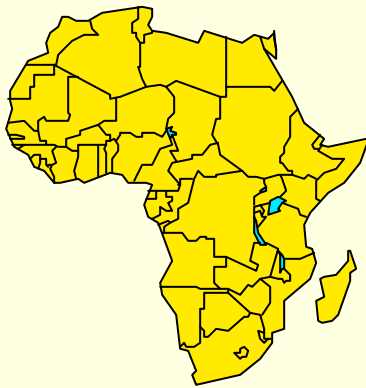


African IPP Experience



Independent Power Producers & Power Purchase Agreements: Frontiers in International Experience

FIELDSTONE
AFRICA (PTY) LTD

Clive Ferreira
3 May 2004
13h00-15h30



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- Fieldstone Overview
- IPP Structure
- Case Studies
- Conclusion

Annex A: Completed IPPs

Annex B: IPPs Under Development



Fieldstone Overview

Energy & Infrastructure Advisory

- Project Finance
- Mergers and Acquisitions
- Capital markets
- Restructurings

Global Network

- Johannesburg
- New York
- London
- Berlin
- Hyderabad

African Presence and track record

- South Africa
- Uganda
- Nigeria
- Zambia
- Mozambique
- Egypt

FIELDSTONE
AFRICA (PTY) LIMITED

Industry Focus

- Energy
- Infrastructure

Client Base

- Corporates
- Financial Institutions
- Governments
- Developers
- Investment Funds

Credentials

- Completed over \$50 billion transactions globally
- Consistently ranked by *Project Finance International*

Fieldstone - African Business

Nigeria

- NGC
- NPDC
- Edo State Power
- River State Power Project
- IPC

Ghana

- Ansaldo/Mitsui Power Barge

Zambia

- Kafue Gorge Lower
- Itezhi-tezhi Hydro;
- Mkushi Farming Block
- North West Farming Block
- Tanzania Interconnector

South Africa

- Metro Gas
- Kelvin Power Station IPP
- Pretoria West Power Station IPP
- Mondi Merebank Cogeneration Project IPP
- Cape Power Project
- Safika/MTN;
- NSB;
- CEIN
- Athlone Power Station
- Alstom BEE Participation

Sudan

- Khartoum North Power Station

Uganda

- UEB Generation & Distribution Assets Concessioneing

Tanzania

- Dar es Salaam/Mwanza Pipeline
- Central Corridor Road project

Congo

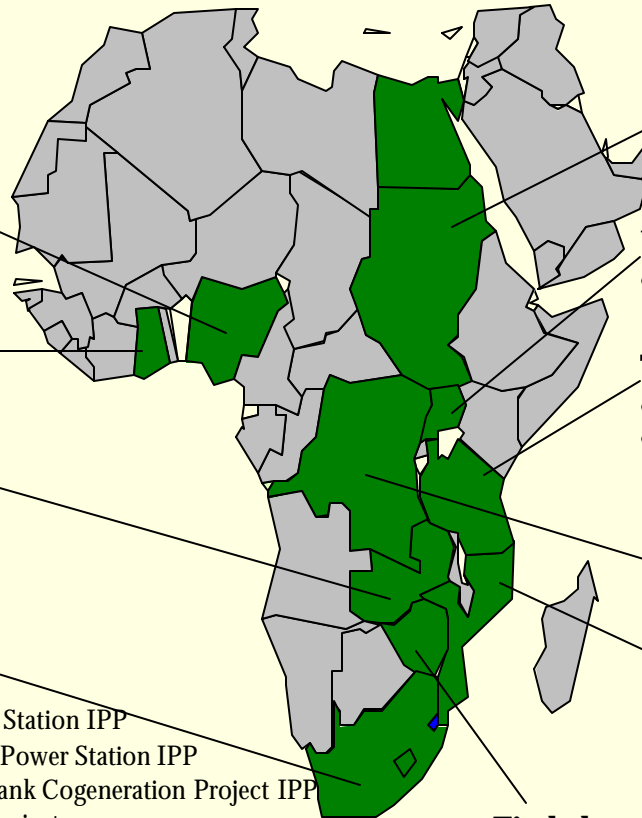
- Inga – Kinshasa Transmission Line

Mozambique

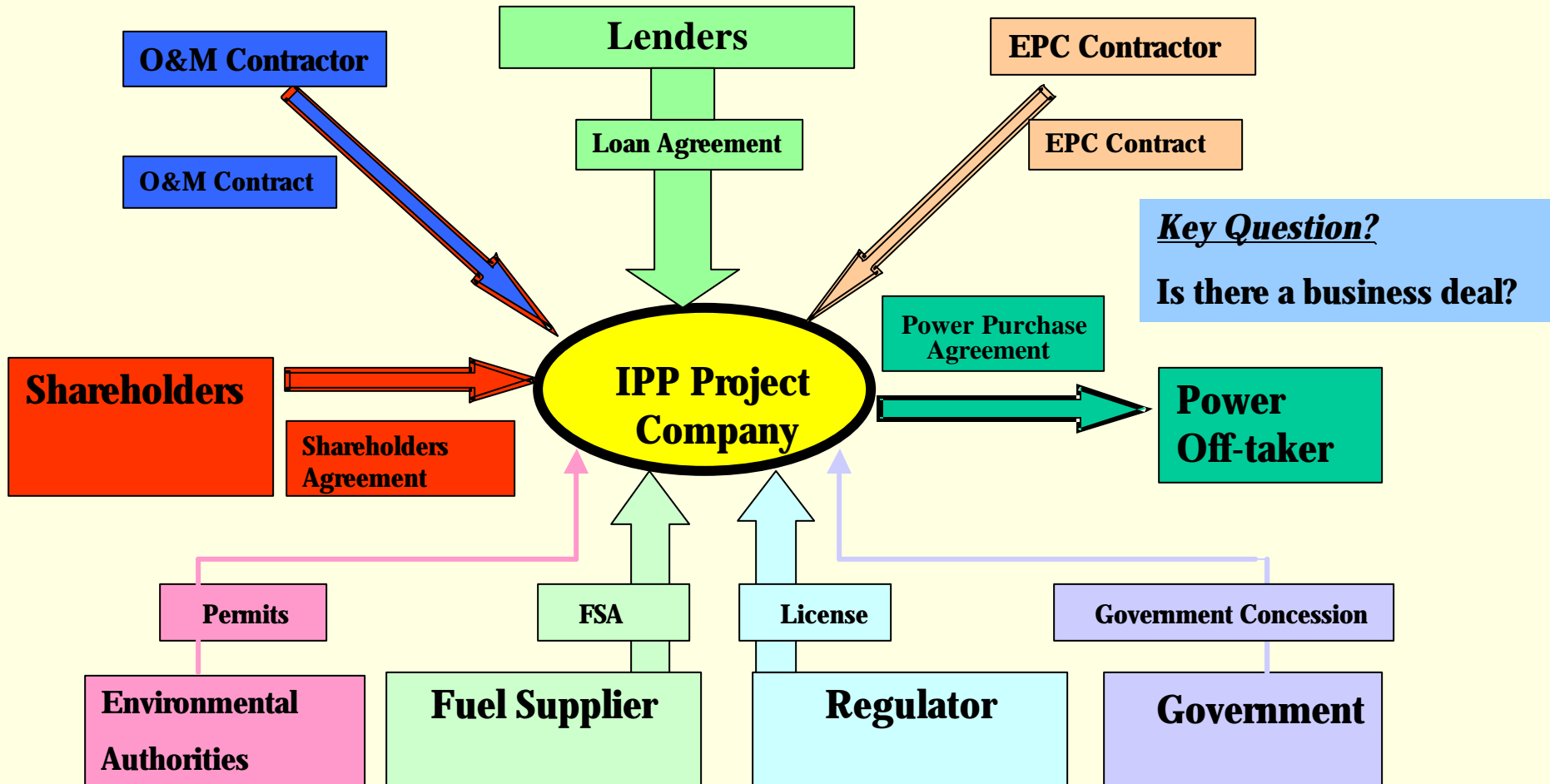
- Cahora Bassa: Phases I & II
- Beira-Mutare Pipeline
- SADCBA PPP Capacity Building Programme
- Tete - Nacala Corridor

Zimbabwe

- Zimbabwe Electric Supply Authority - Hwange



Typical IPP Structure



Key IPP Contracts

- **Implementation Agreement (“IA”)** (*Typically granting land or rights*);
- **Power purchase agreement (“PPA”);**
 - *Period: 15-25 years;*
 - *Take or pay; Capacity and energy components;*
- **Fuel supply agreement (“FSA”);**
- **Operation and maintenance agreement (“O&M”);**
- **Engineering Procurement Contract (“EPC”);**
- **License;**
- **Permits;**
- **Financing agreements;**
- **Inter-creditor agreements; and**
- **Insurance agreements**




A lawyer’s dream; a developer’s nightmare!

