AUTOGAS, IS NIGERIA READY?

A

PRESENTATION BY

MR. NUHU YAKUBU (MD/CEO Banner Energy Nig. Ltd.) for NLPGA

TALKING POINTS

Impact of Government Policy

- Prevailing policy on petroleum products pricing - partially regulated/deregulated downstream sector
  - Prevailing pricing in the partially regulated/deregulated downstream
  - Cost/Benefit comparative analysis for LPG vs AGO and PMS
- Desired policy on pricing of petroleum products – fully deregulated downstream sector
  - Likely pricing in a deregulated downstream
  - Cost/Benefit comparative analysis for LPG vs AGO and PMS

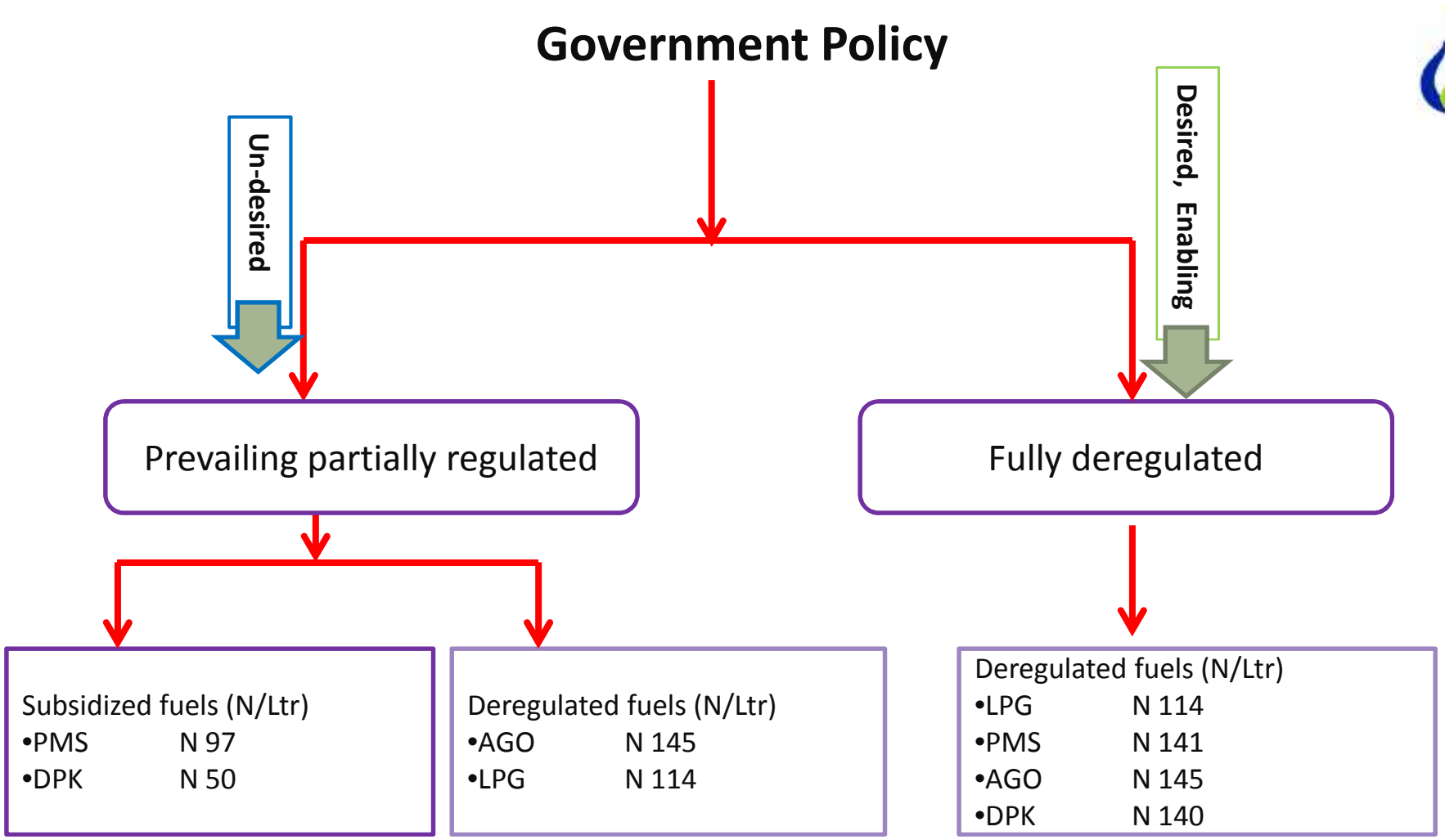
Trading Infrastructure

- LPG storage facilities in Nigeria
- Network of Auto-gas Retail Stations in Nigeria
- Expansion requirement for auto-gas trading infrastructure

Financing models for Autogas Trading Infrastructure Development

Regulatory Environment

Conclusion


Government Policy
