Financing Ghana's Infrastructural Needs: A Public-Private Partnership/Private Finance Approach

The Prospects for Public-Private Partnership in Infrastructure with particular reference to Power

Synopsis

- Introduction
- Project Financing
- Risks and their Mitigation
- Typical Risk Matrix
- Some PPP Power Projects Undertaken
- Prospects for PPP in the Power Sector
- Lessons Learnt

Introduction

- Public-Private Partnership (PPP) describes a government service or private business venture funded and operated through a partnership of government and one or more private sector companies

- They bring public and private sectors together in long term partnership for mutual benefit

- Typically, a private sector consortium forms a special company called “special purpose vehicle” (SPV) to develop, build, maintain and operate an asset for the contracted period (say 20 years)

- In the infrastructure sector, complex arrangements and contracts that guarantee and secure the cash flows, make PPP projects prime candidates for project financing

Project Financing

- Project finance is the financing of long-term infrastructure and industrial projects based upon a complex financial structure where project debt and equity are used to finance the project

- In a typical project financing arrangement, the credit worthiness of the sponsor plays a secondary role

- A typically successful project financing would:

  - Avoid being shown on the balance sheet
  - Not impact on the credit rating of the sponsor

Risks and their Mitigation

- Risk is a concept that denotes the precise probability of specific eventualities. Technically, the notion of risk is independent from the notion of value and, as such, eventualities may have both beneficial and adverse consequences

- Risk is defined as a state of uncertainty where some of the possibilities involve a loss, catastrophe, or other undesirable outcome

- Adequate arrangements would be made for mitigation/management of risk during the various phases of the project

- Risk mitigation/management is the crux of the matter that determines the success or failure of project financing. It is the source of comfort and security to the lenders

Typical Risk Matrix

In formulating the project, a risk matrix should be designed to describe and allocate each type of risk and the mitigation measures to be adopted by the party to whom the risk is allocated.

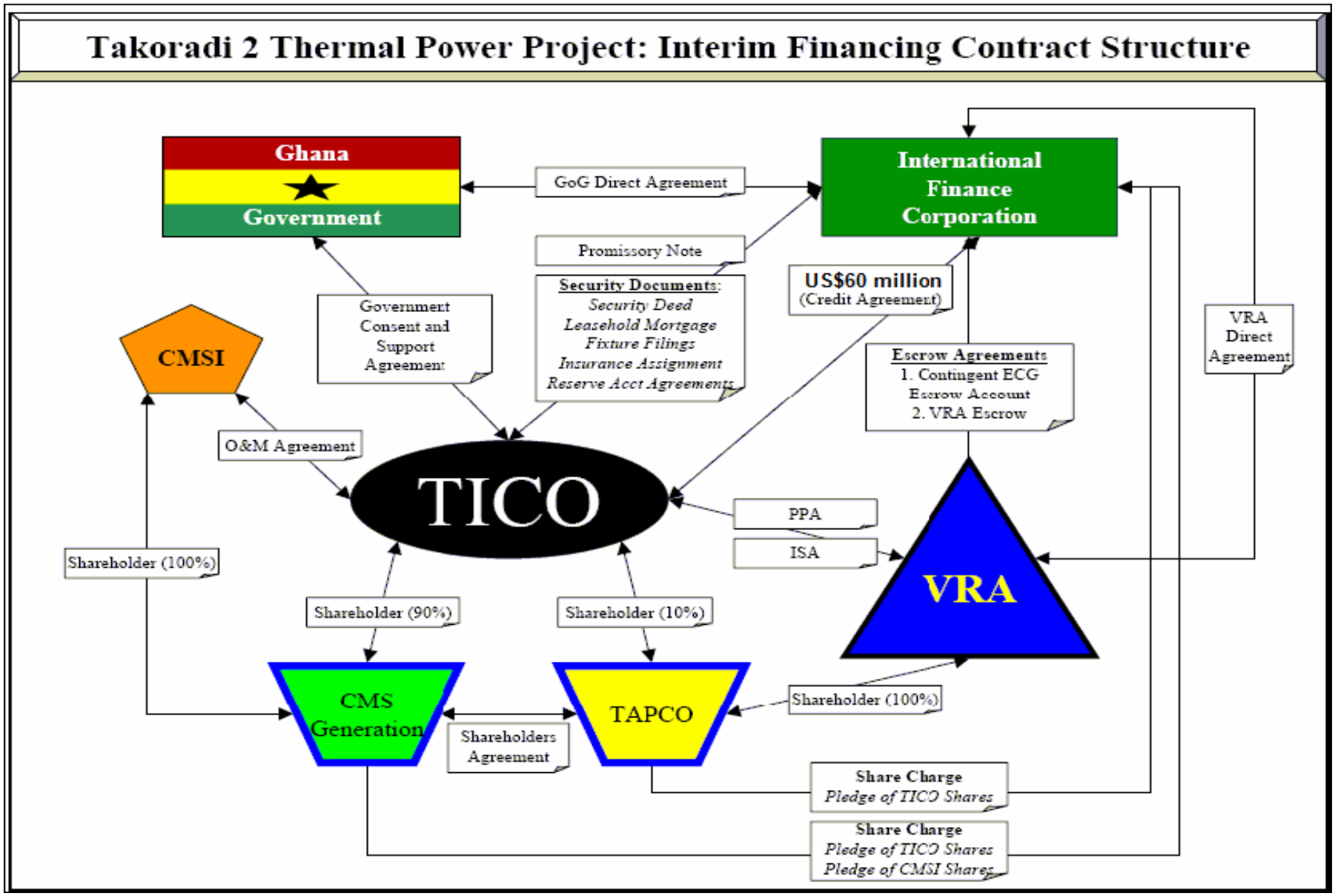
A typical matrix is as indicated below;