The price for risk mitigation!


Have to know the acronyms!



Project Risks & Mitigation

	Risk	Mitigation
 Construction	<ul style="list-style-type: none">■ Reduced output■ Late completion■ Inefficient (high heat rate)■ Environmental compliance	<ul style="list-style-type: none">■ Turnkey, lump sum, date certain contract■ Liquidated damages for performance failure
 Operational	<ul style="list-style-type: none">■ Low availability■ High operating cost	<ul style="list-style-type: none">■ Fixed fee contract with performance bonuses■ Operational guidelines and penalties/termination for performance failure
 Fuel Supply	<ul style="list-style-type: none">■ Reliable fuel supply to specification■ Adequate resources for life of project (PPA)	<ul style="list-style-type: none">■ Proven reserves - fixed price■ Alternative supply obligation■ Liquidated damages for delivery failure

Project Risks & Mitigation (Cont.)



Risk	Mitigation
<ul style="list-style-type: none">■ Creditworthiness of Power Purchaser<ul style="list-style-type: none">■ Utility■ Industrial User■ Municipality■ Demand for electricity	<ul style="list-style-type: none">■ Long term power purchase agreements (fixed)■ Escrow accounts

Force Majeure

- Force Majeure for unforeseen circumstances
- Usually insurable
- Strikes and labour disputes usually contentious issue
- Parties to receive payments from power purchaser under Force Majeure

Typical Funding of IPP's

■ Equity (20-50%)

- **Developer/Owner/Operator**
 - **Infrastructure funds**
 - **Utilities**
 - **Contractor and equipment suppliers**
- **Projects evaluated on Internal Rate of Return ("IRR") and Net Present Value ("NPV")**

• Debt (50-80%)

- **Export Credit Agencies (ECA's)**
 - **Multi-lateral and bilateral banks**
 - **Banks**
 - **Bonds**
- ***Projects evaluated on credit quality of the operator and the off-taker***
- ***Debt service coverage ratios***

Typical IPP Capitalisation Structure

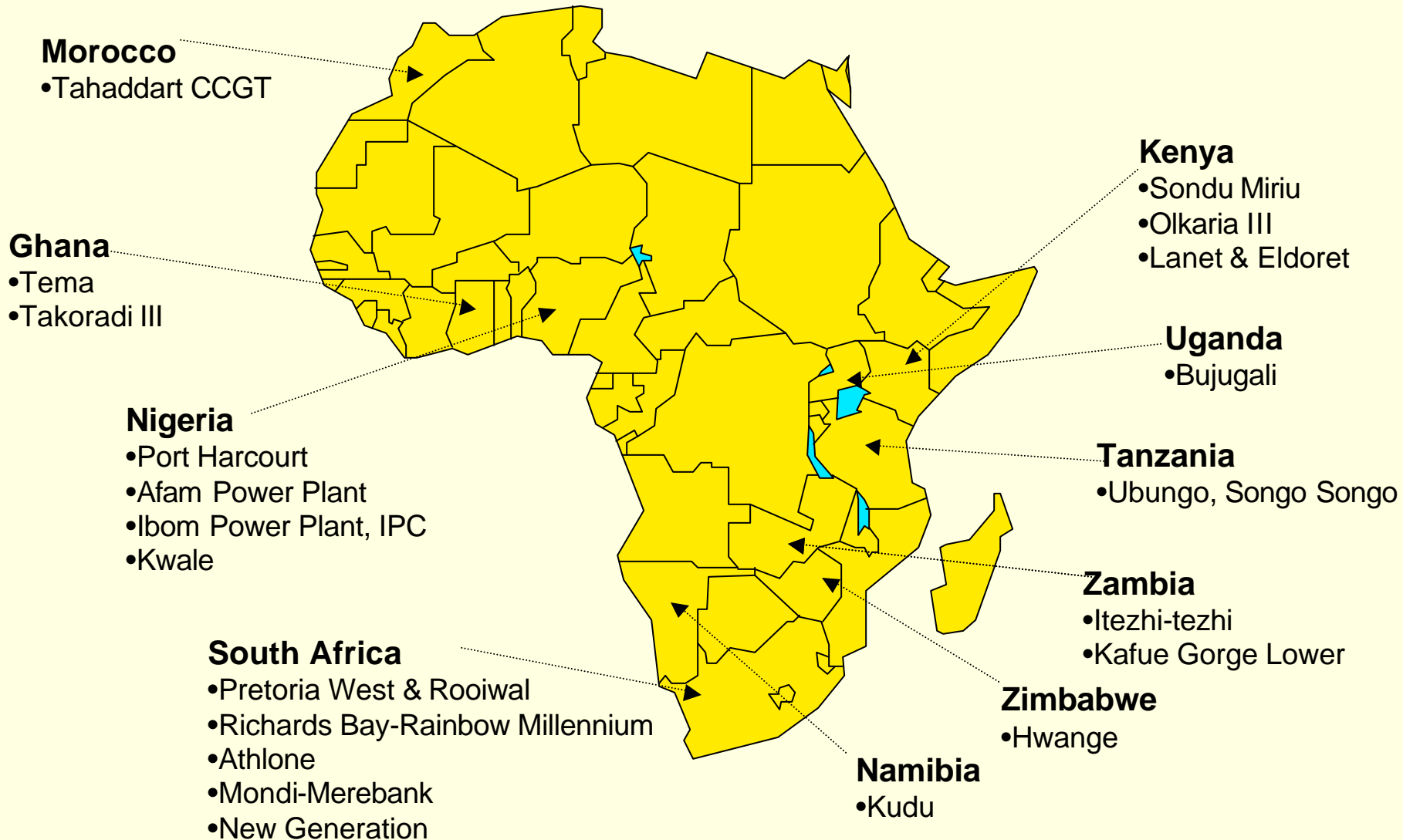
- Case:100 MW Coal-fired IPP Plant;
- 3 year construction period;
- Debt (70%) and Equity (30%) Pari Passu Drawdowns.