Un-desired
Desired, Enabling
Prevailing partially regulated
Fully deregulated
Subsidized fuels (N/Ltr)
•PMS N 97
•DPK N 50
Deregulated fuels (N/Ltr)
•AGO N 145
•LPG N 114
Deregulated fuels (N/Ltr)
•LPG N 114
•PMS N 141
•AGO N 145
•DPK N 140

THEORETICAL COST - BENEFIT / COMPARATIVE ANALYSIS for LPG vs. AGO & PMS UNDER THE PREVAILING PARTIALLY REGULATED REGIME

Assumptions			Comments	
Engine capacity		37HP	4 cylinder engine car	
Power Output		25KVA	Perkins diesel engine / Kohler LPG engine	
Fuel Types		LPG, AGO, PMS		
Operating condition		100% load		
Description	LPG Consumption		Diesel Consumption	Petrol Consumption
	(Kg)	(Litres)	Litres	Litres
1 hour runtime	3.00	5.21	4.91	6.2
Unit price of fuel (Naira)	198.03	114.02	145.00	97.00
Fuel cost/ hour (Naira)	594.075	594.075	711.95	601.4
Naira saving on LPG relative to Diesel and Petrol			117.88	7.32
%Naira saving on LPG relative to Diesel and Petrol			16.56%	1.22%