Risk Type	Describe	Allocation	Mitigation
chnology rformance	Existing technology unproven in terms of revenue service	Private (vendors)	Warranties
vironmental ws or Delay	Lengthy studies Permitting delays Regulatory approval periods	Public	Strong process management Private Partner assistance
rket Revenues	Customer willingness to pay for level of service (LOS) unknown; affects interest rate and marketability for project-based revenues Demand and revenue below projections Competing/alternative projects Excessive capital maintenance Insufficient revenues to fund ongoing O&M	Public and Private (funders/ lenders)	Investment grade demand and revenue studies accepted by rating agencies Adequate debt coverage ratios Adequate reserves Credit enhancement, insurance Tariff adjustment flexibility Careful budgeting processes and O&M controls Non-compete protections

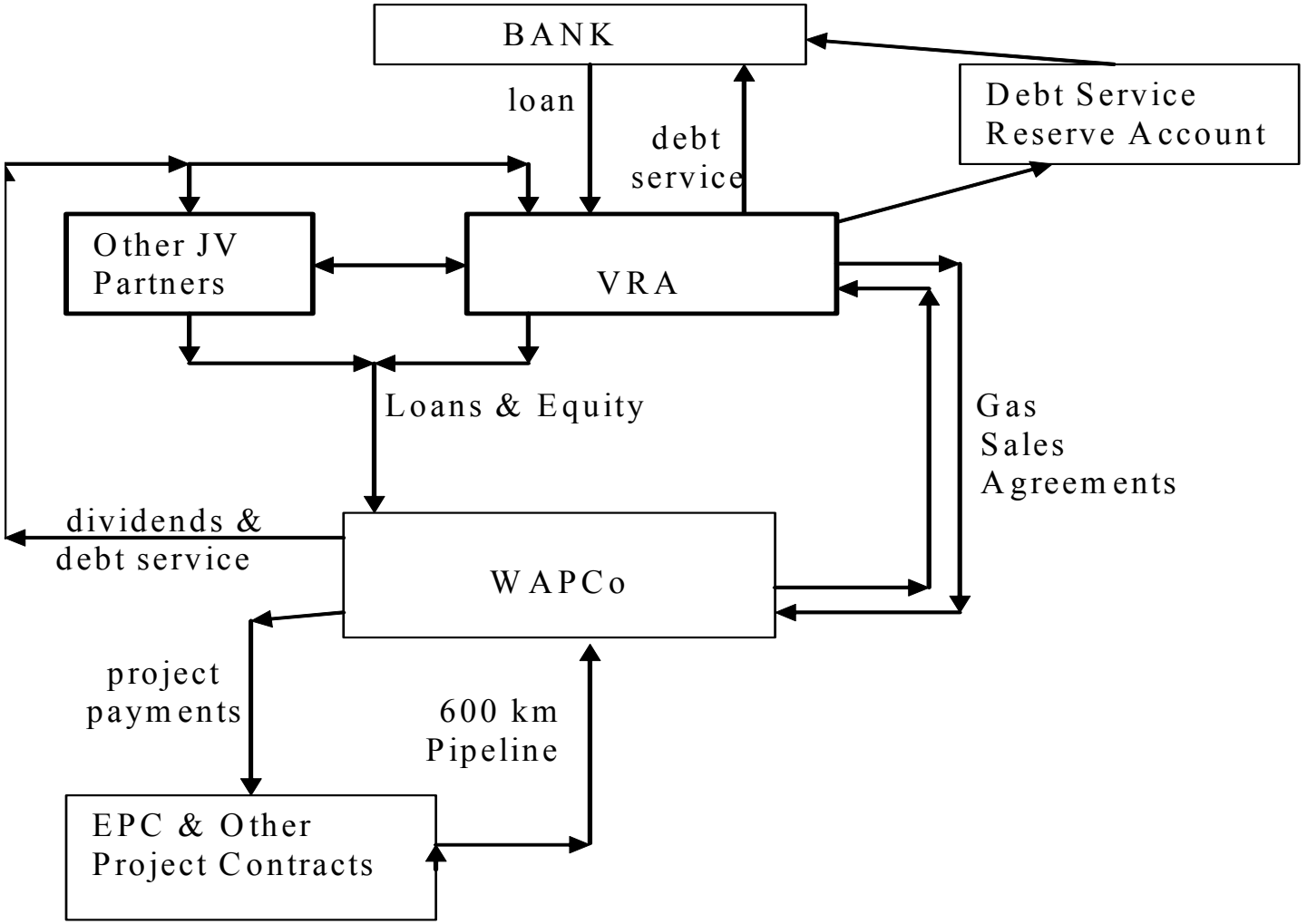
Risk Type	Describe	Allocation	Mitigation
mpletion Costs	Cost and schedule overruns	Private (construction contractor) and Public	Use of fixed price/guaranteed maximum contract Adequate contingency funds Liquidated damages Force majeur insurance Design and construction management/over sight by Public Partners (which may be outsourced) Financially viable Private Partners Specialized surety products Allowing Private Partners to undertake majority of design