<u>Uses</u>	<u>(US\$ MM)</u>	<u>Sources</u>	<u>(US\$ MM)</u>
EPC Cost	70	Debt	84
Construction Period Interest	10	ECA Debt	
Development Costs	5	Multilateral Debt	
Fuel Reserve	3	Commercial Bank	
Working Capital	4	Equity	36
Insurance	3	Sponsor Equity	
Debt Service Reserve	3	Infrastructure Fund	
Financing Fees / Cost	15	Supplier Equity	
Contingency	7	TOTAL	120
TOTAL	120		

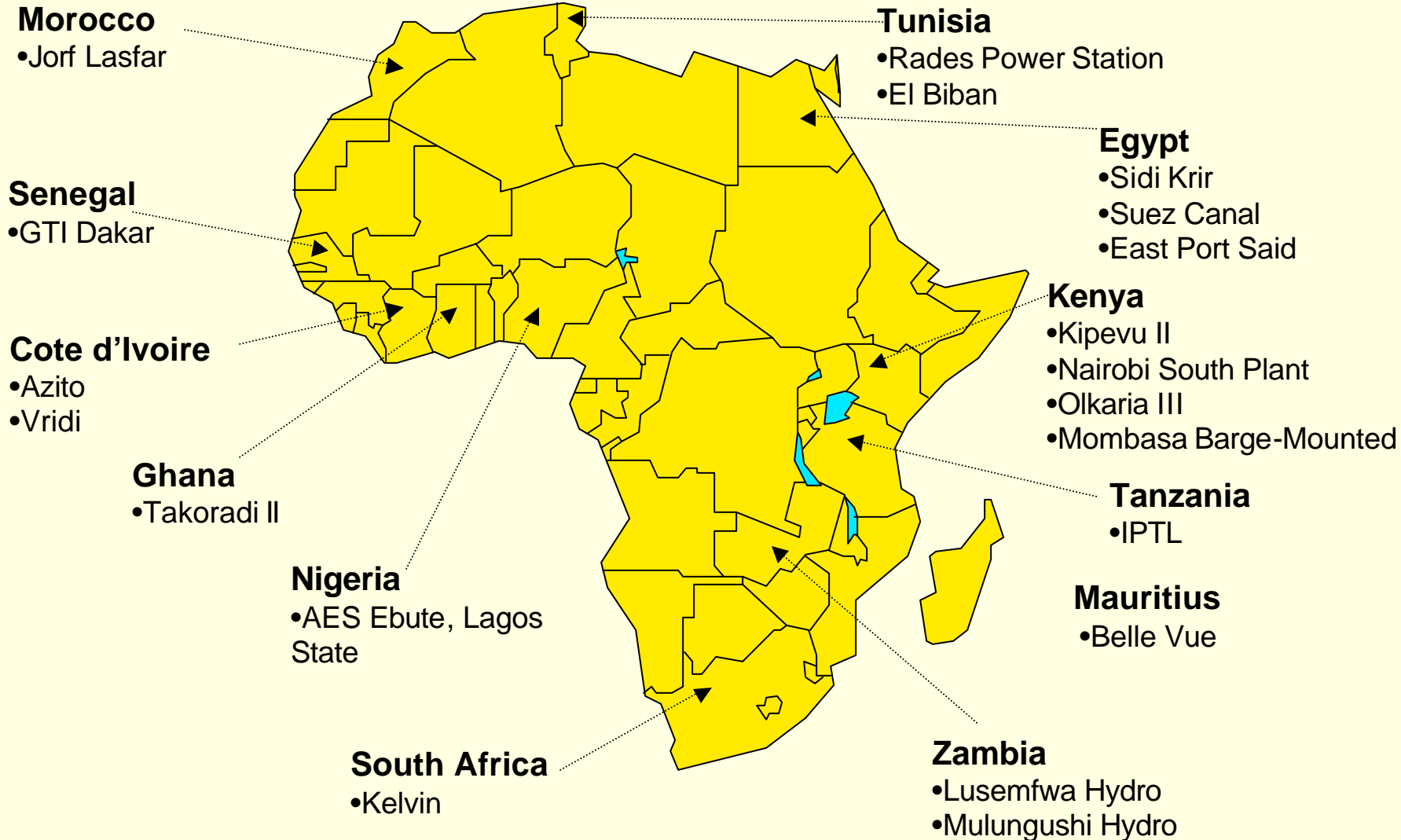
Return Requirements for Developing Countries

Sponsor(s)	Project Cost [US\$]	Debt Equity Ratio	Equity IRR
Independent IPP	570 m	77/23	20%
Independent IPP	1,000 m	55/45	20%
Independent IPP	380 m	75/25	23%
Independent IPP	300 m	80/20	24%
Independent IPP	900 m	75/25	26%
Independent IPP	210 m	80/20	18%
Independent IPP	53 m	70/30	29%
Independent IPP	23 m	70/30	21%
Independent IPP	68.2 m	60/40	23%
Independent IPP	31 m	70/30	20%
Independent IPP	12.3 m	50/50	29%

Selected IPP's Under development



Selected Completed IPP's



What Project is Bankable?

- Creditworthy power purchaser;
- Credit enhancement of PPA;
- Strong balance sheet of EPC contractor, fuel supplier;
- Track record of operator/developer;
- Tight contracts that correctly allocate the risks to the party best able to assume risk.



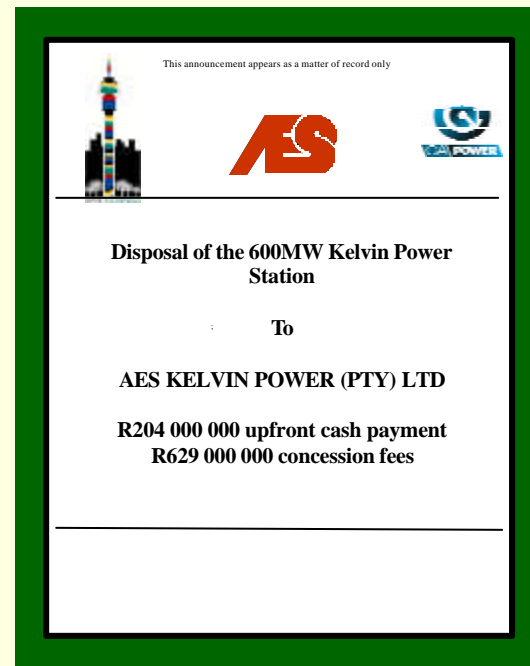
Case Studies

- **Kelvin IPP**
- **Mondi-Merebank Power Plant**
- **Jorf Lasfar Power Plant**
- **Azito Power Plant**
- **Uganda Electricity Generation**
- **IPTL**
- **Bujugali**
- **Songo Songo**

Kelvin IPP

Kelvin Power Station, South Africa:

■ Fieldstone advised the Greater Johannesburg Metropolitan Council (GJMC) on the corporatisation and privatisation of the 600 MW coal fired Kelvin Power Station. AES and its empowerment partner Global African Power was selected as the preferred bidder after an international bidding process. The project reached financial closure in November 2001, thereby establishing Kelvin as the first Independent Power Project (“IPP”) in South Africa.



