NIGERIA

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GENERAL OPERATING ENVIRONMENT

1.1 BASIC FACTS & GEOGRAPHY

Location	West Africa
Area	923 770 sq. km
Borders	Benin Niger Cameroon Chad
Climate	Equatorial in south, tropical in centre, arid in north
Terrain	Southern lowlands merge into central hills and plateaus; mountains in southeast, plains in north
Natural hazards	Periodic droughts; flooding

Source: CIA

- Nigeria is located in West Africa, bordered by Benin to the west, Niger to the north, Cameroon to the east and the Atlantic Ocean. The terrain varies from coastal swamps and tropical forest in the south, to savannah and semi-desert in the north. The highest points are the Jos Plateau in the centre (1,200-2,000 metres above sea level) and the mountains along the eastern border. The river Niger, the third longest river in Africa, reaches the sea through an extensive Delta of mangrove swamps. (http://www.fco.gov.uk)
- British influence and control over what would become Nigeria and Africa's most populous country grew through the 19th century. A series of constitutions after World War II granted Nigeria greater autonomy; independence came in 1960. Following nearly 16 years of military rule, a new constitution was adopted in 1999, and a peaceful transition to civilian government was completed. (CIA)
- Tropical climate and relatively high temperatures throughout the year. August and September are the rainiest months throughout the country. (LOGISTICS CAPACITY ASESSMENT)
- Generally, Nigeria does not have many natural disaster occurrences apart from floods during the rainy season. (LOGISTICS CAPACITY ASESSMENT)
- The three main disease epidemics that normally afflict the Nigerian population raising national concern include: Diarrhea, cholera and cerebrum spinal meningitis. (LOGISTICS CAPACITY ASESSMENT)
- Environment – Current issues: soil degradation; rapid deforestation; urban air and water pollution; desertification; oil pollution - water, air, and soil; has suffered serious damage from oil spills; loss of arable land; rapid urbanization. (CIA)
- Environment – International agreements: Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Marine Dumping, Marine Life Conservation, Ozone Layer Protection, Ship Pollution, Wetlands (CIA)

1.2 PEOPLE & SOCIETY

	2009	2010	2011
Population, total	154,49 mil.	158,42 mil.	162,47 mil.
Population, growth	3 %	3 %	3 %
Population, density	170/km^2	174/km^2	…
Urban population	48 %	49 %	50 %
Rural population	52 %	51 %	50 %
Population (0-14 years)	43 %	43 %	43 %
Population (15-64 years)	54 %	54 %	54 %
Population (65 years and above)	3 %	3 %	3 %
Life expectancy at birth	51	51	52
Major cities (2009)	Lagos 10,5 mil, Kano 3.3 mil, Ibadan 2.8 mil, Abuja (capital) 1.9 mil, Kaduna 1.5 mil		

Source: CIA, World Bank

1.3 CULTURE & BUSINESS CULTURE

Language	Official: English Other: indigenous languages
Ethnic groups	Nigeria, Africa's most populous country, is composed of more than 250 ethnic groups; the following are the most populous and politically influential: Hausa and Fulani 29%, Yoruba 21%, Igbo (Ibo) 18%, Ijaw 10%, Kanuri 4%, Ibibio 3.5%, Tiv 2.5%
Religion	Christian (40%) Muslim (50%) Indigenous (10%)

Source: CIA, Rabobank

- Nigeria is a country with many cultures and tribes. Nigeria has about 371 tribes with equal amount of cultures
- When planning to do business in Nigeria; it is pertinent that a company views Nigeria from its diverse cultural perspective. Despite the fact that Nigeria is a country that shares same National Anthem, currency etc., it is a multicultural economy where different cultures do not have similarity. Since culture is people's way of life which influences there lifestyle, it means that doing business in Nigeria requires a survey on how to handle or manage different cultural background in Nigeria, as what is good in the South may not be good in the North. (Ogbonna, 2010)
- Nigeria and other African countries are seen to have High Power distance culture. African cultures are characterized with High Power Distance considering the fact that authority is assigned on grounds of education, experience and age and exercise of authority is through political system that supports centralization of powers. This is a real fact about Nigeria as authorities are centralized and orders are given from the top to down. There is downwards flow of information and authority which justifies Nigeria as a High Power Distance culture. (Ogbonna, 2010)

1.4 INFRASTRUCTURE & LOGISTICS

Railways:	3 500 km
Roads:	193 200 km (total) Paved: 28 980 km, Unpaved: 164 220 km
Waterways:	8600 km (Niger, Benue and smaller rivers)
Airports:	Total: 53, Paved: 40, Unpaved: 13

Source: CIA, World Bank, OECD

- Nigeria has relatively advanced power, road, rail, and ICT networks that cover the national territory quite extensively. Extensive reforms are on-going in the power, ports, ICT, and domestic air transport sectors. But challenges persist. (World Bank)
- The International Maritime Bureau reports the territorial and offshore waters in the Niger Delta and Gulf of Guinea as high risk for piracy and armed robbery against ships; in 2010, 19 commercial vessels were boarded or attacked with most occurring in the vicinity of the port of Lagos; crews were robbed and stores or cargoes stolen (CIA)
- Due to the fact that the rail transport is not very effective, as it is still in the potential stage. Food production also affects this mode of transport especially along the Port Harcourt to Maiduguri route. (LOGISTICS CAPACITY ASESSMENT)

1.5 GOVERNMENT & LEGISLATION

Official name	Federal Republic of Nigeria
Conventional short form	Nigeria
Form of state	Federal republic
Regions and districts	36 states and one territory
Government	President: Goodluck Jonathan Senate: 109 seats, House of Representatives 360 seats. Major Parties: Peoples Democratic Party (PDP), All Nigeria Peoples Party (ANPP), Action Congress (AC)
Legal system	English common law, Islamic law (in 12 northern states), and traditional law
Independence	1960(from UK)
Corruption perception index (2011)	143 (out of 183 countries)

