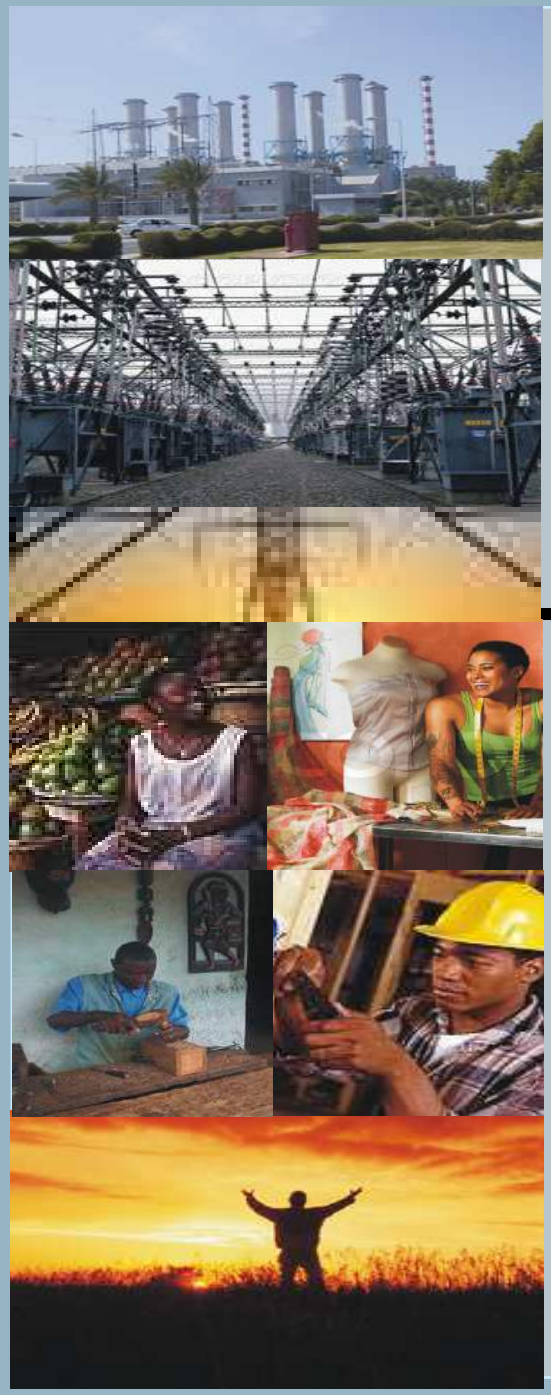


GEOMETRIC POWER LIMITED

CASE STUDY: ABUJA EPP & ABA IPP MODEL

NOVEMBER 2007

Mission

Geometric Power Limited is Nigeria's pioneer indigenous, private Power company with a mission to:

- Build world-class independently developed and operated power stations and utilities
- Combine the best technical manpower with high quality management
- Deliver stable reliable power at optimum cost
- Promote industrialization and drive positive economic growth in Nigeria and Sub-Saharan Africa.

Project summary: Abuja EPP

- Conceived as “fill gap” measure during the construction of the Shiroro-Abuja high tension line.
- PPA to supply power to NEPA
- 22 MW guaranteeing 15 MW
- 22 x 1 MW diesel fuel engines
- Evacuation substation at power station
- 6 month Government Guarantee with one month pre-pay
- Supply localized to commercial area and select government establishments that can pay the premium to NEPA
- Fuel arranged by government
- Tariff arranged to recover cost plus a very small margin
- Learning workshop for GPL and trigger for the Aba IPP

Project summary: Aba IPP

- The GPL Aba IPP can be regarded as a practical model because it offers the sponsor the opportunity to control the revenue from sale of electricity
- No Government Guarantee
- Power To The People! No Cherry Picking of Customers
- Tariff will be significantly cheaper than cost of energy today (PHCN + Diesel fuel)
- Provision of acutely needed reliable Electricity supply to industrial clusters at Aba will boost productivity, prosperity and the economy
- If this model is replicated in other industrial centers of Nigeria, the positive effect could jump start the economy and encourage more foreign investors

Our Business: Aba IPP

- **Installed capacity of 140 MW comprising 3 gas fired open cycle turbines**
- **~ 100 km 33 KV and ~ 10km 11 KV distribution lines**
- **33 KV Power Station substation with nine outgoing 33 KV feeders for evacuation of power**