Kelvin IPP

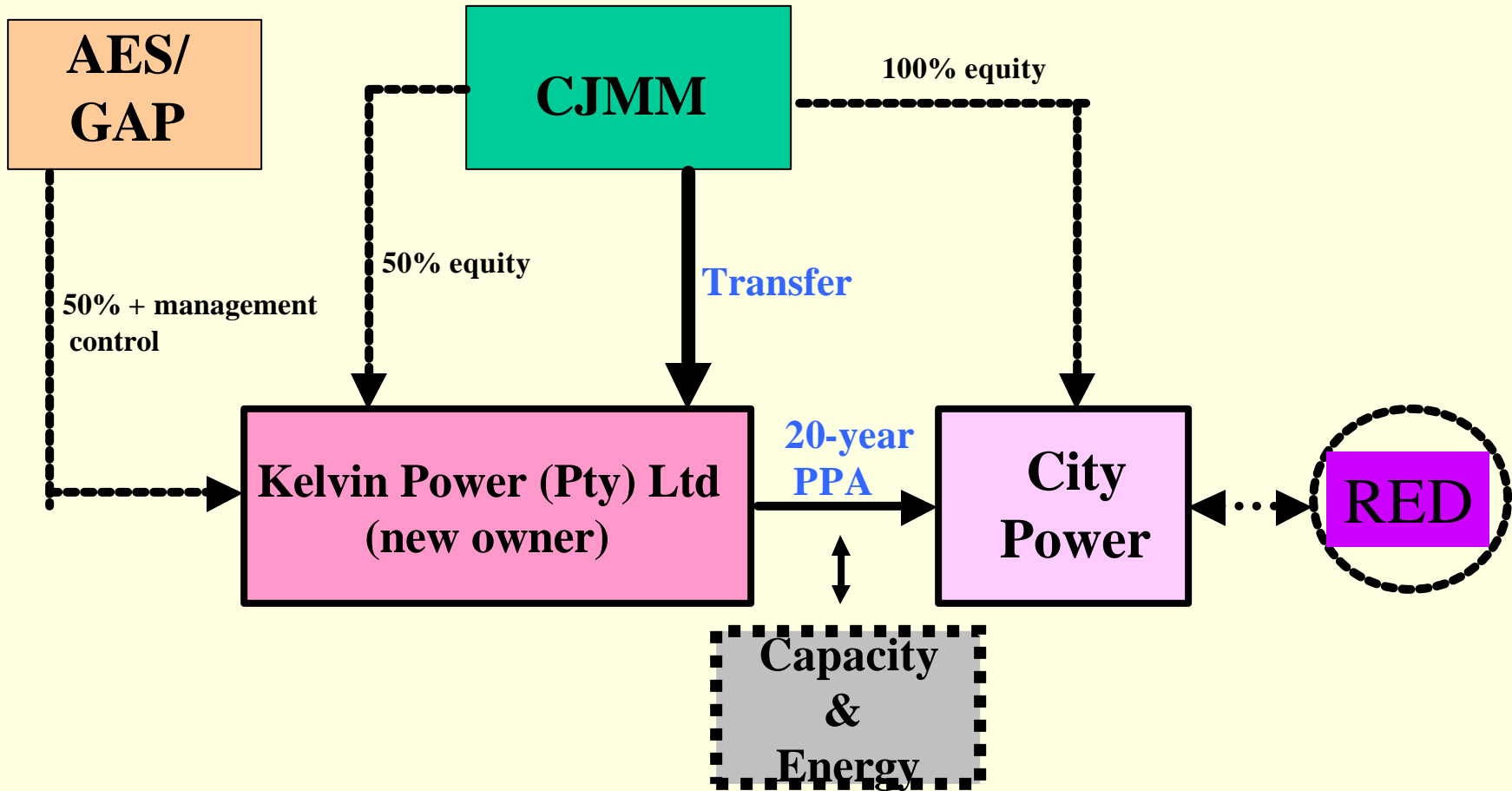
Electricity Utility Agreements

- 600MW coal-fired facility;
- Non-core asset to City of Johannesburg (“COJ”);
- No adequate capex/maintenance budget;
- High Fixed cost component – strain on municipal budget;
- Inefficiencies resulted in uncompetitive operations.

Solution:

- Strategic equity sale in operation to IPP developer;
- Long-term PPA with CoJ’s utility provides hedge;
- Private sector carry tariff, operational and technical risk;
- Compete with Eskom/market long-term tariff.

Kelvin IPP Transaction Structure



Principal Kelvin Risks Mitigated

- Operational Risk
 - Availability Risks
 - Capacity payments with performance bonuses
 - Operational guidelines and penalties/termination for performance failure
- Revenue Risk
 - Creditworthiness of Power Purchaser
 - Long term PPA (capacity payment structure)
 - Sharing of fund risk
- Portion of tariff risk hedged away through capacity payment structure
- Environmental Risks
 - Existing permits
 - New process

Kelvin Financing Structure

■ Equity

- AES
- Global Africa Power
- CDC Globaleque, bought out AES

■ Debt

- RMB/Investec

Transaction Size

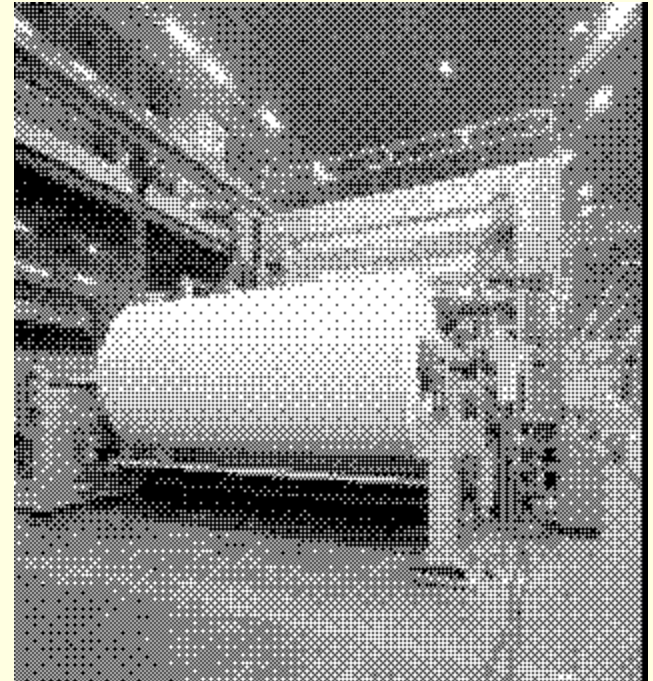
■ Purchase Price

- R225m Cash
- R28m Environmental
- R25m Social
- R90m Capital
- R600m Future negotiations
- ± R340m Debt

Mondi

The Solution

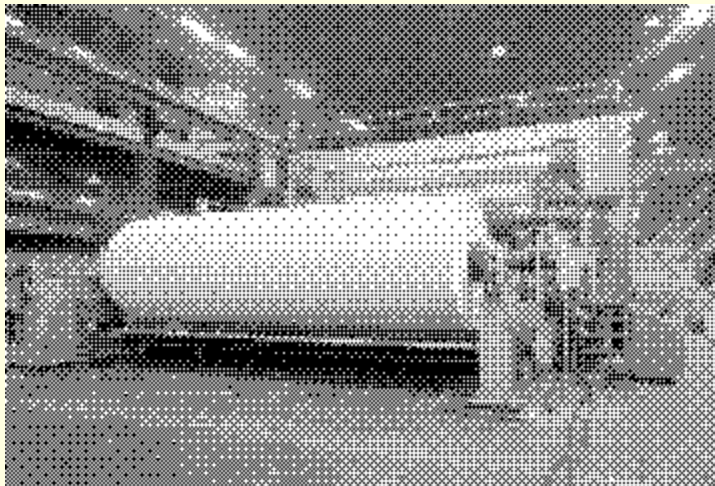
- ❖ Fieldstone, together with Babcock Engineering proposed a multi-fuel fluidised bed boiler (MFB);
- ❖ The MFB will utilise the mill's residual process material (RPM), bark, sawdust, sludge and coal ash as an energy source;
- ❖ This energy generation plant output will consist of 20MW electricity and 90 tons of steam;
- ❖ Estimated Transaction value: \$45 million.



Mondi

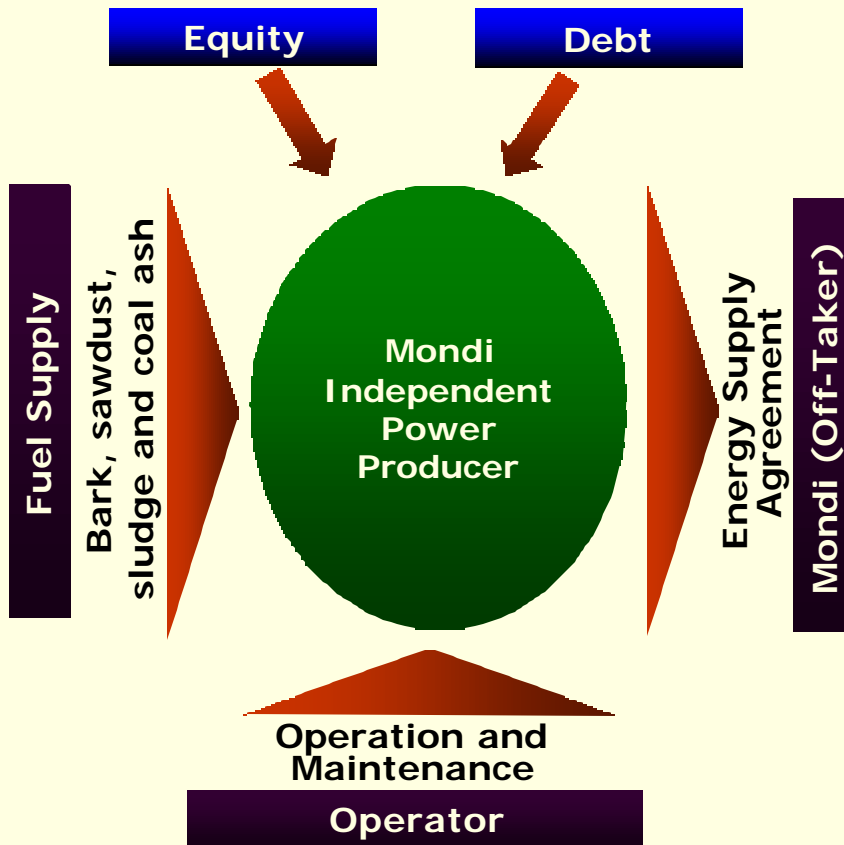
Transaction Structuring

- ❖ Mondi preferred an off-balance sheet financing structure;
- ❖ Fieldstone structured the Energy operation expansion in the form of an IPP. *(see IPP structure in the next page)*



