

Natural gas regulatory workshop with the West Africa Gas Pipeline Authority

February 14-16, 2012

Cotonou, Benin.

A ROLE GAME ON NETWORK ACCESS, PRICING, DISPUTE RESOLUTION, AND THE PROCEDURES OF REGULATORY INSTITUTIONS

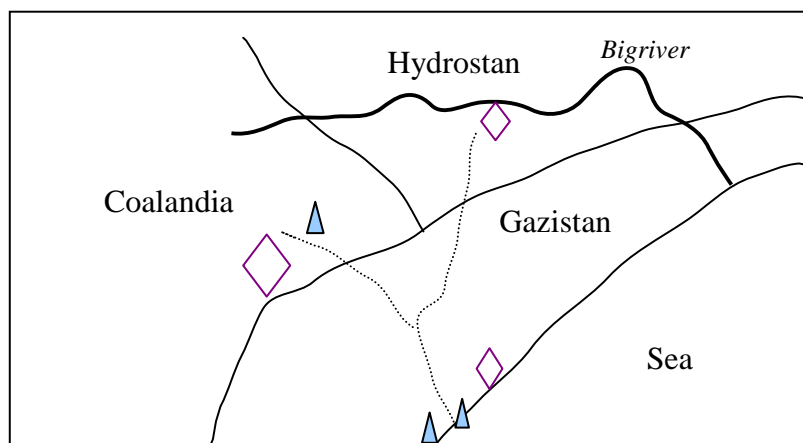
Setting

The game is based in an imaginary region consisting of three emerging countries, with rapidly developing economies and gas markets.

The Bigriver Basin includes three States. In the only coastal country, Gazistan, a mature associate oil&gas production province has been operational for several decades, and its production is stable around 20 Bcm/year (1.92 bcf/d). In 2010, Gazistan used 6 Bcm/y, mostly for power generation and a large fertiliser plant, and exported 9 Bcm/y as LNG and 5 Bcm/y by pipeline to its two inland neighbouring countries, for which it was the only source of gas.

The 32" pipeline, operated at 60 bar, has a capacity of 6 Bcm/y and could be further expanded by reinforcing compression, up to 8 Bcm/y. After 100 Km in Gazistan it splits into two 26" branches. The Northern branch crosses the border with Hydrostan where, after 200 Km from the hub, it reaches the main consumption areas centred around the capital. In 2010 Hydrostan used 3 Bcm, half for power generation and the remaining through a local distribution companies that sells to mostly small productive premises.

The Bigriver Basin countries,
their pipelines (-----), markets
(◇) and gas fields (▲)



The Western branch crosses into Coalandia, a larger country, and after 150 Km it gets to the main market area. In 2010 Coalandia used 4 Bcm, of which 3 were taken by the national power utility and 1 by a grouping of cement, steel and other industrial customers.

Gas is supplied by two joint ventures: GAZ1, controlled by NOG (the National Oil&Gas company of Gazistan) and XXX, a major European oil&gas company, and GAZ2, controlled by NOG and by ChinaPower, a Chinese state-owned energy company. All of them use long term contracts with take or pay obligations (see Table 1), due to expire between 2025 and 2030. Prices vary as they are set by reference with competing fuels. However, prices of gas used for power generation and by the Hydrostan LDC are subject to regulation by the National Regulatory Commission of each country. In Gazistan, the regulated price is the production cost, including a 15% profit, or 2 \$/Mbtu. In Gazistan, the main power generation sources are gas and hydro. In Hydrostan it is mostly hydro, whereas in Coalandia it is mostly coal.

Table 1 – Gas supply contracts in the Bigriver region as of 2010.