Source: CIA, World Bank, OECD

- President Goodluck Jonathan celebrated Nigeria's 60th birthday by stating that it is nothing short of a miracle that the country still exists. He went on to marvel over the fact that a country as large and diverse as Nigeria, a country destined to fall apart, defied all odds and remained one nation. But despite this success, it is also a nation that is still very much divided. The main reasons for Nigeria's stagnated development are the persisting conflicts between ethnic groups, between rebels and the government and between north and south. (Rabobank)
- One of the oldest conflicts is that between the Islamic north and the Christian south. Aside from the struggle between the two regions, conflicts persist within each region as well. In the north, decades of conflict are the

result of a power struggle between the various ethnic groups. The hot spot of this conflict is Jos (a northern city), where violence flairs up on a constant basis. The most recent outbreak in January 2010 killed over 500 people. (Rabobank)

- Apart from the many internal conflicts, Nigeria enjoys relative stability externally and is not embroiled in any noteworthy international or diplomatic conflicts. In addition, the country is a member of the G20. Nonetheless, in order to achieve its goal of becoming a regional powerhouse, the country should rid itself of its reputation of being the host of many international crime networks. (Rabobank)

1.6 ECONOMY & TRADE

World bank ranking	Lower-Middle Income		
Currency	Naira (NGN)		
	2009	**2010**	**2011**
GDP (current US$) (billions)	$ 168,57	$ 196,84	$ 235,92
Structure of the economy (% of GDP)			
- **Agriculture**	…	…	35 %
- **Industry**	…	…	34 %
- **Services**	…	…	31 %
GDP growth (annual %)	7 %	8 %	7 %
GNI per capita, PPP (current intl.)	$ 2040	$ 2140	$ 2300
Inflation, consumer prices (annual %)	12 %	14 %	11 %
Ease of doing business ranking	118 (out of 181)	125 (out of 178)	137 (out of 183)

Source: CIA, World Bank, OECD

- Over 15% of the entire Sub-Saharan African population currently lives in Nigeria. Secondly, its GDP is among the highest in the region, second only to South-Africa. This comfortable economic position is almost entirely explained by Nigeria's large oil revenues. As is so often the case, the success of the oil industry nearly destroyed every other export base. (RABOBANK)
- Since 2008 the government has begun to show the political will to implement the market-oriented reforms urged by the IMF, such as modernizing the banking system, removing subsidies, and resolving regional disputes over the distribution of earnings from the oil industry. (CIA)
- The government is working toward developing stronger public-private partnerships for roads, agriculture, and power. (CIA)
- Since the oil industry only employs a limited number of people, many others were forced into poverty or took up a career in crime. Consequently, Nigeria scores poorly on all social development indicators. (RABOBANK)
- Non-oil growth reached 9.5% in 2010. This was largely the result of enhanced productivity in the services and agricultural sectors and increased government spending. In fact, both the agricultural and services sector show great potential for growth. (RABOBANK)
- The medium- to long-term, growth prospects are constrained by a number of issues. For one, productivity is limited by an acute dearth of infrastructure. Especially power shortages undermine both industrial and social development. (RABOBANK)

- Nigeria's oil sector also dictates the country's trade profile. Oil makes up 86% of all exports. The main recipients of Nigerian oil are the US, Brazil, Spain and France. Oil revenues are mostly held by small and powerful elite that has taken on a European lifestyle. (RABOBANK)
- Since Nigeria lacks a manufacturing sector, these goods are mostly imported. Together, manufactured goods account for 25% of total imports. In addition, Nigeria imports capital goods and chemicals, most of which are employed in the oil sector. Unsurprisingly, most inward foreign direct investments (FDI) are also directed at the oil industry. (RABOBANK)
- Nigeria launched its National and State Economic Empowerment and Development Strategies in 2004. Three main things emerged: Empowering people and improving social service delivery; (ii) improving the private sector and focusing on non-oil growth; and (iii) changing the way government works and improving governance. In 2007 President Yar'Adua created 7-point agenda. This focused on energy, security, wealth creation, education, land reform, mass transit and the Niger Delta. Some good progress was made, particularly at federal level on macroeconomic stabilisation and procurement, as well as during the last year on financial sector reform. (www.fco.gov.uk)
- Nigeria is reforming policies to encourage more investment. Steps taken include granting businesses tax concessions for eligible industries, tax relief for research & development, and guarantees against expropriation. (FINPRO)
- Nigeria is a member of The Economic Community of West African States (ECOWAS), which consists of 15 member countries.

1.7 NIGERIA & FINLAND

Finnish exports (2010)	€ 47.8mil (mostly power generating machinery and equipment, paper and paperboard, telecommunications)
Finnish imports (2010)	€ 0.1 mil (Fish and fish preparations, vegetables and fruit)

Source: Finpro

- Finland has been the only EU- country with a downward trend in exports to Nigeria. For example the exports from Denmark (107meur), Ireland (288meur) or Sweden (635meur) are on a different level. (Voionmaa)
- The agreement on investment protection between Finland and Nigeria came into effect in 2007. The potential in the energy sector and the materialized advancements in exports between Finland and Nigeria resulted in a Nordic memorandum of understanding in the exports and investment in the energy sector. (Voionmaa)
- Finland has an Embassy in the city of Abuja.

1.8 EDUCATION

Literacy rate, % of people ages 15 and above, 2009	61 %
Primary school enrolment, % net, 2009	57 % (54 % female, 60 % male)
Higher education:	37 Federal Universities 37 State Universities 50 private Universities 65 polytechnics

Source: UNESCO, UNICEF

- Nigeria gained its independence from the British in 1960. For the next 15 years, it was under military rule. During this period, the tertiary institutions were plagued with riots and strikes resulting in a decline in quality of the educational system. Educational institutions are still in the process of recuperating from the neglect of the former governments. A democratic government was voted for in February 1999. Retired General Olusegun Obasanjo was elected president. (nigeria.usembassy.gov)
- The Federal Government of Nigeria regards education as an instrument for effecting national development. Her philosophy on education is based on the development of the individual into a sound and effective citizen and the provision of equal educational opportunities for all citizens of the nation at the primary, secondary and tertiary levels both inside and outside the formal school system. The language of instruction in Nigerian institutions is English. The Ministry of Education is the government body charged with the duty of regulating procedures and maintaining standards. (nigeria.usembassy.gov)