Mondi operation explained

Typical structure of IPP operation



Possible benefits

- Long term fixed energy tariffs and agreed escalations;
- Off balance sheet funding opportunity – no capital outlay by Mondi;
- Alternative means of financing;
- Transfer of operational risk;
- Off-taker has performance guarantees and recourse to the operator;
- Focused energy operation;
- Black Economic Empowerment .

Mondi

Proposed Capital Structure

Equity	25%	R87.5
IDC	30%	R26.25
Babcock	20%	R17.5
Fieldstone	20%	R17.5
BEE	30%	R26.25
Debt	75%	R262.5
Commercial Banks	75%	R262.5
Total Cost:	100%	R350 m

Jorf Lasfar

Jorf Lasfar Coal Fired Power Plant , Morocco:

- Location: 120 km south of Casablanca
- Size: 1,356 MW (largest IPP in Africa)
 - 2 x 330 MW existing units (1 & 2)
 - 2 x 348 MW new units (3 & 4)
- Fuel supply: imported coal
- Project cost: \$1.5 billion
- Interconnect: 225 kV GIS
- In service: By December 2000
- Operation: all 4 units to be privately operated
- Solicitation: International Competitive Bidding
- Ownership: ABB Energy & CMS (50:50)



Jorf Lasfar Basic Risk Allocation

	Project Company	Office National de l'Electricité /Government
Completion	Delays construction cost	Permitting & licensing siting
Performance	Output operation availability	Payments
Fuel	Supply	Price
Currency		Offshore banking Exchange rate Availability/convertibility
Inflation	Interest rate	General inflation
Force Majeure	Insurable events	Uninsurable events
Political/Change in Law	Foreign policies	Domestic policies

Jorf Lasfar

Equity Agreements

Equity Contribution Agreement

- ❖ US\$385 million base amount;
 - Funded at closing;
- ❖ US\$81 million contingent amount;
 - Operating shortfalls from Units 1 & 2 during construction;
 - Cost overruns during construction;
- ❖ US\$30 million contingent amount;
 - “Change in Law” modifications;

Equity guarantees

- ❖ Asea Brown Boveri AG (Germany);
- ❖ CMS Energy Corporation (USA).

Financing Agreements

Common Debt Agreement

- ❖ All lenders;

Facility Agreement (World Bank, ERG, OPIC, SACE, US ExImbank)

- ❖ One for each lender;

World Bank Guarantee Agreement

- ❖ Between World Bank and guaranteed lenders;

Project Agreement

- ❖ Between World Bank and project company.

Jorf Lasfar

Electricity Utility Agreements

Power Purchase Agreement

- ❖ Power purchase payments by ONE;
 - Capacity;
 - Energy;
- ❖ Payment security posted by ONE;
 - Escrowing of ONE revenues (up to 3 x monthly payment);
 - Letter of credit (2 x monthly payment);
- ❖ 82% availability undertaking by project company;
- ❖ Payments indexed to hard currencies;

Transfer of Possession Agreement

- ❖ Transfer right of possession of site and Units 1 & 2;
- ❖ Payment of US\$261 million to ONE for “lease” of Units 1 & 2;

Construction & Procurement Agreement

- ❖ Sets out specifications for Units 3 & 4;
- ❖ Delay damages;
- ❖ ONE is responsible for the Interconnection Facilities;

Construction Agreements (Units 1 & 2)

- ❖ GEC Alstom was primary contractor to ONE;
- ❖ Contract was closed out prior to financial close.

Jorf Lasfar

Operations Agreements

Coal Terminal Agreement

- ❖ Essentially a lease of facilities from port authority;

Coal Handling and Storage Agreement

- ❖ Operations at port facilities, 2 km from site;

Coal Supply Agreement

- ❖ Must be approved by ONE;
- ❖ Coal blending for SO2 compliance;

Operation and Maintenance Agreement

- ❖ CMS Morocco Operating Co;

Ash Disposal Plan

- ❖ Short-term on-site storage of ash;
- ❖ Long-term disposal at abandoned quarry.

Government Agreements

Guarantee of Termination Amount and Support Letter

- ❖ Breach and termination of power amounts;
- ❖ Enforceability of contracts, including:
 - Foreign Exchange Account Letter;
 - Foreign Exchange Convertibility Letter;
- ❖ Signed by Prime Minister;

Foreign Exchange Account Letter

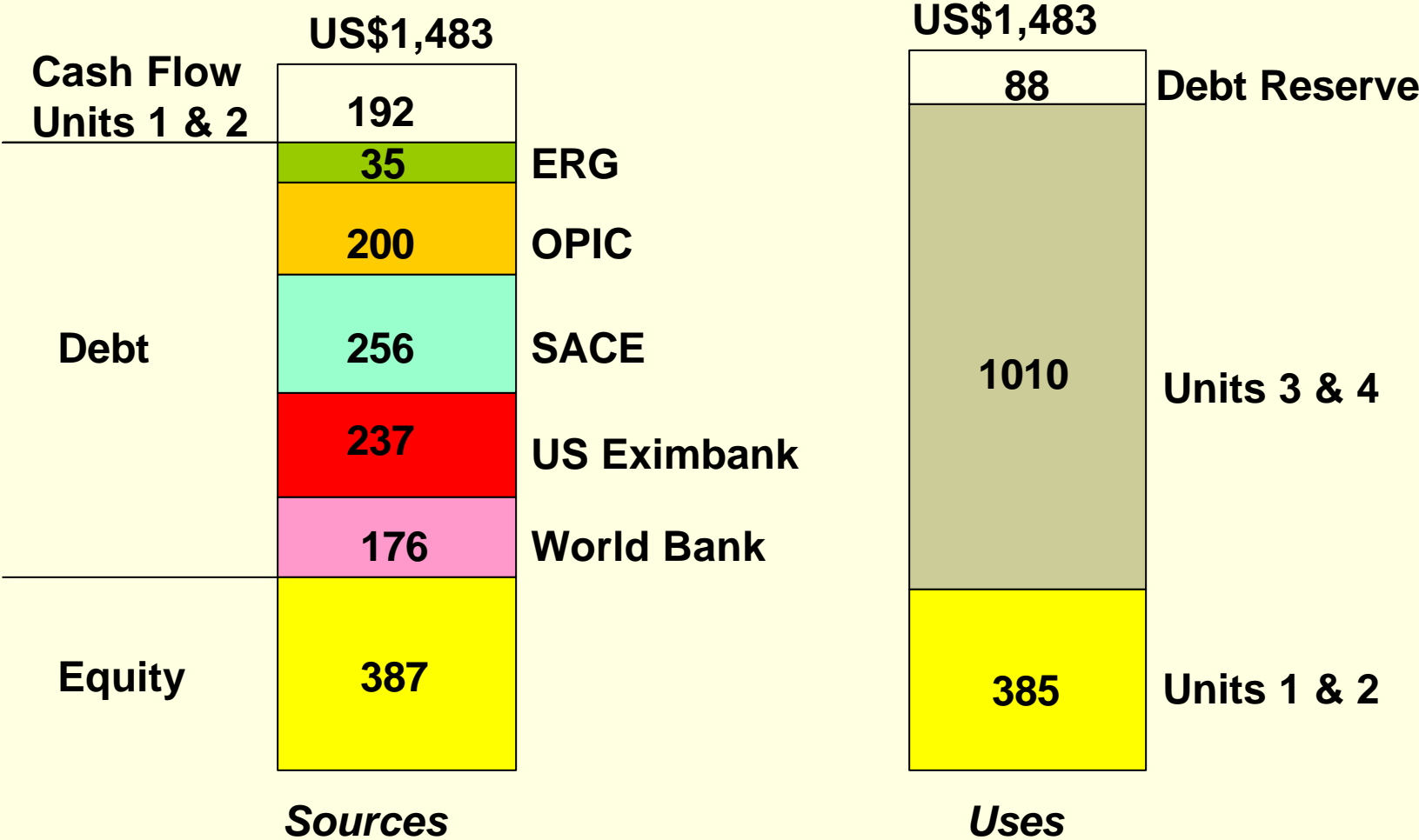
- ❖ Bank accounts;
 - Open and maintain foreign currency accounts;

