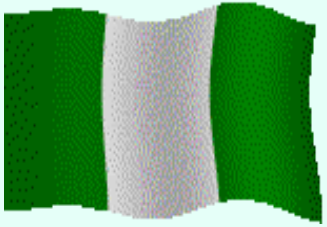
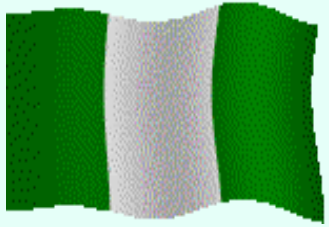
CLEAN FUELS ROADMAP FOR NIGERIA,
PRESENTED
AT
HOLIDAY INN HOTEL, ACCRA.
GHANA.
ON
1ST NOVEMBER, 2016.

OUTLINE



- Introduction
- Situation analysis
- Sulphur Levels in Nigeria Fuels
- Actions by Nigeria Towards Cleaner Fuels
- Way forward
- Conclusion



INTRODUCTION

- Successful phase-out of lead from fuels in Nigeria.

- Sulphur is the focus for now in fuels in the sub-region.

- Sub-regional workshop on Promotion of Low Sulphur Fuels in Nigeria and ECOWAS member countries held in Abuja, Nigeria on 15th -16th June, 2016.

INTRODUCTION

- Countries in ECOWAS Sub Region can similarly attain this feat
  - Morocco have implemented 10ppm sulphur fuels and
  - 7 other countries attained 50ppm sulphur fuels
- Nigeria should champion the promotion of low sulphur fuel in the region;
- Roles and responsibilities assigned to ECOWAS and Nationals

INTRODUCTION

- Intensify National Awareness Training/Sensitization Programmes through active participation by Policy makers as well as the Media and Public Interest Groups;

- Review, upgrade and domesticate common laws, regulations and standards across the region to promote low sulphur fuels (50ppm max) and reduce emissions;

- Import only low sulphur fuels (50ppm max) to the country;

- Upgrade refineries across the region with desulphurization technology and set achievable time frame of (3 to 4 years)

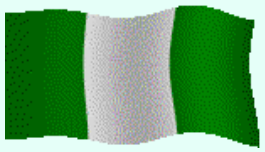
Situation analysis - Nigeria

- The four refineries in Nigeria were designed to produce enough petroleum products for the use of Nigerians and for export.

- Most of the products consumed in Nigeria are imported
    - The refineries not meeting current the local demand of petroleum products, as such.

- The products (PMS, AGO and DPK) produce by Nigerian refineries and the imported ones do not meet the ARA standard of 50ppm of sulphur content.

Nigerian Automotive Gas Oil (Diesel) Product Specification



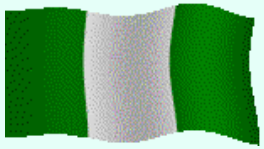
*Data from Mr R. I Suleiman,Tech. Asst. to the Group Exec. Director (Refining and Petrochemicals), NNPC.

parameter	Test Method IP ASTM	Limit	Actual from Nigerian Refineries
Specific Gravity 15/15 °C	160/D 1298	0.820min	0.871
Distillation: Recovered @ 357 °C % Vol. EBP °C	123/D 86	90 min. 385 max	>90 358
Colour (ASTM)	D 1500	3 max	1.5
Flash Point °C	34/D 93	65 min	100
Total Sulphur, % wt	x-ray	0.3 max	0.133
Copper Corrotion (3 hr @100 °C)	154/D 130	No 1 strip max	1A
Kinematic Viscosity @ 38 °C, Cst	71/d 455	1.6-5.5	5.1
Cloud Point, °C	219/D 2500	4.O max	+3
Carbon Residue, % wt	D 189	0.15 max	<0.01
Strong Acid Number (mg KOH/gm	139/D 974	Nil	Nil
Strong Acid Number (mg KOH/gm	139/D 974	0.5 max	0.02
Ash Content, % wt	D 482	0.01 max	<0.01
Water by distillation	74/D 95	0.05% vol. max	<0.05
Diesel Index	IP 21	47 min	50

Nigerian Automotive Gas Oil (Diesel) Product Specification

N	Characteristics	requirement	Actual from Nigerian Refineries
i	Appearance	Clear and Bright	
ii	Colour, ASTM (Max)	3.0	
iii	Specific Gravity 15/15 ^{0}C	0.820-0.870	0.871
iv	Acidity (inorganic acid)	Nil	
v	Total Acid Number mg KOH/g (max)	0.5	
vi	DISTILATION (a) Percentage recovery (b) at 357 ^{0}C v/v (b) final boiling point ^{0}C	 90 385	 >90 358
vii	Flash point ^{O}C (min)	66	100
viii	Kinematic Viscosity @ 37.8 ^{o}C, (cSt)	1.6-5.5	5.1
ix	Cloud Point, ^{O}C (max)	4.4	+3
x	Conradson Carbon residue on 10% residue,%wt (max)	0.15	<0.01
xi	Ash Content, % wt (max)	0.01	<0.01
xii	Copper strip corrosion (3hr at 100 ^{O}C)	Not worse than No 1	1A
Xiii	Sediment,%wt. (max)	0.01	
xiv	Total Sulphur, %wt (max)	0.3	0.133
xv	Water content, % vol (Mx)	0.05	<0.05
xvi	Diesel Index (min)	47	50