1.9 SUMMARY

- Despite the sometimes tense political scene, the president, Goodluck Jonathan, and his party, the People's Democratic Party (PDP), will remain in power at least until the next elections, in 2015, and probably beyond.
- The main threats to political stability are the various social tensions that frequently provoke violent unrest in parts of the country. Of particular concern is the rise of Islamist fundamentalism.
- The government is targeting more prudent fiscal policy, and the generally favourable oil price environment will make this possible via strong revenue. However, expenditure control will prove more difficult.
- Economic expansion will be buoyed by robust performance in the non-oil sector, although 2012 will be a difficult year given deteriorating global prospects. Real GDP growth is expected to average 7% in 2013-16.
- Tighter monetary and fiscal policy should allow inflation to come down gradually in the first half of the forecast period, before stronger growth and higher commodity prices see it increase in the second half.
- Current-account surpluses are expected throughout the forecast period as oil exports remain robust amid generally high oil prices. However, continued strong import demand will prevent larger surpluses.
- Religious and ethnic tensions have risen in parts of northern Nigeria following a series of deadly bomb attacks on Christian churches that sparked retaliatory confrontations.
- The current unrest in the north does not pose an immediate threat to overall political stability. However, if the violence were to spread and engulf the south in a major way, the government would struggle to cope.

- Mr Jonathan has replaced his defence minister and national security adviser in a move to change the administration's tactics for dealing with extremists. Their ability to make a difference is to be seen.
- The management team of the underperforming Nigerian National Petroleum Corporation (NNPC) has been replaced. However, the Petroleum Industry Bill (PIB), which is designed to enable the national oil company to operate as an independent commercial venture, remains stuck in parliament.
- A federal government plan to launch a sovereign wealth fund has been approved after months of political wrangling, but it is unlikely to provide a final resolution to the management of the nation's windfall oil earnings.

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ENERGY & RENEWABLE ENERGY

2.1 GENERAL SITUATION IN ENERGY SECTOR

	2009	1990
Total energy consumption	1 259 TWh	821 TWh
Energy consumption per capita	8,1 MWh/capita	5,3 MWh/capita
Electricity consumption	18,05 TWh	8,29 TWh
Electricity consumption per capita	121 kWh/capita	
Access to electricity	51 %	
Access to electricity urban population	82 % (2006)	
Access to electricity rural population	~10 %	
Energy imports (% of energy use)	-111 %	-113 %
Electricity imports (% of electricity use)	0 %	
Power production capacity	5 880 MW	5 900 MW
Renewable power production capacity	2 420 MW	2 380 MW
Total electricity production	19,78 TWh	13,46 TWh
Renewable electricity production	4,53 TWh	2,80 TWh
Share of population using solid fuels	79 %	

Sources: IEA, World Bank, IRENA, UN data)

Nigeria's total primary energy supply is 1259 TWh of which 85 % is renewable. Major sources of commercial energy in Nigeria are petroleum, natural gas and hydroelectricity. 79 % of population use traditional solid fuels such as fuel-wood and charcoal in residential sector for heating, light and cooking. The residential sector contributed 81 % of energy consumption in 2009. Further development of the use of biomass and extension of national electricity grid would reduce this consumption greatly. There is a significant disparity between the rate of wood consumption and the rate of reforestation.

Self-sufficiency

- Nigeria is net exporter of energy because of its oil reserves. Nigeria exports more energy than it uses by itself (111 %). According to International Energy Association (IEA), Nigeria produces all of its electricity and there is no export of electricity.
- In 2009 Nigeria was 14th biggest oil producer in the world. Due to lack of facilities to produce natural gas from major oilfields approximately 40% of the natural gas production from oilfields in the country is flared.
- Nigeria's refining capacity is currently insufficient to meet domestic demand, requiring the country to import petroleum products. There are four major oil refineries but they don't operate at full capacity.
- It is estimated that demand and consumption of petroleum in Nigeria grows at a rate of 12.8% annually. However, petroleum products are unavailable to most Nigerians and are quite costly, because almost all of the oil extracted by the multinational oil companies is refined overseas, while only a limited quantity is supplied to Nigerians themselves. (Wikipedia, Petroleum Industry in Nigeria)
- The Nigeria national electricity utility is already considering the importation of 5,000MW of electricity through Calabar from the INGA hydropower project in Congo, beginning in 2015 via the western corridor. However, negotiations are required, as Nigeria's need is considerably greater than that provided by this project.
- Despite significant coal deposits in the country, consumption is insignificant.

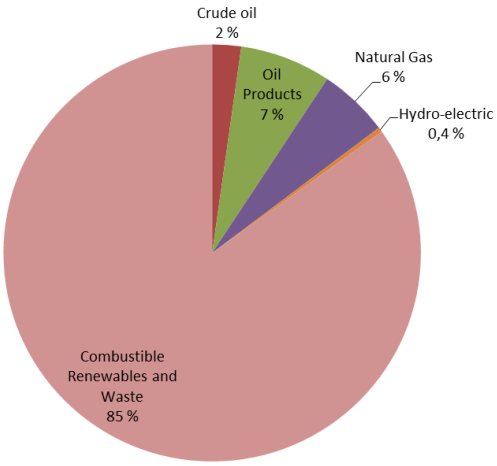
Electricity availability

- In 2009, approximately 50.6% of the population had access to electricity. About 10% of the rural population have access to electricity services. 82 % of urban population had access to electricity in 2006.
- Primary transmission of electricity is facilitated by 330 kV and 122 kV lines, with 33 kV and 11 kV distribution feeders supplying major population centres.