Risk Type	Describe	Allocation	Mitigation
&M Costs	Excessive costs of operations	Private (O&M contractor) and Public	Non-recourse financing
	Excessive capital maintenance expenditures		Minimum guarantees
	Unpredictability of cost		Tariff adjustment flexibility
			Credit enhancement, insurance
			Careful budgeting processes
			Capital asset replacement assurances
			Warranties, incentives, and penalties
			Financially viable Private Partners
			Use of private O&M contract
			Use of fixed price/guaranteed maximum pricing, with escalations and adjustments over time

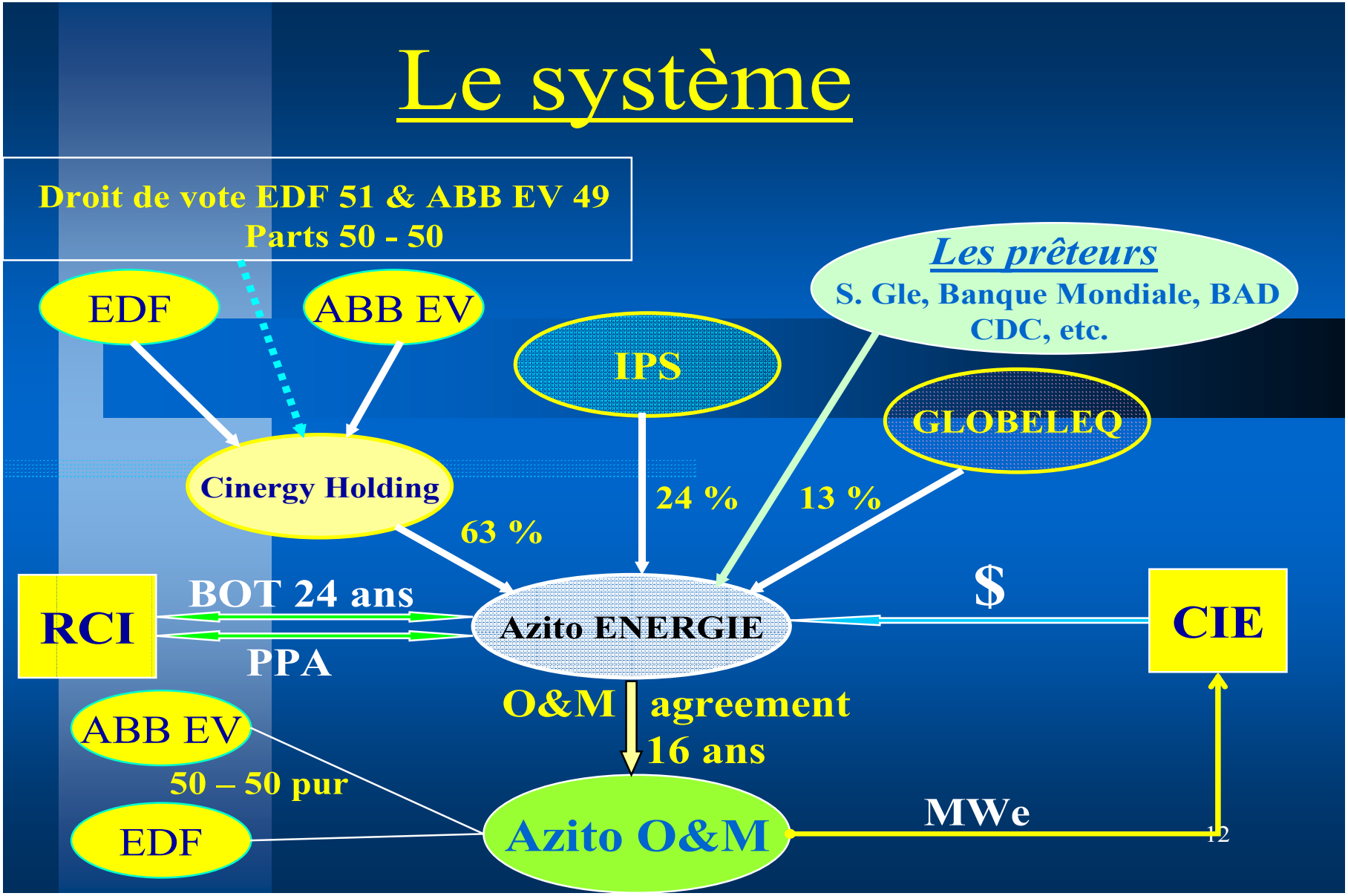
Takoradi 2 Thermal Project



West African Gas Pipeline Project



Azito IPP Plant – Cote d'Ivoire



Prospects of PPP in Power Sector

Volta River Authority

Medium Term Capacity Demand and Supply Balance (2009 - 2015)

Valco Supply @ 2 Potlines

	Forecast							
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Capacity Demand (MW)								
Domestic (Including System Usage)	1,190	1,331	1,461	1,632	1,847	1,967	2,069	2,152
VALCO	3	150	150	150	150	150	150	150
CEB Supply	50	80	115	115	115	115	115	115
SONABEL	1	1	19	19	19	19	20	20
Total Capacity Demand	**1,244**	**1,563**	**1,745**	**1,916**	**2,131**	**2,252**	**2,353**	**2,437**
Available Capacity (MW)								
Hydro								