REQUIREMENTS FOR PREMIUM MOTOR SPIRIT (PETROL)

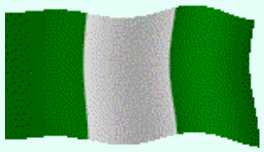


PROPERTY	LIMITS	TEST METHOD
Appearance	Clear and Bright	Visual
Colour	Ox blood red	Visual
Free Water	Nil	Visual
Suspended Matter	Nil	Visual
Specific Gravity at 15/15°C	0.72 - 0.76	ASTMD 1298
Distillate Evaporated at: 70 °C, % v/v (max) 125 °C, % v/v (max) 180 °C, % v/v (max)	 10 50 90	 IP 123/78 D86/77
End Boiling Point, °C (max)	205	
Residue, % v/v (max)	2	IP. 154/78 ASTM D 130
Copper Corrosion, 3h at 50 °C (max)	Class I b	
Sulphur Content , % wt (max)	0.10	IP. 107 ASTM D1266
Existent Gum (solvent-washed), mg/100Ml (max)	4	IP.131/77 ASTM D381/75
Oxidation Stability, °C (min)	360	IP40/79 D525/74
Reid Vapor Pressure, kPA (max)	62.0 (9psi)	ASTM.D.323
Lead Content (max)	5ppm	IP96 ASTM. D.3341/D526
Benzene, % (max)	2.0	
RON (min)	90	

Current actions towards cleaner fuels

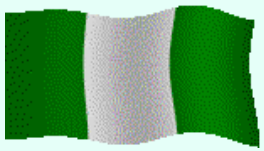
- Embark on awareness and sensitization of populace on the dangers of using fuel inefficient vehicles and dirty fuels.
- Review standards
- Banning the use and importation of 2-stroke engines.
- Use of 4-stroke engines as alternatives (fuel-efficient; less pollution; more durable).
- Ban on motor vehicles with no emission reduction technology.

Current actions towards cleaner fuels



- Establishment of emissions testing centres.
- Mass transit system;
- Promotion of use of fuel efficient and natural gas vehicles.
- Cleaner fuels;

Current actions towards cleaner fuels

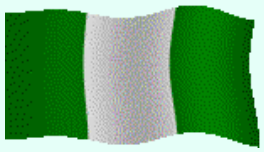


ne refineries are currently undergoing rehabilitation to improve their production capacities including addition of refining Units.

- NNPC working with ARA to effect AFRI specs in refineries; using current rehabilitation & co-location initiatives to drive compliance with standards by 2020.

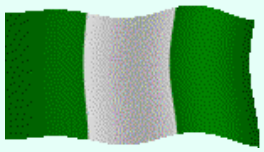
- NNPC facilities to be configured to strictly meet EURO 4 and AFRI 5 standards for petroleum products

Current actions towards cleaner fuels



- Equipping Refineries with De-sulphurization Technology to drastically reduce sulphur content in petroleum products
- Nigeria National Petroleum Corporation (NNPC) is collaborating with others stake holders like the Nigerian Environmental Society (NES) to engage some international organisations with cutting age technology to reduce sulphur level in petroleum products, and with Petroleum Products Pricing and Regulatory Agency (PPPRA) on low sulphur fuel imports.
- Other engagements are on-going with several companies to produce Bio-feuls in the country to guarantee low emissions.

Way Forward

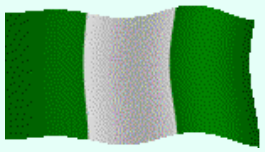


- Adopting a standard of 50ppm sulphur fuels for imported petroleum products and giving a three-year waiver for the refineries to upgrade to produce 50ppm sulphur fuels.

- Regional harmonization of fuels standards which will be binding on all member countries is required in order to realise this goal

- Promoting the use of vehicles that use more environmentally friendly fuels like CNG/LNG.

CONCLUSION



- It is important for all stake holders to appreciate the need to move to low sulphur fuels on account of the negative consequences of not doing so.
- The need for international co-operation, information exchange, appropriate technology sharing and transfer between countries to boost innovations and technology development in the sub-region.
- There is need for an integrated approach for low sulphur fuels, tying such to climate change issues.
- Adopting a system that will make each refinery a stand-alone profitable entity

Thank

YOU