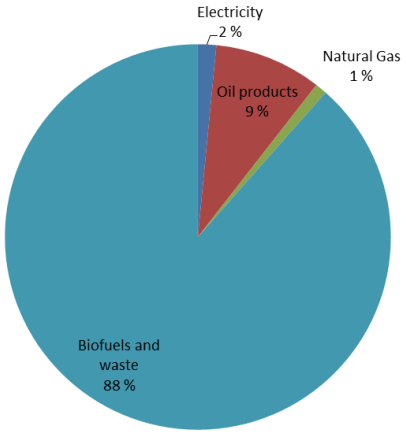
Electricity capacity

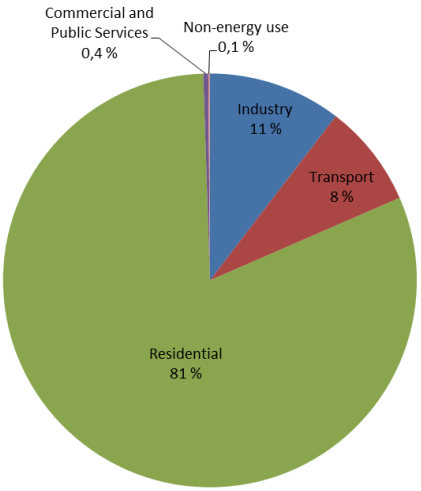
- The annual electricity demand growth is projected to be 7% - 13% depending on economic growth scenarios.
- There is an 80% demand/supply gap in Nigeria. Most businesses self-generate their power. Additionally, the transmission network is overloaded, with a poor voltage profile in most parts of the network. There are frequent system collapses and exceedingly high transmission losses, often in the region of 30-35%.
- Available power production capacity represents about half of the installed capacity.
- Government plans to boost power production through new gas plants and the further promotion of Independent Power Producers (IPPs). IPPs currently account for approximately 20% of installed capacity, with a further 4,755 MW of National Integrated Power Projects (NIPP), funded by the Government and commissioned on Operation and Maintenance contracts prior to full privatisation, are planned (Reegle Country Profile), (MBendi)

Nigeria, primary energy supply 1259,0 TWh

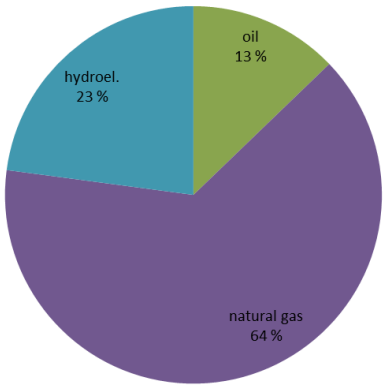


Nigeria, final energy consumption 1175,9 TWh

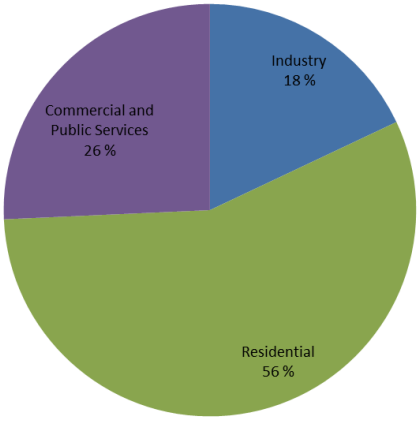




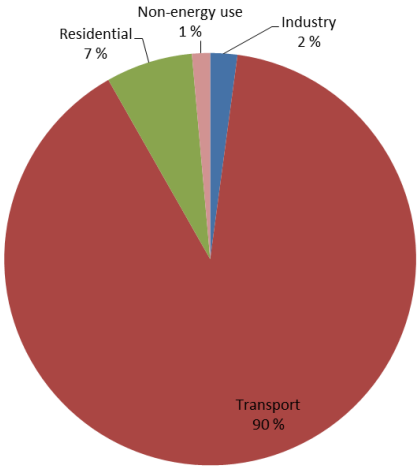
Nigeria, final consumption 1175,9 TWh



Nigeria, Electricity production 19 777 GWh



Nigeria, Sectoral electricity consumption 18,0 TWh



Nigeria, Sectoral oil product consumption 105,8 TWh

Source: IEA Country Energy Balance, 2009

2.2 ENERGY POLICY

Energy policy publications	The National Energy Policy (2003)
Organizations responsible for energy policies	The Energy Commission of Nigeria
Targets to increase use of renewable energy	18% of electricity from renewables by 2025 20% of electricity from renewables by 2030
Subsidies/ Incentives for Renewable Energy	Feed-in tariffs for solar energy, wind power and small-hydro

The National Energy Policy (NEP)

- Approved by the government in 2003 with the overall theme of optimal utilization of the nation's energy resources; both conventional and renewable, for sustainable development, and with the active participation of the private sector. The policy articulated, amongst other things, that:
  - Extensive crude oil and natural gas exploration and development shall be pursued with the view to increasing their reserves base to the highest level possible
  - The nation shall continue to engage extensively in the development of electric power with the view to making reliable electricity available to 75% of the population by 2020; as well as to broaden the energy options for generating electricity.
- The Policy also specifies a number of plans with regard to renewable resources, including the full harnessing of the nation's large- and small-hydro potential, the pursuit of enhanced solar energy integration into the national energy mix, the promotion of efficient biomass conversion technologies, and the commercialisation of the nation's wind resource.

  (Reegle Country Profile)

Renewable Energy Policy Guidelines (link)

- The Policy Guidelines on Renewable Electricity (herein referred to as the Policy Guidelines) is the Federal Government of Nigeria's overarching policy on all electricity derived from renewable energy sources. The Policy Guidelines sets out the Federal Government's vision, policies and objectives for promoting renewable energy in the power sector.
- The Policy Guidelines is drawn primarily from the Constitution of the Federal Republic of Nigeria (1999), the National Energy Policy (2003), the National Electric Power Policy (2001), Electric Power Sector Reform Act (2005), the Renewable Energy Master Plan (2005), the draft Rural Electrification Policy and the National Economic Empowerment and Development Strategy (NEEDS).