Table 1

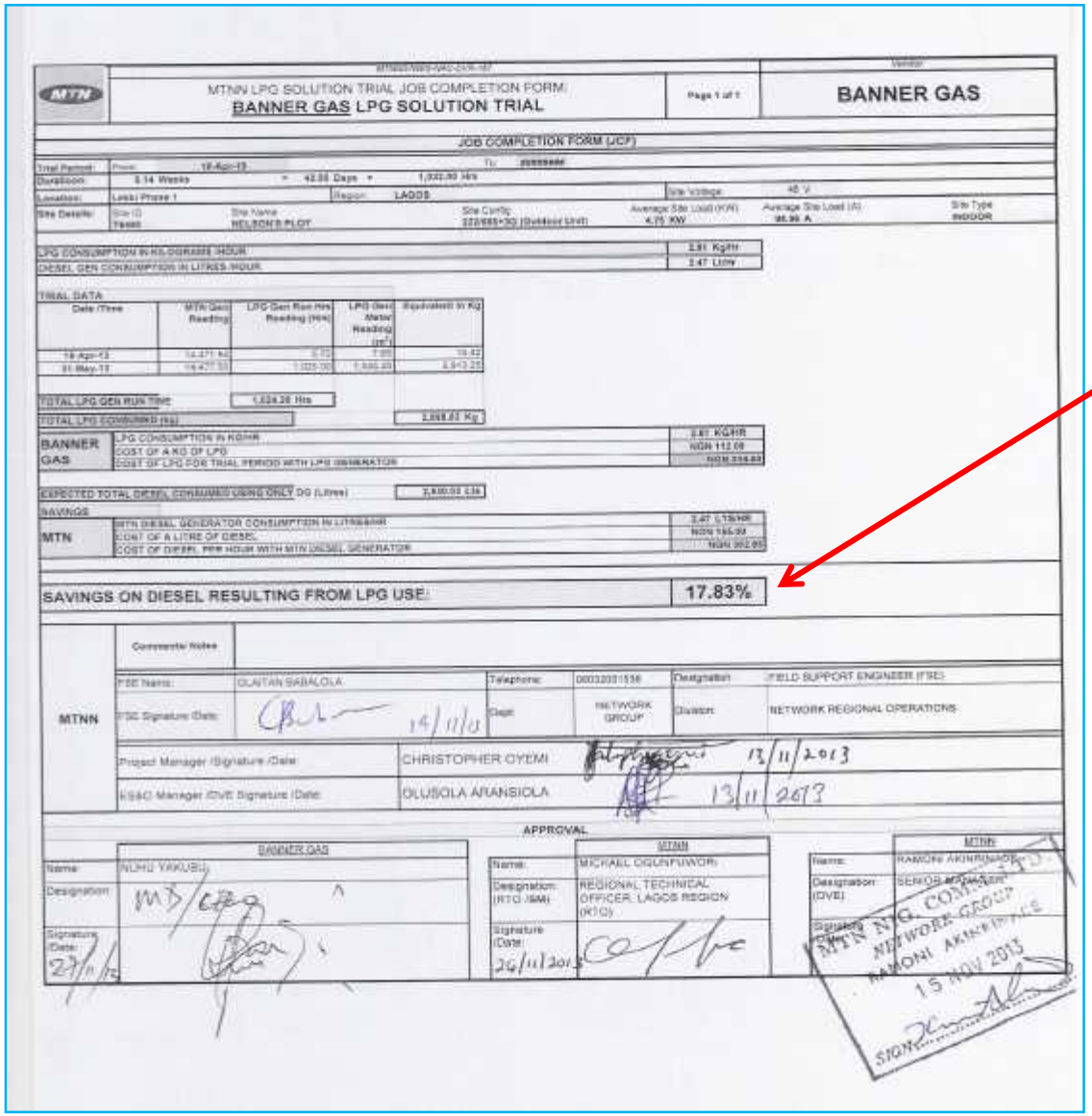
SUMMARY OF THEORETICAL COMPARATIVE ANALYSIS UNDER CURRENT GOVT. POLICY REGIME

From the above analysis it can be deduced that:

- Percentage cost saved with 25kva genset running on LPG instead of diesel is 16.56%.
- For every 1 hour runtime, a minimum of N117.32 is saved with a 25kva genset running on LPG instead of Diesel .
- Despite the subsidy on petrol, percentage savings for a 37HP car engine running on Autogas instead of petrol is 1.22%.
- For every 1 hour runtime, a minimum of N7.32 is saved with a 37HP car engine running on Autogas instead of Petrol .

NOTE: Even in a regime that supports subsidizing of PMS, the unsubsidised LPG still out performs PMS in terms of cost savings by 1.22%

SUMMARY OF PRACTICAL TEST RUN FOR COMPARATIVE ANALYSIS USING 25KVA LPG GENSET, FOR 1,000 HOURS RUN TIME (BANNERGAS/MTN)



MTNN LPG SOLUTION TRIAL JOB COMPLETION FORM
BANNER GAS LPG SOLUTION TRIAL

BANNER GAS

JOB COMPLETION FORM (JCF)