Foreign Exchange Convertibility Letter

- ❖ Exchange transactions;
 - No less favourable terms than other enterprises in Morocco.

Jorf Lasfar-Financing Structure

(construction period)



(US\$ in millions)

Azito Power Plant

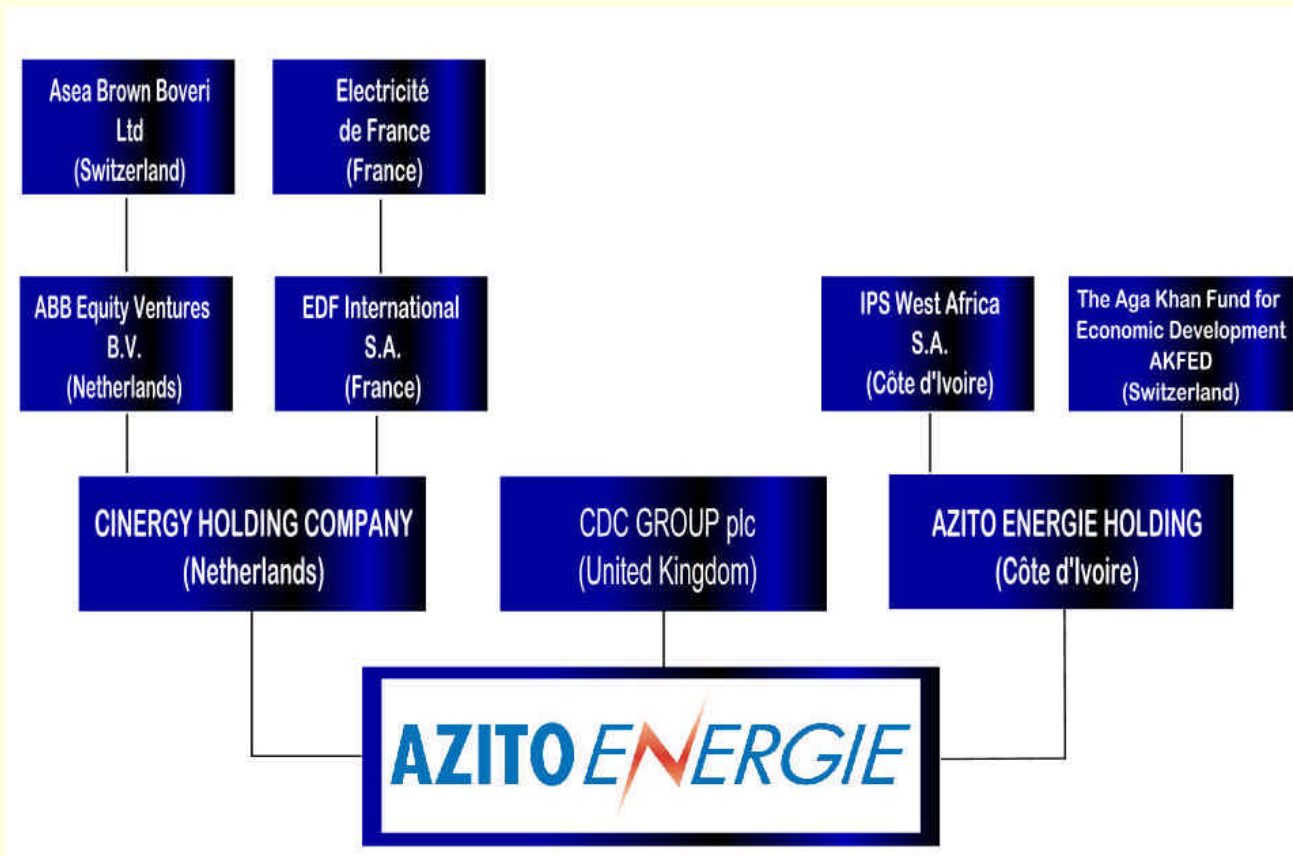
Azito Power Plant , Cote d'Ivoire:

- Location: lagoon of Abidjan
- Size: 300 MW (3rd thermal plant; 2nd IPP)
 - 150 MW released in Jan 1999
 - 150 MW released in Feb 2000
- Fuel supply: local natural gas
- Project cost: \$223 million (including associated transmission lines)
- Interconnect: 225 000 volts transmission line
- In service: By February 2000
- Operation: all 2 units to be privately operated
- Solicitation: International Competitive Bidding
- Ownership: Cinergy 74% - (ABB Equity Ventures & EDF); IPS 24%