Aba IPP: Project overview

- **Location**: Osisioma- Ngwa, a rural area near Aba, an industrial area in the South Eastern part of Nigeria located near Port Harcourt.
- Diverse industries in Aba include tissue manufacturing, food processing, cosmetics, leather works and general manufacturing.
- Local supply of electricity by the government-owned power company (PHCN) is subject to daily interruptions, poor voltage and frequency control.
- All industries have “back-up” power plants and some have disconnected permanently from the public power lines and operate their multiple generating plants on 24/7 basis.
- Social Dimension. The project company will take-over the distribution of electricity in the City of Aba and restore dependable supply to its customers. The social component of the project, highly supported by government, is a key reason for the strong regulatory, political and international backing.
- Carbon Credit Model: Aba Model (AM0048) accepted as an international benchmark methodology for measuring emissions reduction credits in areas predominantly serviced with diesel generators. Agreement signed with the World Bank.

Aba IPP overview: why aba?

- One of Nigeria's major industrial clusters
- Diverse mix of customers (industrial, commercial, and residential)
- Proximity to fuel source (natural gas)
- Gap between demand & current supply
- Entrepreneurial spirit of the community
- High socio-economic impact of reliable power supply

Aba IPP: technical Overview

- **Power Station**
  - Installed capacity of 140 MW comprising 3 gas fired open cycle turbines with opportunity for expansion
  - Group 5 of S. Africa is the EPC Contractor to construct, install and commission power plant on turnkey basis
  - GE is the power plant equipment supplier and will provide LTSA
- **Distribution Lines**
  - Up to 100 km private 33 KV and up to 10km private 11 KV distribution lines to be constructed from power station to supply reliable power to GPAL Customers through seven distribution substations by ABB Powerlines
- **Power Station Substation**
  - 33 KV Power Station substation with nine outgoing 33 KV Feeders to be constructed for evacuation of power generated at the Power Station by Pauwels

Aba IPP: tech. Overview (Cont'd)

- **New Distribution Substations**
  - Four distribution substations to be constructed within the city of Aba and equipped each with 2x15 MVA 33/11 KV transformers to supply power to GPAL customers
    - Osisioma
    - Ogbor Hill
    - Factory Road
    - Port Harcourt Road
- **Leased Distribution Substations**
  - Three distribution substations (each equipped with 2x15 MVA 33/11 KV transformers) leased from NEPA to supply power to residential and commercial customers through APL
    - NEPA Aba Control Substation
    - NEPA Power Station Substation
    - NEPA Umuode Substation