SAVINGS ON DIESEL RESULTING FROM LPG USE: 17.83%

MTNN

APPROVAL

BANNER GAS

MTNN

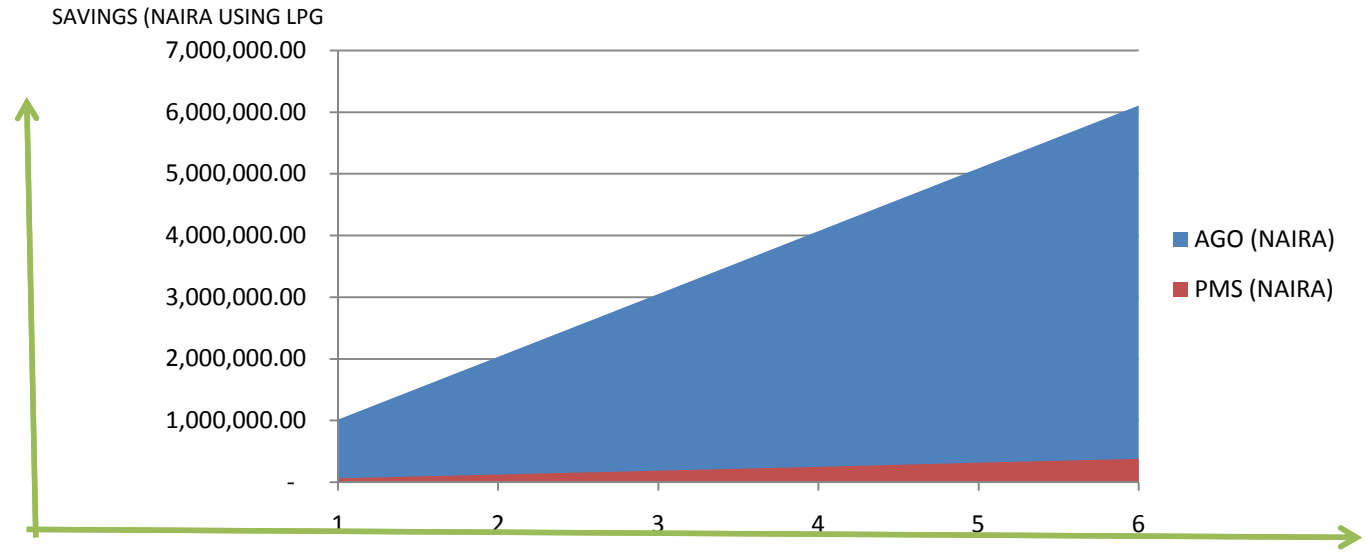
MTNN

Savings on Diesel resulting from LPG use = 17.83%

ANALYSIS OF CUMMULATIVE SAVINGS ON 25KVA /37HP LPG ENGINE OVER PMS AND AGO ENGINES (PREVAILING REGIME)

Period (years)	Periodic savings using LPG on 37Hp/25Kva engine (4 cylinder engine Toyota)	
	AGO (Naira)	PMS (Naira)
1	1,018,440.00	63,288
2	2,036,880.00	126,576.00
3	3,005,320.00	189,864.00
4	4,073,760.00	253,152.00
5	5,092,200.00	316,440.00
6	6,110,640.00	379,782.00

Table 2



Graph1

SUMMARY OF COMPARATIVE ANALYSIS UNDER CURRENT GOVT. POLICY REGIME

- A total of N 1,018,440.00 could be saved for a period of 1 year, when LPG is used instead of AGO to run a 37hp engine, and this amount increases to N 6,110,640.00 for a 6 year period.

- A total of N 63,288.00 is saved for a period of 1 year when LPG is used instead of PMS to run a 37hp engine, and this amount increases to N 379,728.00 for a 6 year period.

SUMMARY OF COMPARATIVE ANALYSIS ON COST BENEFITS AND SAVINGS ON 25Kva/37Hp Engine (LPG Vs AGO, PMS)

	% Saving/hr	Real saving/hr (NAIRA)	Yearly saving	Periodic saving (6 years) (Naira)
AGO	16.56	117.32	1,018,440.00	6,110,640.00
PMS	1.22	7.32	63,228.00	379,728.00

Table 3

COST - BENEFIT / COMPARATIVE ANALYSIS for LPG vs. AGO & PMS UNDER A FULLY DEREGULATED REGIME

Assumptions				
Same engine capacity		37Hp		
Power Output		25KVA		
Fuel Type		LPG,AGO,PMS		
Operating condition		100% load		
Description	LPG Consumption		Diesel Consumption	Petrol Consumption
	(Kg)	(Litres)	Litres	Litres
1 hour runtime	3.00	5.21	4.91	6.2
Unit price of fuel (Naira)	198.03	114.02	145.00	141.00
Fuel cost/ hour (Naira)	594.075	594.075	711.95	874.20
Naira saving on LPG relative to Diesel and Petrol			117.88	280.13
%Naira saving on LPG relative to Diesel and Petrol			16.56%	32.04%

Table 4

SUMMARY OF COMPARATIVE ANALYSIS UNDER FULLY DEREGULATED GOVT. POLICY REGIME

From the above analysis it can be deduced that:

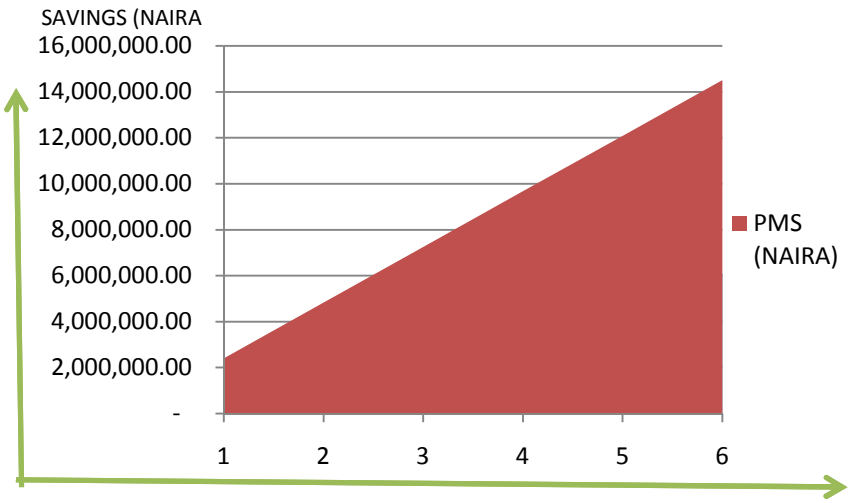
- Percentage cost saved with 25kva genset running on LPG instead of diesel remains 16.56%.
- For every 1 hour runtime, a minimum of N117.32 is saved with a 25kva genset running on LPG instead of Diesel .
- Without subsidy on petrol, percentage savings for a 37HP car engine running on Autogas instead of petrol revs up is 32.04% .
- For every 1 hour runtime, a minimum of N280.13 is saved with a 37HP car engine running on Autogas instead of Petrol .

NOTE: In a deregulated regime the minimum amount saved against PMS increases dramatically !!!

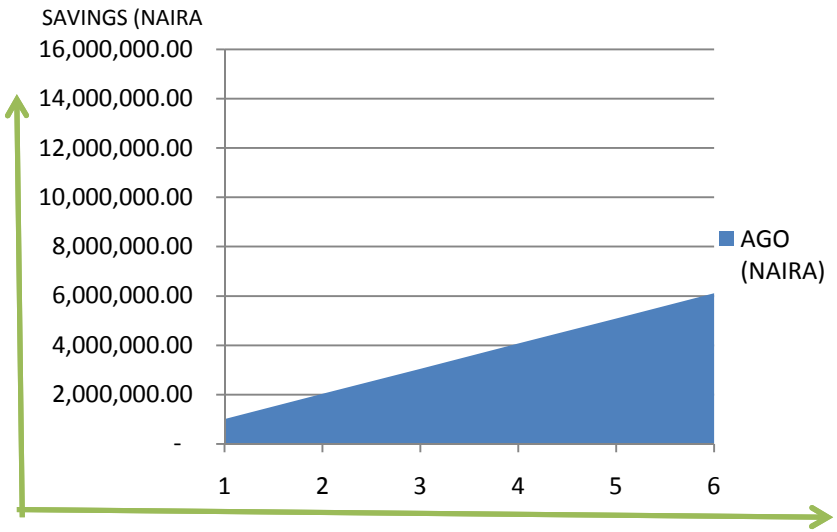
ANALYSIS OF CUMMULATIVE SAVINGS ON 25KVA/37HP LPG ENGINE OVER PMS AND AGO ENGINES (DEREGULATED REGIME)

Period (years)	Periodic savings using LPG on 37Hp/25Kva engine	
	AGO (Naira)	PMS (Naira)
1	1,108,440.00	2,420,280.00
2	2,036,880.00	4,840,560.00
3	3,005,320.00	7,260,840.00
4	4,073,760.00	9,681,120.00
5	5,092,200.00	12,101,400.00
6	6,110,640.00	14,521,680.00

Table 5



Graph 2



Graph 3

SUMMARY OF COMPARATIVE ANALYSIS ON COST BENEFITS AND SAVINGS 25Kva/37Hp (LPG Vs AGO, PMS)

