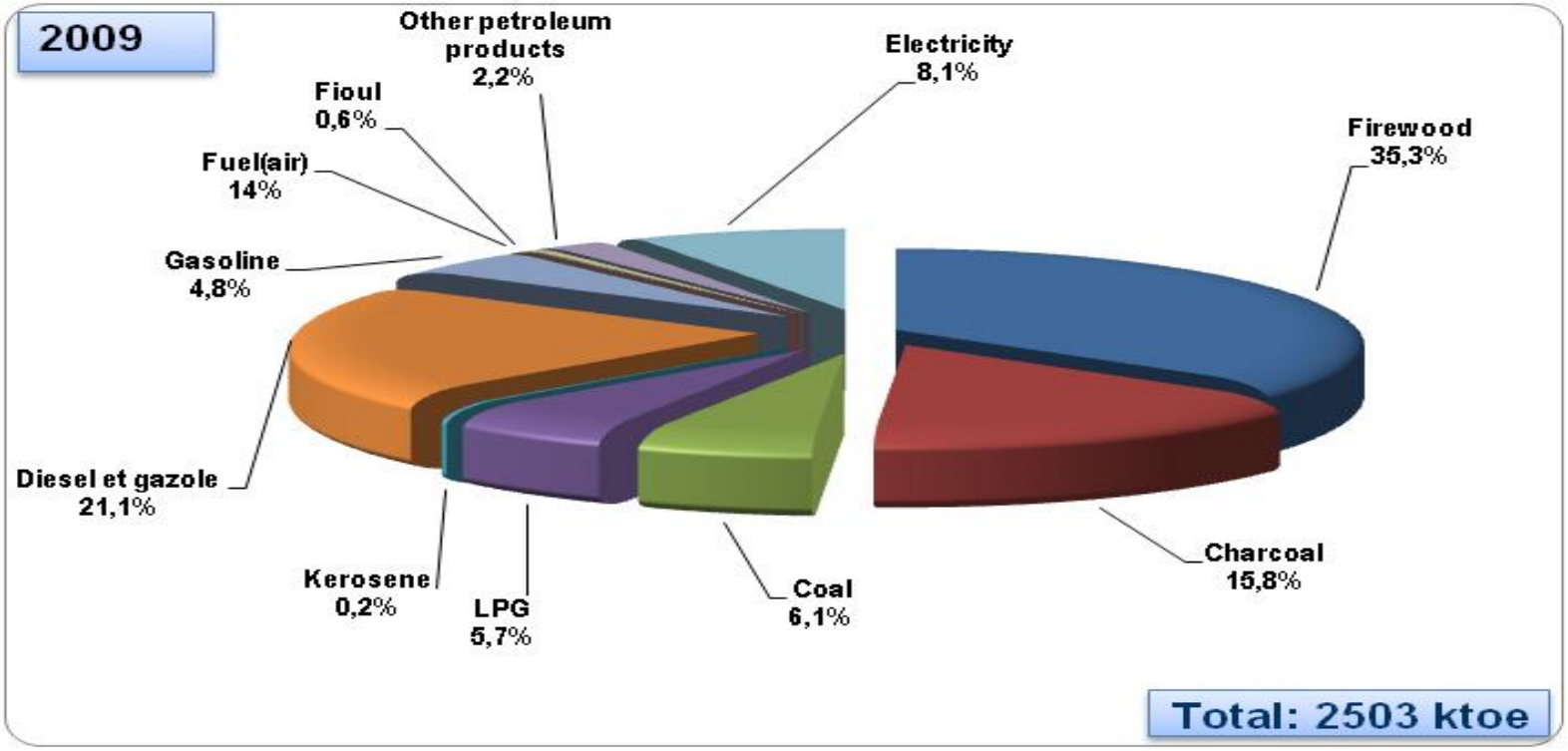
•**Final energy consumption by energy type**

The total final energy consumption in Senegal in 2009 is 2,502.5 ktoe (Source Senegal energy-information system).