Akosombo	900	900	900	900	900	900	900	900
Kpong	140	140	140	140	140	140	140	140
400 MW Bui Hydro Plant	-	-	-	-	400	400	400	400
Total Hydro	**1,040**	**1,040**	**1,040**	**1,040**	**1,440**	**1,440**	**1,440**	**1,440**
Thermal								
T1 - Combine Cycle	150	300	300	300	300	300	300	300
T2 - Simple Cycle	200	200	200	-	-	-	-	-
T2 - Combine Cycle	-	-	-	300	300	300	300	300
126 MW Tema 1 Plant	-	110	110	110	-	-	-	-
126 MW OSONOR Plant	-		110	110	-	-	-	-
300 MW Tema Combine Cycle Plant	-	-	-		300	300	300	300
125 MW Osagyefo Barge	-	110	110	110	110	110	110	110
110 MW Emergency Plants	-	-	-	-	-	-	-	-
80 MW Mines Plant	-	40	40	40	40	40	40	40
IPP - WoodGroup Plant	-	-	-	-	-	-	-	-
230 MW Alstom Plant - Simple Cycle (KTPP)	-	-	200	200	200	-	-	-
330 MW Alstom Plant - Combine Cycle (KTPP)	-	-	-	-	-	300	300	300
Power Imports	5	-	-	-	-	-	-	-
50 MW TT2PP (Siemens Plant)	-	50	50	50	50	50	50	50
200 MW Sunon-Asogli (Phase 1)	-		200	200	200	200	200	200
Total Available Capacity	**1,395**	**1,850**	**2,360**	**2,460**	**2,940**	**3,040**	**3,040**	**3,040**
Reserve Capacity (MW)	**151**	**287**	**615**	**544**	**809**	**788**	**687**	**603**
Reserve Capacity (%)	**12%**	**18%**	**35%**	**28%**	**38%**	**35%**	**29%**	**25%**
Required Reserve Capacity (%)	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**