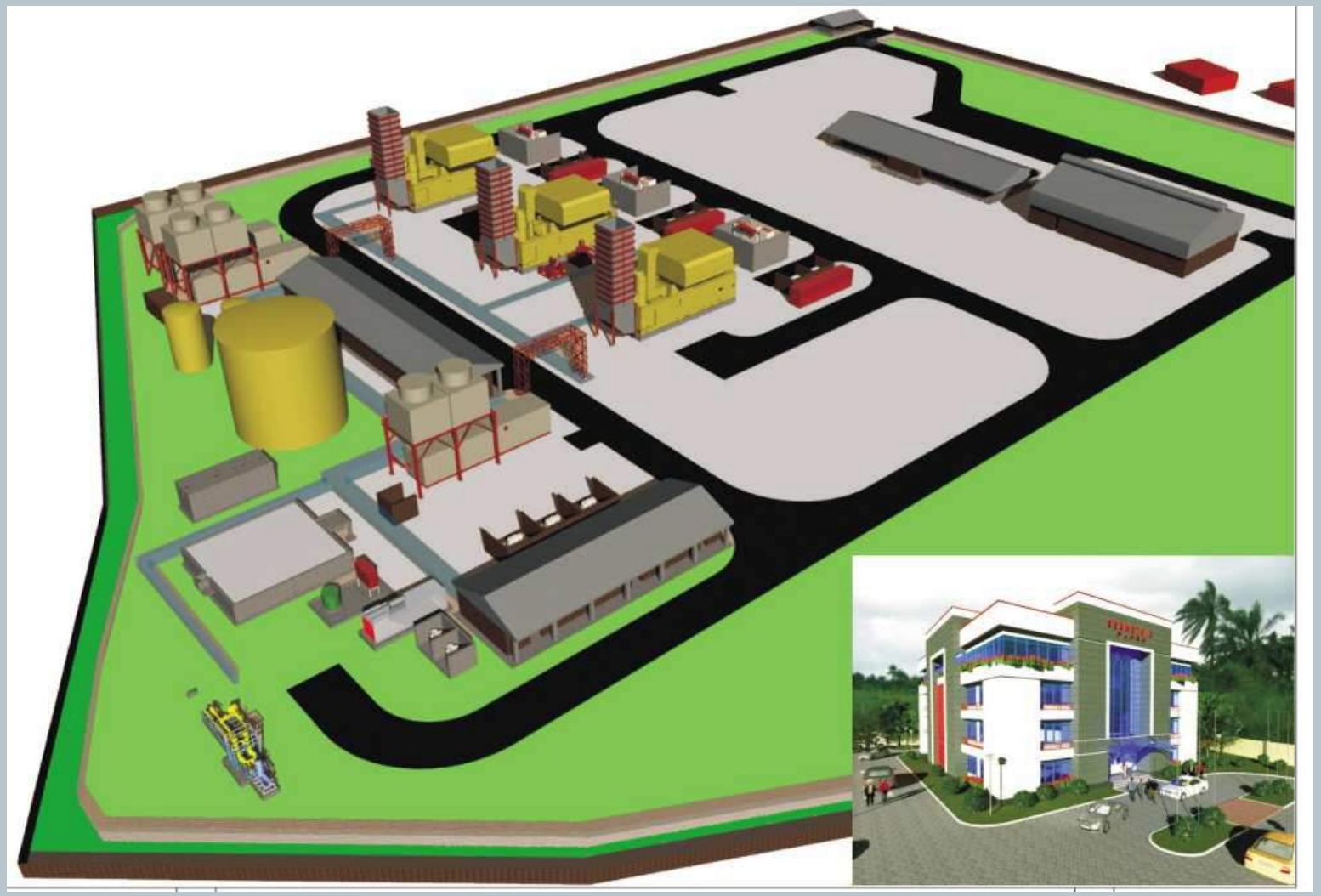
GPL Partners/Advisors

• **IFC**	Senior Debt, Sub-debt and Equity
• **European Investment Bank**	Senior Debt, Sub-debt and Equity
• **EAIF (FMFM)**	Senior Debt & Sub-debt
• **Diamond Bank Plc**	On-shore Arranger/Trustee
• **Stanbic Bank**	On-shore Arranger
• **PB Power**	Project Engineer
• **SNC Lavalin**	Independent Engineer
• **KPMG**	Financial Advisor
• **Dewey Ballantine**	International Counsel
• **Paul Usoro & Company**	Local Counsel
• **Chadbourne & Parke**	Lender's Counsel
• **Gen. Electric/Group5**	Power Station EPC
• **ABB Powerlines**	Power lines EPC
• **Pauwels**	Substation EPC
• **Shell Petroleum Dev. Co**.	Gas Supply
• **Shell Nigeria Gas**	Gas Transport

PROJECT PARTNERS

SPONSOR:	GEOMETRIC POWER
CO-SPONSORS:	ABA POWER
CARBON FINANCE:	THE WORLD BANK
LEAD FINANCIERS:	IFC, AFC, European Investment Bank, Diamond Bank, StanbicBank
PROJECT COMPANIES:	APL ELECTRIC (APLE) GEOMETRIC POWER ABA LTD (GPAL)
OWNER'S ENGINEER:	PB Power
GAS SUPPLY	
GAS SUPPLY:	Shell Petroleum Dev. Co. (SPDC)
GAS PIPELINE:	Shell Nigeria Gas (SNG)
MAIN CONTRACTORS	
GAS TURBINES:	General Electric Company
POWER STATION:	GROUP FIVE
SUB STATIONS:	PAUWELS
OVERHEAD LINES:	ABB Powerlines
OFFICE BUILDING:	CACHEZ TURNKEY PROJECTS
MAN-CAMP:	Watlins Limited
ACCESS ROAD:	MASTON - GEORGE LTD.

ABA IPP POWER PLANT COMPLEX



CONCLUSION

- The GPL Aba IPP can regarded as a practical model because it offers the sponsor the opportunity to control the revenue from sale of electricity
- If this model is replicated in other industrial centers of Nigeria, the positive effect could jump start the economy and encourage more foreign investors
- GPL is committed to provide reliable and quality electric supply at affordable price to Aba by December 15th, 2008!

THANK YOU!