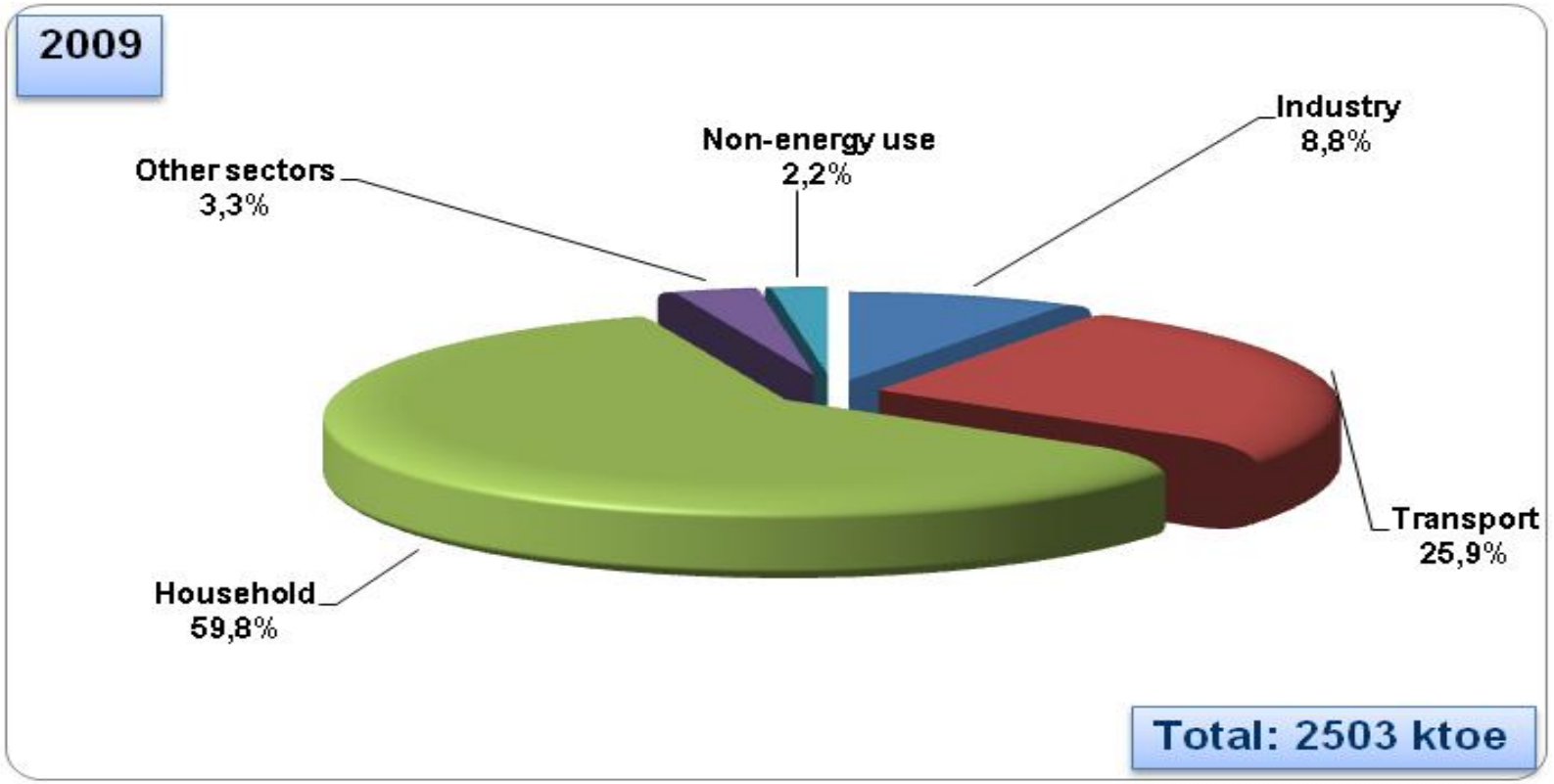
Statistics on the demand and supply of energy