Azito Shareholding Structure

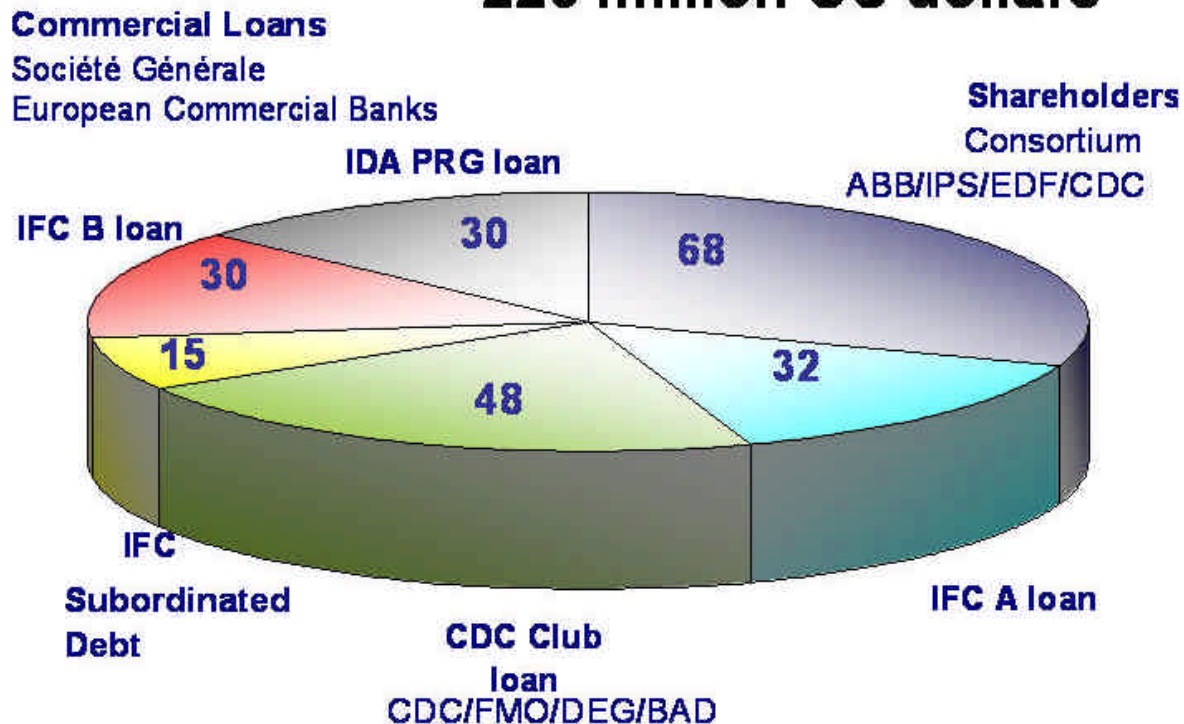
Azito Energie, created in 1997



Azito Financing Structure

Consortium & Financing Institutions

**Total cost of Azito Project:
223 million US dollars**



Azito

Azito, Contractual Framework

Shareholding Agreement

- ❖ ABB Energy Ventures, B.V. –ABB-EV;
 - Subsidiary of Asea Brown Boveri Limited;
- ❖ Electricite de France International –EDFI;
 - Wholly owned subsidiary of Electricite de France (EdF);
- ❖ Industrial Promotion Services (ROCI), S.A;
 - (IPS-CI), a unit of the Aga Khan Fund for Economic Development;

The O&M Agreement

- ❖ Azito O&M (owned 50% each by EDFI and ABB EV);

The Concession Agreement (CA)

- ❖ Cinergy S.A. -signed on September 5, 1997;
- ❖ Subsequently amended on July 5, 1998;

The CCEM (“Contract Clef en Main” – turnkey contract)

- ❖ Finance, design, construct, supply, install and commission an energy evacuation system (“ESS”);

The EPC Contracts

- ❖ The power plant, corresponding to the work under the CA;
- ❖ Related transmission system, corresponding to work under the CCEM.

IPTL

IPTL Power Plant, Tanzania - Completed

Background:

- ❖ Location: outskirts of Dar es Salaam
- ❖ Size: 100 MW (1st IPP)
- ❖ Fuel supply: Diesel-HFO (to be converted to gas)
- ❖ Project cost: \$123 million
- ❖ Power Purchase: 20 years
- ❖ Completed: September 1998
- ❖ In service: December 2001
- ❖ Operation: privately operated by Wartsila
- ❖ Solicitation: International Competitive Bidding
- ❖ Ownership: Mechmar Cop. (Malaysian) & Tanzanian investor



IPTL

IPTL Power Plant, Tanzania - Completed

Disputes:

- ❖ Transparency International expressed doubts about the IPTL price tag;
- ❖ Project suspended because of pressure from donors;
 - Speedy finalisation lacked transparency;
- ❖ Allegations of fraud and both parties sought arbitration;
 - IPTL claimed US\$150 million investment;
 - Tanesco expected US\$90 million;
 - IPTL intended to sell the electricity at 21 \$ cents per kWh;
 - Government wanted the price to be set at 9 \$ cents;
 - Tanesco to pay \$4.2 p/m based on \$150 million investment;
 - Tanesco willing to pay \$2.2 million p/m.

ICSD's Ruling:

- ❖ ICSD's ruling lowered the value from \$150 million to \$123 million;
- ❖ Post arbitration monthly charge now at \$2.8 million.



Bujugali Power Plant

Bujugali Power Plant, Uganda – Under development

Background:

- Description: Run-of-the-river
- Size: 200 MW
- Fuel: Hydro
- Developer: Government of Uganda
- Project cost: US\$550 million
- Status: Financing stage
- Lenders: FC, World Bank (IDA PRG), AfDB, European ECAs (Norwegian, Swedish, Swiss)

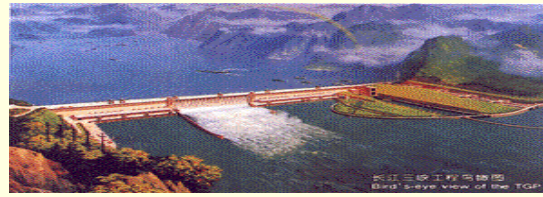


Bujugali Power Plant

Bujugali Power Plant, Uganda – Under development

Issues:

- ❖ Corrupt MP's, bribery investigations;
- ❖ AES failed to complete the resettlement and compensation;
- ❖ World Bank urged to make PPA public;
- ❖ Some NGOs are against Bujugali Dam;
- ❖ Energy demand and projections of the project's affordability questionable;
- ❖ Inadequacy of the assessment of project costs;
- ❖ Project's economic and financial viability;
- ❖ Environmental destruction.



Bujugali Power Plant

Keys to Successful Financing of a Hydro

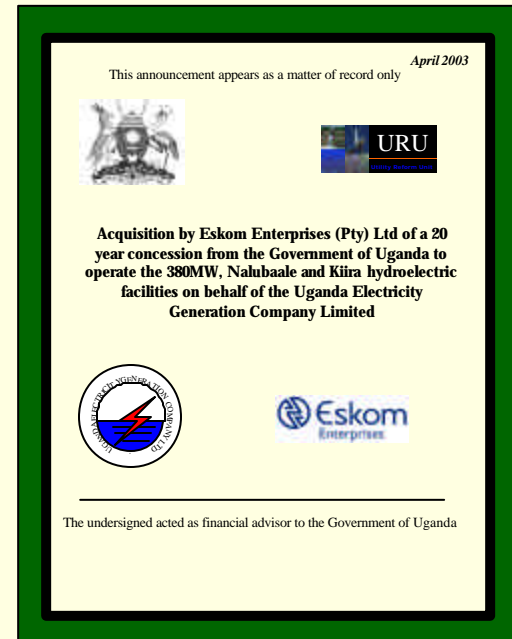
- Minimal adverse environmental and social impact;
- Need to have longer debt tenor to avoid high capacity payments;
- Adherence to strict guidelines;
- Availability of long term financing ;
- Site topography and geology;
- Available generating head;
- Optimal use of resource;
- Extent of inundation;
- Size of project in relation to country's needs;
- Impact of project on other potential hydropower sites;
- Transparency.



Uganda Electricity Generation

Uganda Electricity Generation Company (“UEGC”) Ltd:

■ Fieldstone advised the Government of Uganda on the corporatisation and privatisation of 380 MW Uganda’s electricity generation. Eskom Enterprise was selected as the preferred bidder after an international bidding process. The project reached financial closure in November 2002.



UEGC - Transaction

Key Terms

- ❖ Long-term (20 year) concession for operation of UEGC - Nalubale and Kiira Power Stations;
- ❖ Operating license by ERA;
- ❖ Sell power to UETC, with payments based on available MW capacity, not energy sales. In addition, Concessionaire will obtain a management fee. Tariffs established by contract;
- ❖ Concessionaire granted full control, but ownership of assets will reside with UEGC, and control will transfer at end of concession term. Concessionaire will make annual payments to UEGC;
- ❖ UEB will complete work in progress to install and commission Kiira units 13 and 14, for Concessionaire's operation and revenues;
- ❖ Concessionaire will invest to rehabilitate and maintain equipment over the entire concession period, based on own decisions, in order to achieve MW availability payments. Required investment program over the first 5 years is \$6 million. Concessionaire's return on investment to be part of tariff;
- ❖ Concessionaire will hold option to develop Kiira unit 15;
- ❖ Concessionaire to be compensated for net value of un-amortised investments at end of concession term.