	% saving/hr	Real saving/hr (Naira)	Yearly saving (Naira)	Periodic Saving (6 years) (Naira)
AGO	16.56	117.32	1,018,440.00	6,110,640.00
PMS	32.04	280.13	2,420,280.00	14,521,680.00

Table 6

SHORT – MEDIUM TERM PROJECTIONS IN A DEREGULATED REGIME (3 – 5yea

- Available statistics of cars plying Nigerian roads is estimated at 9 million

- Daily consumption of PMS is estimated at 40.3 Million (courtesy PPPRA)
- From our previous analysis, a 37HP car will consume approximately 6Ltrs of PMS, per 1 hour runtime
- 1 hour runtime of equivalent LPG car engine = 3kg
- If in 3 – 5 years after full deregulation, 20% of 9 million cars were to run on Autogas, that will me 1.8 million cars
- Therefore projected daily use of LPG, at an average of 1 hour run time = (1.8 million cars) x 3kg = 5,400 MT

Monthly consumption = 5,400 x 30 = 162,000 MT

Yearly Consumption = 162,000 x 12 = 1,944,000 MT

NOTE:

THIS IS A VERY CONSERVATIVE ESTIMATE, CONSIDERING THE VERY MODEST ASSUMPTIONS

LPG TRADING INFRASTRUCTURE IN NIGERIA

LPG BULK STORAGE FACILITIES IN NIGERIA (courtesy, PPPRA)

Depots	Storage capacity central	Cubic meters	Location
	(Tons)	(M3)	
PPMC, Apapa Oil Jetty	4000	8000	Apapa
NNPC/PPMC Butanization plants	8000	16,000	Calabar, Ibadan, Ilorin, kano, Enugu, Gombe, Gusau, Markurdi
Sahara	1000	2000	Calabar
NIPCO Plc, Apapa Oil Jetty	4500	9000	Apapa
Conoil Lagos	500	1000	Apapa
AP, Lagos	500	1000	Apapa
Total	1000	2000	Apapa
NAVGAS	8000	16000	Lagos
TOTAL	**27,500**	**55,000m3**	

LPG STORAGE FACILITIES

LPG BULK STORAGE FACILITIES IN NIGERIA (courtesy, PPPRA)

MEETING THE MARKET DEMAND

- Total storage capacity of existing LPG depot facilities = 27,500 tons

- However, active LPG depot facilities are;

a.	PPMC	4000 tons
b.	NIPCO	4500 tons
c.	NAVGAS	8000 tons
d.	Others	1000 tons
	Total:	**17,500 tons**

To cope with the projected rise in demand for Autogas in the advent of full deregulation, the sector MUST NOW begin to work towards substantially increasing its in-country bulk storage/depot capacity.

- For a conservative 20% switch from PMS to Autogas in 3 to 5 years, Autogas traded per month should conservatively hover around 5,400mt/day; 162,000mt/month and 1.944mil tons per year. A huge leap from the current total of 160,000mt/annum traded in Nigeria.

- **Assuming the PPMC Butanization plants are revived, total depot storage must expand from its current 27,500mt to at least 162,000mt, to achieve a 30days strategic endurance for storage.**

AUTOGAS RETAIL STATIONS IN NIGERIA

MEETING THE MARKET DEMAND

Company	No. of Autogas plants
BannerGas	31
Nipco	4
Others	??