- **Final energy consumption by products**



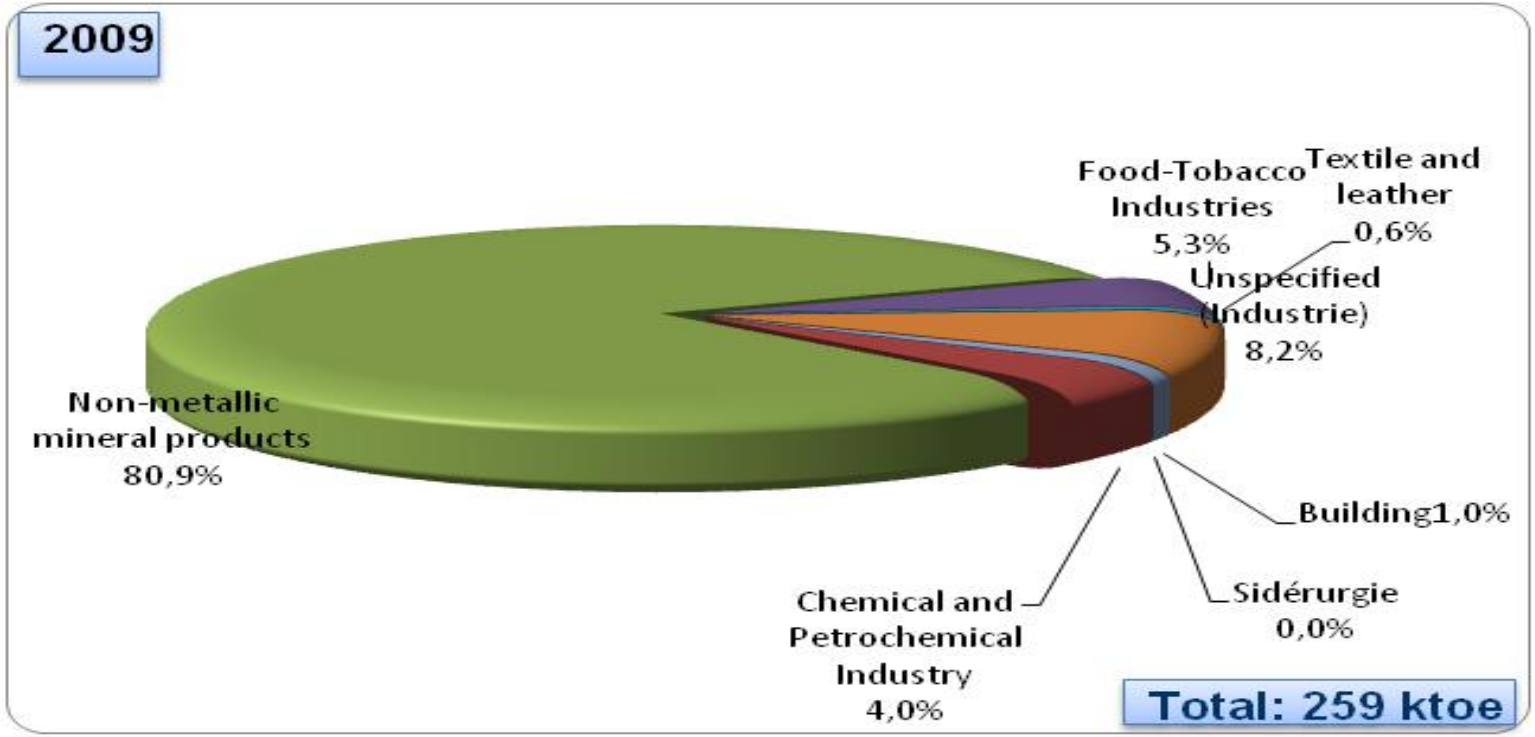
Statistics on the demand and supply of energy

- **Final energy consumption by sector**



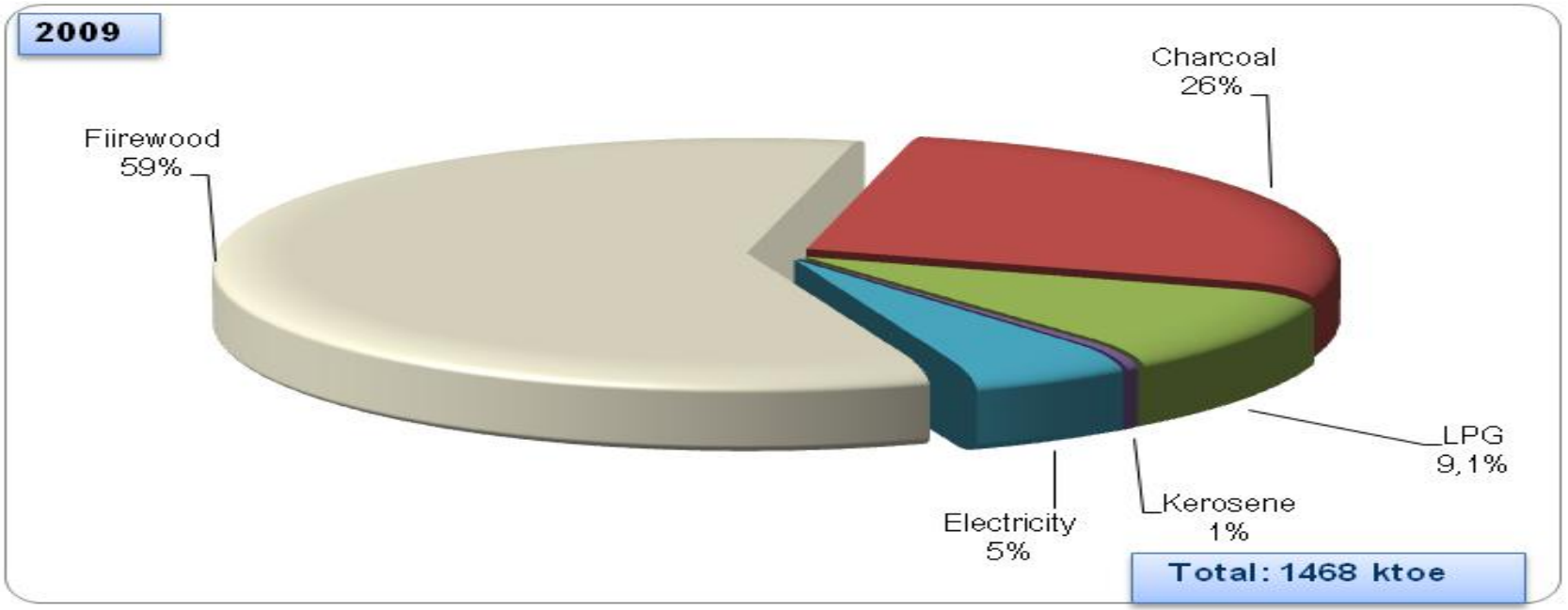
Statistics on the demand and supply of energy