Prospects for PPP in Power Sector

Volta River Authority

Medium Term Energy Demand and Supply Balance (2009 - 2015)

Valco Supply @ 2 Potlines

	Forecast							
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Forecast Demand (GWh)								
Total Domestic	7,488	8,030	9,026	9,630	10,276	10,964	11,699	12,483
VALCO	260	1,240	1,314	1,314	1,314	1,314	1,314	1,314
CEB Supply	506	700	1,010	1,010	1,010	1,010	1,010	1,010
SONABEL	4	5	66	67	68	68	69	70
System Usage	332	400	434	442	449	466	481	496
Total Demand	**8,590**	**10,375**	**11,850**	**12,463**	**13,117**	**13,822**	**14,573**	**15,373**
Projected Generation (GWh)								
Hydro								
Akosombo	5,231	5,561	4,000	4,000	4,000	4,000	4,000	4,000
Kpong	968	1,113	800	800	800	800	800	800
400 MW Bui Hydro Plant					1,000	1,000	1,000	1,000
Total Hydro	**6,200**	**6,674**	**4,800**	**4,800**	**5,800**	**5,800**	**5,800**	**5,800**
Thermal								
T1 - Combine Cycle	888	1,661	1,840	1,840	1,840	1,840	1,840	1,840
T2 - Simple Cycle	1,026	1,379	1,402	1,402	-	-	-	-
T2 - Combine Cycle	-				2,102	2,102	2,102	2,102
126 MW Tema 1 Plant	0.3	289	771	771	-	-	-	-
126 MW OSONOR Plant	-		771	771	-	-	-	-
300 MW Tema Combine Cycle Plant	-	-	-	-	2,102	2,102	2,102	2,102
125 MW Osagyefo Barge	-		230	723				723
110 MW Emergency Plants	132	-	-	-	-	-	-	-
50 MW Siemens Plant	-		372	372			372	372
80 MW Mines Plant	44	72	263	263			254	263
IPP - WoodGroup Plant	30	-	-	-	-	-	-	-
230 MW Alstom Plant - Simple Cycle (KTPP)	-		1,402	1,402	1,272	-	-	-
330 MW Alstom Plant - Combine Cycle (KTPP)	-	-	-	-	-	1,978	2,102	2,102
Power Imports	271	299	-	-	-	-	-	-
200 MW Sunon-Asogli (Phase 1)	-	-	-	121				68
Total Generation	**8,590**	**10,375**	**11,850**	**12,463**	**13,117**	**13,822**	**14,573**	**15,373**

Lessons Learnt

Post COD Difficulties

- GOG support for the project crystallized
  VRA went into default - economic downturn in 2000
  Contingent liability-capacity payment- GoG bailout
- Exchange Rate Risk & Conversion risk
  Again GoG had to step in

Lessons Learnt

Private Sector Participation

- Funding was quickly mobilized for construction
- Construction was done within schedule & under budget
- High reliability of the plant (95% availability)
- Schedule maintenance-LTSA (preventive maintenance)
- Spare parts readily available

Lessons Learnt

Secondary Benefits

- Secondary investment: The plant became the anchor customer for the WAGP

  Private sector looks at immediate returns

  Public sector should look beyond this

- Cost of unserved energy: loss of 220 MW during energy crisis

  Think of the cost to society if the service is not available

Lessons Learnt

- PPPs/PFIs can flourish in a well managed and sustained economic environment-strong economic fundamentals required
- Public sector bargaining power with the private sector improves if the economic fundamentals are strong
- Public sector should look beyond the returns from the initial investment-focus also on the benefits that you can get from the secondary investment

Hypothetical Question

Assume you were the Minster of Finance; you have assessed that the contingent liability of a project would impact negatively on your debt sustainability profile; however in the long term the benefits to be derived from the secondary investment this project would bring to the country far exceeds this contingent liability.

Will you want to give a Support Agreement for the project to be implemented?

Testing the P3 Duality Principle!!!