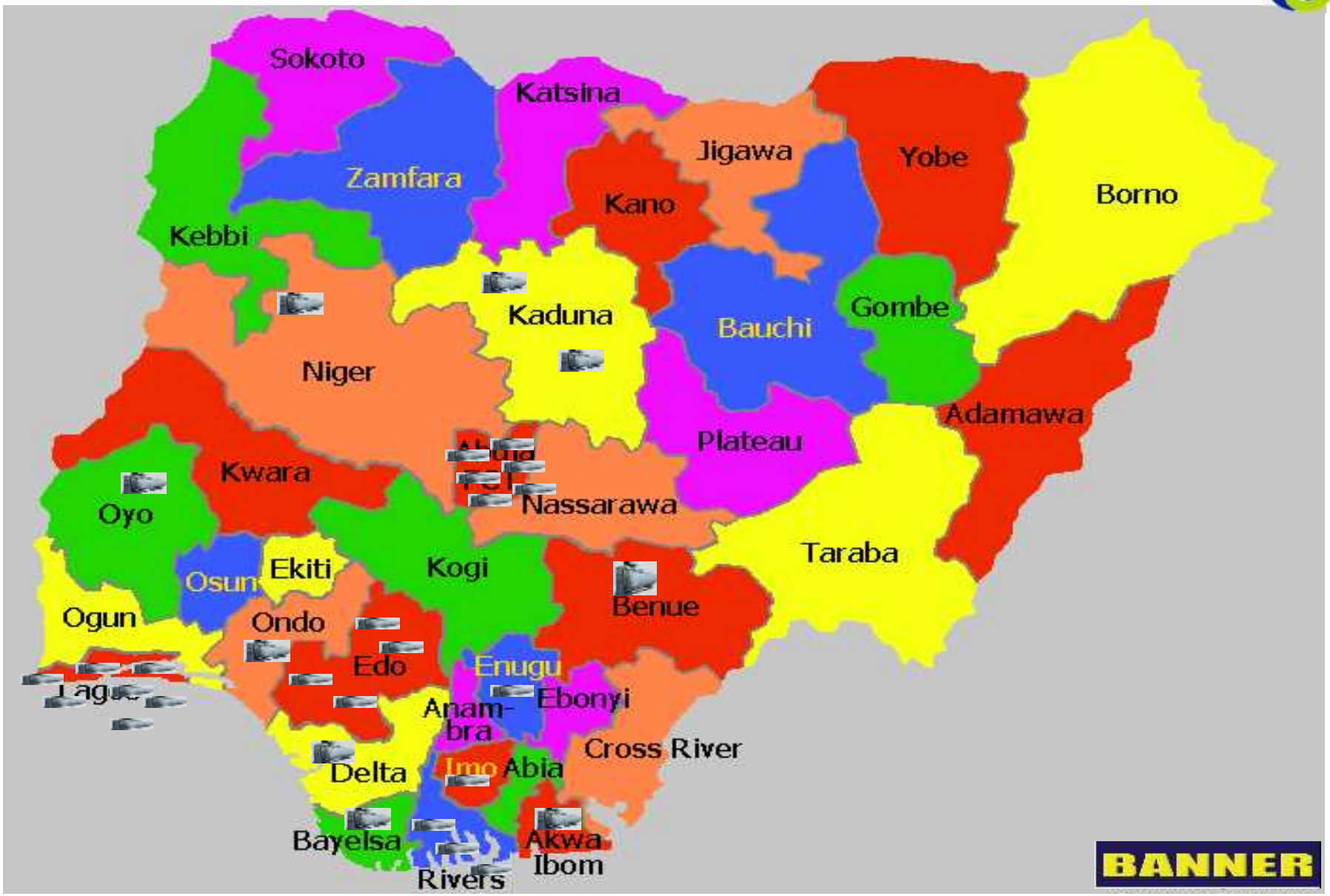
PROJECTED NUMBER OF AUTOGAS FILLING STATIONS

Applying lame man approach, projected number of Autogas Retail Stations can be derived as follows:

daily demand of 5,400mt / 10mt capacity Autogas filling plants = 540 Autogas filling plants.

SOME BANNERGAS AUTOGAS DISPENSING PLANTS ACROSS THE COUNTRY

FOOTPRINT OF BANNERGAS NETWORK OF AUTOGAS FILLING PLANTS



CONCLUSION

In this yet another gathering of LPG industry players, including operators, regulators and policy makers, I am sure most of us already know that autogas is the way to go, for all the sound reasons.

Yes, Nigeria has for long been ready for Autogas; except for government policies which have continued to slow down the full emergence of this potentially huge industry. Yet in spite of the depressing effect of government policies, especially the subsidies on competing fuels, this presentation makes it clear that LPG can still compete reasonably well.

Development of autogas trading infrastructure must however begin to gain much more of our attention, and action. This is the only way we can easily harvest the much awaited opportunity when it does come around.

THANK YOU.