Supplier	Customer	End use	Country of use	Contractual Volume (Bcm/y)	Price (2010, \$/Mbtu)
GAZ1	Hydro Power	Power Generation	Hydrostan	1.5	4
GAZ2	Hydrogas	LDC - various	Hydrostan	1.5	5
GAZ2	Coalandia Gas	Industry	Coalandia	1	6
GAZ1	Coalandia Power	Power generation	Coalandia	3	6
GAZ1	NOG	Power generation and fertiliser ind.	Gazistan	5	2
GAZ2	ChinaPower	Power generation	LNG	6	5
GAZ1	XXX	International market	LNG	3	4 (FOB)

The gas pipeline system is owned and operated by the Bigriver Gas Transport Company, (BRGT), controlled by the three national governments with a 33.3% share each. It is regulated by a special International Commission with equal representation of the three participating countries, and decisions are taken by unanimity.

Tariffs are capacity-based and related to transportation distance. For a 80% load pipeline the transportation tariff would be 0.40 \$/Mbtu from production area to Hydrostan city gate and 0.34 from the same fields to Coalandia's main market.

Capacity has been allocated on a long term basis as requested by the contracts, considering a 80% load.

The game: new perspectives

Let us suppose that in 2012, after new exploration technologies have been deployed, important unconventional (CBM) gas resources are discovered in Coalandia. Coalandia Gas, the national energy company acting in joint-venture with Newgas, a US gas independent, plans to start producing 2 Bcm in 2015, rising to 12 Bcm/y by 2020. The production costs will be 3 \$/Mbtu. Demand from Coalandia is expected to increase to 6 Bcm/y by 2015 and 10 Bcm by 2020. Hydrostan would also double its gas demand by 2015 and triple it by 2020, whereas Gazistan's demand would increase to 8 Bcm in 2015 and 10 in 2020. Gazistan's production would possibly increase, but not at the same pace as the region's demand. Overall, gas left for export from the region (as LNG) and its price are expected to remain stable.

Table 2 – Evolution of production, consumption and export of natural gas in the Bigriver Basin

(Bcm/y)	2010			2020		
Country	Production	Consumption	Export / Import (-)	Production	Consumption	Export / Import (-)
Gazistan	20	6	14	24	10	14
Hydrostan	-	3	-3	-	9	-9
Coalandia	-	4	-4	12	10	2
Total	20	13	7	36	29	7

Players

1. XXX, European private oil&gas company
2. China Power, Chinese state owned energy company
3. Newgas, U.S. private gas E&P company
4. NOG, Gazistan's state oil&gas company
5. Hydropower, Hydrostan's power utility
6. Hydrogas, Hidrostan's gas utility
7. Coalandia Gas, Coalandia's gas company
8. Coalandia Power, Coalandia's power utility
9. National Energy Regulatory Commission of Coalandia
10. National Energy Regulatory Commission of Gazistan
11. National Energy Regulatory Commission of Hydrostan
12. National Government of Coalandia
13. National Government of Gazistan
14. National Government of Hydrostan

15. Bigriver International Gas Regulatory Authority (BIGRA): Director General
16. BIGRA Commissioner from Coalandia
17. BIGRA Commissioner from Gazistan
18. BIGRA Commissioner from Hydrostan

Questions

Q. 1 - Any other players?

Q. 2 – Given the new market and supply perspective, would any market player request any change in access rights and/or tariffs to the Bigriver pipeline system? How?

(Hint: market players may request a change in capacity allocation criteria or in in tariffs, or available transportation services)

Q. 3 – What would be the BIGRA's response to such requests?

(Hint: BIGRA is assumed to preserve existing rights as enshrined in contracts, however it could find new ways of satisfying market players' requests)

Q. 4 – Would any player propose the construction of new pipelines or the enhancement of existing ones? How, where and when?

Q. 5 – What would the BIGRA decide?

(Hint: 2012 BIGRA decisions should be based at first on 2020 forecasts only; decisions considering longer term scenarios may also be proposed)

Q. 6 – What could NERCs of the three countries have to say?

Q. 7 – What would National Governments have to say?

Course participants' tasks

1. Choose your role (first come first serve), two participants may pool if necessary.
2. Study the problem (15 mins.)
3. Raise your points on each question, as appropriate (2-5 mins., max 60 mins. total, please remember that players have different role and may not be allowed the same time)
4. Role playing is dropped and a general discussion of BIGRA's decision ensues (max. 15 mins).