The Renewable Energy Master Plan for Nigeria (REMP) (link)

- With support from the UNDP, articulates: Nigeria's vision for achieving sustainable development, A road map for renewable energy to help achieve this vision;
- The Plan also envisions:
  - Gradually moving from a fossil economy to one driven by an increasing share of renewable energy

  - Exploiting renewable energy in quantities and at prices that will promote the achievement of equitable and sustainable growth
  - An energy transition from crude oil to a less carbon intensive economy increasingly powered by gas and RE.
- With the reform of the Oil and Gas Framework in 2007, and the establishment of the Oil and Gas Implementation Committee, a Biofuel Policy Framework was also endorsed. Under the framework, the NNPC is responsible for the development of a domestic ethanol industry, and a Biofuels Energy Commission has been established for the implementation of the provisions of the framework.
- Targets for a number of renewable energy technologies, specifically:
  - Small-hydro: 600 MW in 2015 and 2, 000 MW by 2025
  - Solar PV: 500 MW by 2025
  - Biomass-based power plants: 50 MW in 2015 and 400 MW by 2025
  - Wind: 40 MW for wind energy by 2025
  - Electrification is also targeted under the plan, with improvements from the 2005 level of 42% to 60% by 2015, and 75% by 2025.

National Energy Development Project (link)

- Funded by the World Bank and active from 2005 to 2010, this project supported the government's energy sector reform effort and facilitated the sector's smooth transition to the new market and institutional structure.

Electricity and Gas Improvement Project (link)

- Funded by the World Bank from 2009 to 2014, the development objectives of the Electricity and Gas Improvement Project for Nigeria are to: (i) improve the availability and reliability of gas supply to increase power generation in existing public sector power plants; and (ii) improve the power network's capacity and efficiency to transmit and distribute quality electricity to the consumers.

Subsidies/ Incentives for Renewable Energy

- The Plan institutes a number of fiscal and market incentives for the increased use of renewable energy technologies. In the short term, the plan includes a moratorium on import duties for renewable energy technologies, and in the long term, the plan advises the design of further tax credits, capital incentives and preferential loan opportunities for renewable energy projects.
- **The Nigerian Electricity Regulatory Commission** (NERC) is currently working on appropriate feed-in tariffs and other regulatory incentives for prospective investors, to promote renewable energy generation in the country. Besides this, the commission is also establishing a legal and regulatory framework for embedded electricity generation, as well as Independent Electricity Distribution Networks to encourage the establishment of off-grid generation/distribution plants in the country, to improve the population's access to electricity.

- Feed-in Tariffs for solar energy, wind power and small-hydro have been developed by the Renewable Energy Research and Development (RRD) division of the NERC. Consultations with shareholders on major reviews to the tariff methodology, including the institution of the FIT, took place in March 2011, and the reviewed tariff methodology came into effect in July the same year. (Norton Rose, Scaling-up Renewable Energy in Africa)

National Power Policy Document

- Renewable energies are also promoted in the 2001 National Power Policy Document, which states that rural electrification programs are to take into full account the role that renewable energy sources could play. (Reegle Country Profile)

Other

- Nigeria is a member of the Economic Community of West African States (ECOWAS), one of the regional economic communities responsible for realising the objectives of the African Union. The West African Power Pool (WAPP), under the auspices of the ECOWAS, aims to expand trade in electricity between the 15 member countries (energy being one of the primary constraints on sub-regional supply), by coordinating the investment projects submitted to donors.
- The Community Research and Development Centre have produced a guide entitled "Energy Efficiency Survey in Nigeria: A Guide for Developing Policy and Legislation". (Energy Efficiency Survey in Nigeria) (Reegle Country Profile)

2.3 RENEWABLE & FOSSIL ENERGY RESOURCES

Significant renewable energy resources	Wide renewable energy resources
Proven oil reserves	37 200 mil BBL (est. 2011)

Source: OPEC

Solar energy

- Nigeria has great potential to exploit solar energy. Average solar insolation stands at roughly 5.25 kWh/ m2/day. Resources in the North of the country provide a more viable potential for photovoltaic use, with insolations of up to 7 kWh/ m2/day. Solar photovoltaic technologies are used for small-scale power supply in some rural electrification programs for some States of the federation. It is estimated that approximately 500 PV installations are in use in the country, with capacities ranging from 7.2 - 35 kWp. Most are government-owned while the rest are installed by private companies, NGOs and individuals.

Wind energy

- Wind speeds in Nigeria are generally weak in the South, except for the coastal regions and offshore locations. In the Northern areas wind speed range from 5-7 meter at the height of 100 meter. A pilot project with a capacity of 10 MW in Katsina state was commenced by the government in 2007, and was recently finished. A 30 MW plant constructed by the Manufacturer's Association of Nigeria is under construction.

Biomass energy

- Nigeria has high biomass production potential especially in the Southern areas of the country. The Nigerian government intends to develop bioethanol production based on sugar-cane and cassava plantation. The projects are to be implemented in the Jigawa State. The Energy Commission of Nigeria (ECN) - National Centre for Energy Research and Development (NCERD), Nsukka and the Sokoto Energy Research Centre (SERC) - are among the local institutions that have constructed bio-digesters in Nigeria. Presently, about 43.4 billion kg of fuel wood with an average daily consumption ranging from 0.5-1.0 kg of dry fuel wood per person is being consumed in the country annually. Wood wastes also hold a moderate potential in the country, with 1.8 million tonnes of sawdust produced annually.

Geothermal energy

- Preliminary studies on geothermal potential performed in the 1980 confirming potential. No further study has been done. Two major geothermal sites have been identified with the potential for power generation; the Ikogosi Warm Spring in Ondo state, and the Wikki Warm Spring in Bauchi state. Other sites outside of these have been identified in the greater Lagos sub-basin.

Hydropower

- The hydropower potential of Nigeria is very high, and it currently accounts for about 22% of the total electrical power supply. The gross exploitable hydro potential in Nigeria is put at approximately 14,750 MW; however, only approximately 1,900 MW is being exploited in the Jebba, Shiroro and Kainji plants in the country. Approximately 734 MW of SHP can be harnessed from 277 sites (based on a 1980 survey of 12 of the old states in the federation). An Inter-Ministerial committee on available energy resources, however, recently put the small hydro potential of Nigeria closer to 3,500 MW; representing 23% of the country total hydro potential, if further surveys are conducted.
  (Renewable Energies in Africa (link), Reegle Country Profile)

2.4 SUPPLY & DEMAND FOR ENERGY SOLUTIONS

Households

- Heat for cooking and warm water
- Power for lighting, communication and electronics

Commercial and public services - including healthcare, education, administration, business

- Power, heat and cooling

Infrastructure - including water supply, sanitation, communication, waste management

- Power, heat and fuels

Traffic and transportation

- Fuels and power for vehicles

Agriculture

- fuels for vehicles
- Fertilizer
- Power and heat for processing crop

Industry

- Heat, cooling and power

Tourism - including resorts, lodges etc.