Songo Songo Gas Plant

Songo Songo, Tanzania

Background:

- ❖ Location: Dar es Salaam
- ❖ Size: 115 MW
- ❖ Fuel: Gas
- ❖ Project cost: \$350million (including pipeline)
- ❖ Fuel Supplier: Songas – Songo Songo gas field
- ❖ Financial Closure: 11 October 2001
- ❖ In service: Turbines already running on liquid fuel
- ❖ Operation: By Songas
- ❖ Solicitation: International Competitive Bidding
- ❖ Ownership: Songas - AES, TANESO, TPDC and CDC
- ❖ Project Investors: AES, Pan African Energy, TANESCO, TPDC, CDC, TDFL, EIB and World Bank



Songo Songo Gas Plant

Songo Songo, Tanzania

Gas-to-Electricity Project:

- ❖ Created in October 1995, by Ocelot Tanzania Inc., TransCanada Pipeline Limited (TCPL), TANESCO Government of Tanzania, and Tanzania Petroleum Development Corporation (TPDC);
- ❖ Main project sponsor – AES;
- ❖ Develop the Songo Songo gas field in Kilwa District, Lindi Region;
- ❖ Construct gas processing facilities on Songo Songo island;
- ❖ Transport natural gas to Dar es Salaam via pipeline where it will be used as the principal fuel supply for five gas turbine electricity generators;
- ❖ The project will produce reliable electricity.

Songo Songo Gas Plant

- ❖ In Songo Songo Island;
- ❖ Two 35 million cubic feet per day processing units (dehydration and refrigeration);
- ❖ Process the natural gas from the wells.

Gas Transportation:

- ❖ Transported through a 25km 14-inch pipeline from Songo Songo to Somanga Funga;
- ❖ From Somanga Funga through a 207km 12-inch pipeline to Ubungo Dar es Salaam;
- ❖ Natural gas will replace liquid fuel;
- ❖ A 16km 8-in pipe line will be extended northwards to provide natural gas to the Wazo Hill cement plant.

Songo Songo Gas Plant

Project benefits to Tanzanians

- ❖ Meet the growing demand for electricity in Tanzania using a domestic natural resources;
- ❖ Reduce the country's dependence on imported oil for electric power generation;
- ❖ Provide an alternate, lower-cost and more reliable power source;
- ❖ Create skilled and unskilled employment opportunities during construction and operations;
- ❖ Provide power, gas and associated economic benefits to Songo Songo island and communities along the pipeline route;
- ❖ Promote private investment in the energy sector which will also contribute to government revenue through fees, taxes and royalties.



Lessons Learnt



- ❖ Successful IPPs are based on creating the necessary regulatory and competitive environment;
- ❖ Raising of non-recourse financing dependent on allocation of risk to parties most likely to be able to control that risk;
- ❖ Africa needs privatisation to attract foreign capital;
- ❖ Markets are smaller than in other regions, and so likely to be less competitive;
- ❖ Governments need to appoint good financial and technical advisors;
- ❖ Corruption and bribery has bad results;
- ❖ Lack of capacity to carry out effective regulation of multinationals;
- ❖ Resolve environmental issues early;
- ❖ Competitive bidding yields the best results;
- ❖ Well structured project have. attracted capital;
- ❖ A record of successful projects will attract capital

Annex A: Completed IPPs

NO.	COUNTRY	NAME	SIZE	COST	COMPANIES	CLASS TYPE	% PRIVATE
1	Cote d'Ivoire	Azito	450 MW	\$225 m	Cinergy(IPS,ABB,EdF)	Greenfield	100%
2		Vridi	210 MW	\$97.5 m	CIPREL (EDF and SAUR)	Greenfield	98%
3	Egypt	Sidi Krir	650 MW	\$540 m	InterGen, Kato Investment, First Arabian Development and Investment	Greenfield	100%
4		Suez Canal* and East Port Said	650-MW X 2	two power plants - \$900 million	EDF	Greenfield	100%
5	Ghana	Takoradi II	330 MW	\$414 m	CMS & VRA	Greenfield	90%
6	Kenya	Tsavo, Kipevu II	74 MW	\$ 86 m	Tsavo Power Company (Cinergy of the US, IPS of Kenya, Wartsila of Finland, the CDC of the UK, and the IFC)	Greenfield	100%
7		Nairobi South plant	56 MW	\$50 m	Iberafrika (Spain)	Greenfield	100%
8		Olkaria III (phase I)	12 MW	\$17.5 m	Ormat Turbines Ltd	Greenfield	100%
9		Mombasa Barge-Mounted Power Project	43 MW	\$20 m	Westmont Ltd.	Greenfield	100%
10	Mauritius	Belle Vue	46 MW	638 million French francs	Harel Freres (51%), Cidec (27%), the Sugar Investment Trust of Mauritius (14%) and the State Investment Fund (8%)	Greenfield	100%

Annex A: Completed IPPs (Cont.)

NO.	COUNTRY	NAME	SIZE	COST	COMPANIES	CLASS TYPE	% PRIVATE
11	Morocco	Jorf Lasfar	1356MW	\$1.5 billion for 2 X 348 MW	ABB/ CME	Greenfield	100% (Units 3 & 4)
12	Nigeria	Ebute, Lagos State	270MW	\$800 m	AES	Greenfield	100%
13	Senegal	GTI-Dakar	50 MW	\$ 62m	General Electric's Structured Finance Group subsidiary, IFC and the Italian utility Sondel	Greenfield	100%
14	S.Africa	Kelvin	600 MW	R833 m	AES, empowerment companies	OM- with major private capital	50%
15	Tanzania	IPTL power project	100MW	\$100 m	Independent Power, Tanwat: venture between Tanzanians and a Malaysian Company.	Greenfield	100%
16	Tunisia	Rades Power Station	470 MW	\$250 m	Marubeni, U.S.-based PSEG.	Greenfield	100%
17		El Biban	27 MW	\$30 m	Societe d'Electricite d'El Bibane (SEEB), Caterpillar Power Ventures International Ltd (CPVI)	Greenfield	100%
18	Zambia	Lusemfw Hydro Power Company	36 MW		Eskom Enterprises	OM- with major private capital	51%

Annex B: IPPs Under Development

NO.	COUNTRY	NAME	SIZE	COST	COMPANIES	STATUS	FUEL
1	Ghana	Tema	220-MW	\$200 m	KMR,Marubeni	planned	Oil/gas
2	Kenya	Sondu Miriu	60 MW	\$ 52 m	JBIC, kengen	construction began in 1999, expected to be completed by 2005	Hydro
3		Olkaria III	64 MW	\$172 m	Ormart	Underway, implementation date 09/03	Geothermal
4		Lanet and Eldoret	2 X 55 MW	\$135 m	BSWC	under construction	Diesel
5	Morocco	Tahaddart combined cycle power station	470MW	\$500 m	Endesa (Spain)	Underway, signed in November 2001.	Gas
6	Nigeria	Port Harcourt	276MW	\$110 m	Siemens	Underway, signed August 2000	Gas
7		Afam power plant	900 MW	\$500 m	Eskom to provide O & M. Shell will refurbish, with capacity expanding from 400 MW-900 MW	planned	Gas
8		Ibom Power Plant	142 + 383 MW	\$120 + \$313 m	IPC	under construction	Gas
9		Kwale	450 MW	\$312 m	Agip	under construction	Gas

Annex B: IPPs Under Development

NO.	COUNTRY	NAME	SIZE	COST	COMPANIES	STATUS	FUEL
10	S.Africa	Pretoria West & Rooiwal (brownfield)	180 MW & 300 MW	R350 m		feasibility completed	Coal
11		Mondi-Merebank	70MW	R350 m	Biotrace	licence has been issued	Coal, wood by-products
12		Athlone (brownfield)	180 MW	R126 m		planned	Coal
13		Richards Bay-Rainbow Mellenium	264 MW	R264 m	Rainbow Mellenium Power Company	planned	Gas
14	Sudan	Khartoum North	200MW	\$267 m	Chinese power company, Harpen Wang Chen	planned	Hydro
15	Tanzania	Ubungo, Songo Songo	110 MW	\$340 m	CDC, AES	convert to gas	Gas
16	Uganda	Bujugali	250 MW	\$550 m	AES	nearly financial close	Hydro
17	Zambia	Itezhi-tezhi	120 MW	\$122 m	OPPPI	RFP completed	Hydro
18		Kafue Gorge Lower	600 MW	\$435.7 m	OPPPI	RFP completed	Hydro