- **Consumption sector industries Activity**



Statistics on the demand and supply of energy

- **Final consumption of the household sector by products**



- **Final consumption per capita**

The final energy consumption per capita is almost stationary, with a value of 0.21 toe in 2009.

The main difficulties and obstacles currently encountered in the formulation of energy policy

- For planned investments in the National Electricity Company (SENELEC) or African Refining Company (SAR), there is a failure in the steering especially for major projects such as the Programme of expansion and modernization the SAR and power project in charbon125MW.

- The extremely high level of state subsidy to the two largest firms, SENELEC and SAR, and maintained under perfusion level. This poses a dilemma because in fact, these subsidies are not sustainable in the light of budgetary constraints, even though they are the only means of social protection of the most vulnerable in the short term layers to prevent price increases while guaranteeing conditions for financial viability of these companies.

- Despite the protection afforded to the SAR, the security of supply of hydrocarbon is not fully ensured due to financial difficulties of the company due to late payment of certain customers or business losses butane(LPG) uncompensated time and, more generally, to the age of the industrial tool and internal management problems.

The main difficulties and obstacles currently encountered in the formulation of energy policy

- The future of refining remains uncertain in the absence of concrete actions along the lines of the implementation of the investment to expand the capacity of SAR.
- As regards the sub-sector of electricity, lack of diversification of energy sources for the production and the difficulties of Senelec and Senegalese Rural Electrification Agency (ASER) appear as structural barriers recovery of this sub-sector.
- The price of electricity is very expensive, more than 20 cents per kWh, despite strong state subsidy
- The electricity company has any problems to meet demand, with many outages (more than 80 GWh of electricity not included in 2009)
- The main companies in the sector are also experiencing serious problems of governance.

The main difficulties and obstacles currently encountered in the formulation of energy policy

- The urban electrification rate is 90% in 2009, against 24% in rural and 54% nationally.

- Despite the advantages - strong sunlight on virtually all countries and wind patterns in the order of 6 m / s on average (50 m above the ground) on the coastal strip north of the country, the sub-sector of renewable energy remains embryo as shown by the solar PV installed capacity of about 2 MW, about 0.4% of total power production of electricity - and that almost no wind power plants.

- In addition, despite the adoption of legislative and regulatory frameworks in the biofuels and renewable energy, this sector is not accompanied by a system of incentives to accelerate the penetration of renewable

- There is a lack of coherent and sustained energy efficiency policy, despite the significant potential for energy savings.

Priority issue: the energy conservation

Considering the weight of imports of petroleum products in the country's trade balance, the Government has taken the full measure of the importance for Senegal policy energy conservation, to reduce the country's dependence in relation to outside for its supply, reduce the oil bill and meet energy demand.

In terms of energy demand, the energy conservation actions contribute to reducing energy bills.

In terms of supply, these actions allow the power company to better meet the demand, but also to smooth the load curve of the electricity demand, with a peak between 19 hours and 23 hours.

The average conversion efficiency of power plants is 31%, about 2009.

Priority issue: the energy conservation

The technical and non-technical electricity losses amount is about 485 GWh, or 20% of the energy passing through the network.

The production of electricity is 90% hydrocarbons (heavy fuel oil and diesel oil). Thus, the Government established the Agency for Economy and Energy Conservation in 2012 and the Agency for Renewable Energies in 2013 to promote energy efficiency and renewable energies.

Currently, there is the proliferation of connected renewable energy projects (solar photovoltaic, wind and biomass). Negotiations are underway with the electricity company.

Conclusion

I want to enjoy each other's experiences in the field of energy policy, particularly the Japanese experience.

I thank the Japanese Government, on behalf of the Minister of Energy of Senegal, the opportunity offered to the least developed countries, for capacity building of stakeholders for better management of aspects of economic and social development.

I sought assistance from the Japanese Government in Senegal for the implementation of the policy of energy efficiency and renewable energy.

THANK YOU FOR YOUR ATTENTION

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