- Heat, cooling, electricity, warm water

The development of renewable energy technologies in Nigeria has been slow. However, with the wide range of measures proposed in the Renewable Energy Master Plan for Nigeria (REMP), it is hoped that the sector will continue to grow in the country. The finalisation and implementation of a legislative framework for the energy sector, with consideration for the use of renewable energy technologies and their dissemination, would further enable the development of the renewable energy resources of Nigeria. The Nigerian Electricity Regulatory Commission is actively seeking to promote renewable energy development through the introduction of more comprehensive licensing arrangements for private-sector operators, ensuring that the feed-in tariffs (FIT) is appropriately-set as a renewable energy incentive mechanism, and clarifying market rules for renewable energy and energy efficiency services and products.

Competition

- The electricity sector has been liberalised, leading to private sector participation in the generation sector, and a number of operational independent power producers (IPP) in the country today. The reform has so far led to the incorporation and unbundling of the national state-owned utility, now known as the Power Holding Company of Nigeria (PHCN). The unbundling has led to the establishment of 18 successor companies from National Electric Power Authority. Each of the 18 companies has its own management, which is self-accounting and not dependent on government funding. The Bureau for Public Enterprise (BPE) is now preparing each of these companies for privatisation.
- IPPs currently account for approximately 20% of installed power production capacity
- The Nigerian National Petroleum Corporation (NNPC), which in 1988 was divided into 12 subsidiaries, manages the state-owned oil industry, and is responsible, through its subsidiaries, for all operations in the sector. The Nigeria Liquefied Natural Gas company, and its subsidiary company Bonny Gas Transport Ltd, are responsible for all operations within the natural gas sector of the country.
  (Reegle Country Profile)

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ENVIRONMENTAL GOVERNANCE

3.1 Description of Environmental Governance

3.2 Environmental & Social Requirements for Projects

3.1 DESCRIPTION OF ENVIRONMENTAL GOVERNANCE

The Federal Ministry of Environment has the overall responsibility for the environment in Nigeria. The Ministry of Environment was established in 1999 by merging the Federal Environmental Protection Agency and other relevant government agencies. However, the Ministry had little power to enforce environmental laws, regulations and standards. Environmental governance has been strengthened by establishing the *General National Environmental Standard and Regulations Enforcement Agency (NESREA) in 2007.*

NESREA is responsible for enforcing all national environmental laws, policies and regulations, and also for enforcing compliance with international conventions. NESREA has 12 state offices and 4 zonal offices. In addition, states and local government councils have been encouraged to set up their own environmental protection agencies. The Federal Ministry of Environment has also a Special Climate Change Unit. The sustainable use of natural resources and environmental protection has been recognised as priorities in country's economic growth and modernisation plans.

According to the Nigerian Minister of Environment, Hajia Hadiza Maila-fiya, there are numerous environmental challenges in Nigeria. Major challenges include water pollution, indoor and outdoor pollution, industrial pollution, biodiversity loss, flooding, land degradation, desertification, climate change and ozone depletion. One of the main reasons for serious problems is the failure to adhere to established regulations. (Special Climate Change Unit News, August 21st 2011).

The African Development Bank's 2011 Country Policy and Institutional Assessment shows that Nigeria has undertaken important reforms particularly in public financial management to improve efficiency in resource allocation and project and programme implementation. Corruption, however, is widespread. (African Development Bank 2012, 2).

3.2 ENVIRONMENTAL & SOCIAL REQUIREMENTS FOR PROJECTS

Separate Environmental Impact Assessment (EIA) legislation, the EIA Decree 86 of 1992, made EIA mandatory for development projects likely to have adverse impact on the environment. Also sectorial EIA procedures have been published together with EIA procedural guidelines in 1995.

An EIA is required, for example, to following activities:

Agriculture

- Land development schemes covering an area of 500 hectares or more to bring forest and into agricultural production.
- Agricultural programmes necessitating the resettlement of 100 families or more.
- Development of agricultural estates covering an area of 500 hectares or more involving changer in type of agricultural use.

Power Generation and Transmission

- Construction of steam generated power stations burning fossil fuels and having a capacity of more than 10 megawatts.
- Dams and hydroelectric power schemes with either or both of the following.
    - Dams over 15 metres high and ancillary structures covering a total area in excess of 40 hectares;
    - Reservoirs with a surface area in excess of 400 hectares;
- Construction of combined cycle power stations.
- Construction of nuclear-fueled power stations.

Waste Treatment and Disposal

- Municipal Solid Waste
    - Construction of incineration plant.
    - Construction of composing plant.
    - Construction of recovery/recycling plant.
    - Construction of municipal solid waste landfill facility.
- Municipal Sewage
    - Construction of waste water treatment plant.
    - Construction of marine outfall.

According to different commentators, EIA implementation is weak due to low sensitization and awareness on the EIA procedure. Because of this, communities and the public do not demand EIAs and their implementation. (See, for example: Bellonwu 2011). According to another commentator: “The EIA practice in Nigeria (in its present form) is a showcase for corruption and infraction of the EIA Act. Also, the public access to information through the public registry is yet to be honoured in compliance since the commencement of the EIA Act in 1992.” (Yusuf 2008). EIA violations seem to be especially evident in the oil industry sector.

No information was found about possible national requirements for separate social impact assessments for projects. Social impact assessments seem to be done for larger international projects. Social assessments are always required for projects funded by, for example, the World Bank or the African Development Bank.

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ORANIZATIONS, SOURCES, REFERENCES

4.1 Organizations & Funding Possibilities

4.2 Sources of Information, References & Links

4.1 ORGANIZATIONS & FUNDING POSSIBILITIES

ENERGY

The Energy Commission of Nigeria (link)

- Established by Act No. 62 of 1979, as amended by Act No. 32 of 1988 and Act No. 19 of 1989, with the statutory mandate for the strategic planning and co-ordination of national energy policies and all its ramifications. By the Mandate, the ECN is empowered to carry out overall energy sector planning and policy implementation, promote the diversification of energy resources, including the introduction of new and alternative energy resources, for example solar, wind, biomass and nuclear energy.
- Has implemented several solar energy projects and a couple of wind power projects.

Federal Ministry of Energy

- Came into existence in 2007 as a result of the merger of the power sector, the Petroleum Ministry and other relevant parastatals. The newly created Ministry of Energy streamlines the activities of the sector, and eliminates the problem of unnecessary overlap and varying standards in the handling of matters relating to the sector. It also has a role to ensure that the activities of all energy related agencies are co-ordinated.

The Rural Electrification Agency

- Established as a government organisation following the disbanding of the agency in 2009, following discovery of widespread fraud. The Agency is responsible for the government-led rural electrification program, which has recently been viewed as unnecessary by many, including the Electricity Regulatory Commission, due to the actions of the 11 private distribution companies in electrifying rural areas.

The Ministry of Petroleum Resources (link)

- Under the Ministry of Energy is responsible for all legislative and policy decisions for the oil and gas sector.

The Department of Petroleum Resources (DPR) (link)

- The oil industry is regulated by the Department of Petroleum Resources, a department within the Ministry of Petroleum Resources.

The Nigerian Electricity Regulatory Commission (NERC) (link)

- Responsible for regulating the electricity sector. The legislative framework, though delayed, is being finalised.

Five Energy Research Centres under the Energy Commission of Nigeria

- **The National Centre for Energy Research and Development (NCERD)** at the University of Nigeria, Nsukka (responsible for research in solar and renewable energy)

- **The Sokoto Energy Research Centre (SERC)** at Usmanu Danfodiyo University, Sokoto (also responsible for research in solar and renewable energy)
- **The National Centre for Energy Efficiency and Conservation (NCEEC)** at the University of Lagos (responsible for research in energy efficiency and conservation)
- **The National Centre for Hydropower Research and Development (NCHRD)** at the University of Ilorin (responsible for research in hydropower)
- **The National Centre for Petroleum Research and Development (NCPRD)** at the Abubakar Tafawa Balewa University (responsible for research in petroleum, oil and gas).

The Renewable Energy Division (RED)

- Under the NNPC was established in 2005, and is responsible, with the Biofuels Energy Commission, for the implementation of the automotive biofuel program.

The Nigerian National Petroleum Corporation (NNPC) (link)

- Manages the state-owned oil industry. The NNPC holds a 49% share in the Nigeria Liquefied Natural Gas (NLNG, http://www.nlng.com/) Company, with the remainder being held by subsidiaries of Shell, Total and Eni. The largest joint venture is operated by Shell Petroleum Development Company (SPDC). Additional foreign companies operating in joint ventures with the NNPC include ExxonMobil, Chevron, ConocoPhillips, Total, Agip and Addax Petroleum.

The World Bank (link)

- Has currently 28 active projects in Nigeria. Three of these are related directly to carbon offsetting and several others to environment or energy related issues. The World Bank has a country office in Abuja.

OTHER

The African Development Bank (AfDB) (link)

- Has eight on-going projects in Nigeria. Projects are mostly related to rural development, water and agriculture. AfDB field office is in Abuja.

Clean Development Mechanism (CDM) (link)

- Five projects have been approved in Nigeria. The projects are:
    - Efficient Fuel Wood Stoves; Municipal Solid Waste (MSW) Composting Project in Ikorodu, Lagos State
    - Recovery and marketing of gas that would otherwise be flared at the Asuokpu/Umutu Marginal Field
    - Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant
    - Pan Ocean Gas Utilization Project.

- All three gas utilisation projects aim at using gas produced by oil drilling as energy instead of flaming it. New projects of similar type are also starting. Nigeria has participated in **UNIDO** capacity building programmes for CDM.

The Special Climate Change Unit (link)

- Has as its partners **UNDP**, **JICA** (Japan International Cooperation Agency) and **CIDA** (Canadian International Development Agency. UNDP focuses in Nigeria on economic governance, private sector development, capacity for governance and sustainability and risk management. UNDP has an office in Abuja. **UNEP** works in Nigeria through its regional office for Africa.

The Nigerian Association of Chambers of Commerce, Industry, Mines and Agriculture (link)

- Is the umbrella organization for all the city, state and bilateral Chambers of Commerce within Nigeria. NACCIMA office is located in Lagos.

Climate Change Network Nigeria (link)

- Is a national coalition of over one hundred diverse civil society organizations from across Nigeria
- Working to promote a climate-friendly Nigeria through a multi-sector approach and partnership - public, private, civil society sectors.

The Finnish Embassy as well as **Finpro** office is located in Abuja. There are a few NGO projects funded by the Finnish Ministry for Foreign Affairs in Nigeria. Various national and international NGOs are active in Nigeria, but little information is available on the Internet.

Nigeria does not belong to countries involved in Nordic Development Fund or Energy and Environment Partnership activities.

4.2 SOURCES OF INFORMATION, REFERENCES & LINKS

Cultural issues about doing business in Nigeria : Case study for Thurmo Oy	Ogbonna Chidiebere	Keski-Pohjanmaan AMK		Business	Link
		BXO COMPANY INTL LTD	Advice on investing in Nigeria's renewable energy sector	Business	Link
		Rabobank	An international financial service provider with a wide range of products and services	Economy	Link
		The Nigerian Association of Chambers of Commerce, Industry, Mines and Agriculture		Economy	Link
		CIA	Central Intelligence Agency	General	Link
		Finpro	Maailmanlaajuisesti toimiva organisaatio, rakentaa suomalaisten yritysten kasvua ja menestystä kansainvälisillä markkinoilla.	General	Link
		World Bank		General	Link
		The Energy Commission of Nigeria		General	Link
		The Special Climate Change Unit	The Federal Ministry of Environment	General	Link
		Climate Change Network Nigeria	NGO Coalition	General	Link
Nigeria Country Report	Lauri Voionmaa	Finnish Embassy in Abuja, Nigeria	Nigeria country report from Finnish embassy	Government	Link
		Foreign & Commonwealth office	Britain's diplomatic service and represent the United Kingdom's government overseas	Government	Link
		US Embassy		Government	Link
		Finnish Embassy in Abuja, Nigeria	Report Nigeria	Government	Link
		Digital Logistics Capacity Assessment	The Logistics Capacity Assessment (LCA) has since 2008 incorporated information relevant to Logistics Cluster partners and is being shared as an interagency tool via the Logistics Cluster website.	Infrastructure	Link
International Tax		Deloitte	Taxation highlights in Nigeria 2012	Business	Link
		The Economic Community of West African Countries	ECOWAS is a regional group of 15 countries promoting economic integration in all fields of economic activity	Business	Link
Petroleum Industry in Nigeria			Petroleum Industry in Nigeria	Business	Link
Country Energy Information		Developing Renewables		Business	Link
Renewable Electricity Policy Guidelines		Federal Ministry of Power and Steel, Nigeria		Government	Link
The Place of Renewable Energy in the Nigerian Energy Sector	Abubakar S. Sambo	Energy Commission of Nigeria		Government	Link
National Energy Development Project		World Bank		Government	Link
Electricity and Gas Improvement Project		World Bank		Government	Link
Scaling-up Renewable Energy in Africa		Norton Rose		Government	Link

Energy Efficiency Survey in Nigeria		Community Research and Development Centre		Government	Link
		The Energy Commission of Nigeria		Government	Link
		Federal Ministry of Energy		Government	Link
		The Ministry of Petroleum Resources		Government	Link
		Nigerian Electricity Regulatory Commission		Government	Link
		Department of Petroleum Resources		Government	Link
		Nigerian National Petroleum Corporation		Business	Link
		Nigeria Liquefied Natural Gas		Business	Link
Special Climate Change Unit		Federal Ministry of Environment, Nigeria		Environmental Governance	Link
Federal Republic of Nigeria: Extension to 2011 of the 2005-2009 Country Strategy Paper		African Development Bank		Environmental Governance	
Government Agencies, Communities Tasked on Environmental Impact Assessment Act Implementation in Nigeria	Vivian Bellonwu	Social Development Integrated Centre		Environmental Governance	Link
Environmental Impact Assessment Decree		The Federal Military Government		Environmental Governance	Link
Why Environmental Problems Persist in Nigeria		Ministry of Environment		Environmental Governance	Link
The Environmental Impact Assessment Practice in Nigeria: The Journey So Far	Tayo Akeem Yusuf			Environmental Governance	Link
Doing Business		World Bank		Business	Link
Economic Outlook		AfDB, UN, OECD		Economy	Link
Country Risk Classification		Finnvera		Economy	Link
Corruption Perceptions Index		Transparency International		Society	Link
Country BTI Transformation Level		BTI Group	BTI analyzes and evaluates the quality of democracy, a market economy and political mgmt. in 128 developing and transition countries	Economy	Link
		National Environmental Standards and Regulations Enforcement Agency (NESREA)		Environmental Governance	Link
Renewable Energy Country Profiles		International Renewable Energy Agency (IRENA)		General	Link
Open Energy Info			Country profile, energy maps, tools, programs, organizations & institutions	General	Link
The Clean Technology Fund Investment Plan		Federal Government of Nigeria		Government	Link
Country Energy Profile & Information		Reegle	Clean energy info portal	General	Link
Renewable Energies in Africa		European Commission, Joint Research Centre		Government	Link
		Global Environment Facility	The GEF unites 182 countries in partnership with intl. institutions, civil society organizations, and the private sector to address global env. issues	Environmental Governance	Link

Clean Development Mechanism		United Nations Framework Convention on Climate Change		Environmental Governance	Link
		The Energy and Environment Partnership Africa	Project funding	Business	Link
		MBendi	Economy, Risks, Industry, Business, Energy and a lot of other information	Business	Link
		African Development Bank (AfDB)	Contains structured and analysed information on economic, political and social status	General	Link
		Directory of Development Organizations	Contains list of development organizations in the country	Society	Link
		United Nations Development Programme (UNDP)	Un-political information on country's status on environmental, social and financial situation	General	Link
		Communicaid	Communicaid is a culture and communication skills consultancy. They enable their clients to create profitable international relationships by building cultural bridges that enhance understanding and establish trust.	Society	Link
Oil and Gas Profile		A Barrel Full		Business	Link
		West African Power Pool (ECOWAPP)	The members of WAPP are working for establishing a reliable power grid for the region and a common market for electricity	Business	Link
Energy Systems: Vulnerability - Adaptation - Resilience (VAR) 2009	Obioh, Fagbenle	Helio		General	Link
		African Energy	Supplying solar, wind and power backup equipment on a wholesale basis	Business	Link
		Alternative Energy Africa	Information portal about alternative energy in Africa	Business	Link
		Inforse-Africa	International network for sustainable energy	Business	Link
		African Wind Energy Association		Business	Link
		Renewable Energy World	Conferences & Expo in Africa	Business	Link
		Renewable Energy Africa		Business	Link
		How We Made It in Africa	Insight into business in Africa	Business	Link
		Cleantech Knowledge Hub		Business	Link
		The World Council for Renewable Energy		Business	Link
		International Network for Sustainable Energy		Business	Link
		Herana Gateway	African higher education research	Education	Link
		African Rural Energy Enterprise Development	Community-based organization developing a strategy for improved access to energy	Government	Link
		African Center for Economic Transformation	An economic policy institute supporting the long-term growth with transformation of African economies	Government	Link
		Nordic Development Fund	Project funding	Business	Link
		Africa and Europe in Partnership		Government	Link
		The Foundation for the Development of Africa	Non-profit organization supporting sustainable development	Government	Link

		European Biomass Industry Association		Business	Link
		Global Network on Energy for Sustainable Development	GNESD is a knowledge network facilitated by UN Environmental Programme	Government	Link
		Global Village Energy Partnership	GVEP works with local businesses in developing countries to increase access to modern energy	Business	Link
		World Resources Institute	WRI works with governments, companies, and civil society to build solutions to urgent env. Changes	Government	Link
		The World Bank		Economy	Link