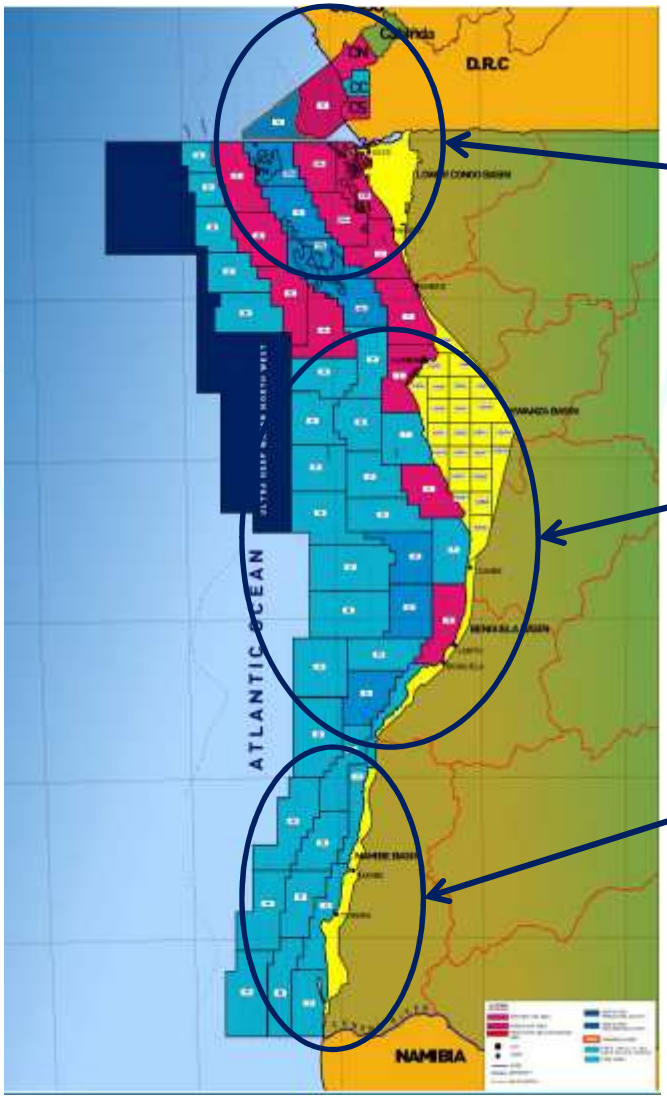
Study Group 1.3
Gas Rent and Mineral Property Rights

Angola

2nd WOC 1 Meeting
Rio de Janeiro
18-21 February 2013

Basins and concession blocks



Lower Congo

Kwanza

Namibe

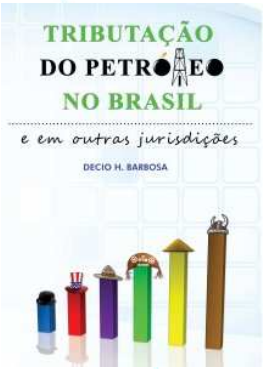
Fiscal regime for ultra deep waters (> 1 km)

- Signature bonus
  - US$ 10 million non-recoverable, unshared)
- Training fee
  - US$ 200 thousand during exploration and development
  - US$ 0.15/bbl during production period
- Social contribution
  - US$ 4 million at start-up, non-recoverable
- State share (Sonangol)
  - 20% carried through to commercial discovery, with repayment of past exploratory costs by Sonangol
- Cost recovery 50%, 4 years (20% uplift development)
- Income tax 50%
- Profit sharing
  - Calculated quarterly

IRR (%)	Profit share
< 10.0	70
10.0-12.5	55
12.5-17.5	45
17.5-20.0	30
> 20%	20

Case study (concession)

Year	Geology and geophysics	Exploratory and delimitation wells	Production wells	Submarine items	FPSO	Project management	Capex	Opex	Decommissioning	Production (bbl/d)	Revenues (MUS$)	EBITDA (MUS$)
1	20						20					-20
2	50						50					-50
3		200					200					-200
4		200					200					-200
5			50	100	100	100	350					-350
6			200	400	300	100	1000					-1000
7			370	400	300	100	1170					-1170
8			370	400	300	100	1170	200		32	3200	1830
9			370				370	200		44	4400	3830
10			370				370	200		55	5500	4930
11			370				370	200		66	6600	6030
12			370				370	200		75	7500	6930
13			130				130	200		73	7300	6970
14							0	200		65	6500	6300
15							0	200		59	5900	5700
16							0	200		53	5300	5100
17							0	200		48	4800	4600
18							0	190		43	4300	4110
19							0	181		39	3900	3719
20							0	171		35	3500	3329
21							0	163		31	3100	2937
22							0	155		28	2800	2645
23							0	147		25	2500	2353
24							0	140		23	2300	2160
25							0	133		21	2100	1967
26							0	126		18	1800	1674
27							0	120	500	17	1700	1080
Totals	70	400	2600	1300	1000	400	5770	3526	500	850	85000	75204
	Petroleum	100	US$/bbl									



(Barbosa, 2011)

Case study (sharing)

Year	Signature bonus (MUS$)	Geology and geophysics (MUS$)	Exploratory and delimitation wells (MUS$)	Production wells (MUS$)	Submarine items (MUS$)	FPSO (MUS$)	Project management (MUS$)	Capex (MUS$)	Opex (MUS$)	Decommissioning (MUS$)	Production (Mbbl)	Revenues (MUS$)	EBITDA (MUS$)
1	100	16						116					-116
2		40						40					-40
3			160					160					-160
4			160					160					-160
5				40	80	80	80	280					-280
6				160	320	240	80	800					-800
7				296	320	240	80	936					-936
8				296	320	240	80	936	160		26	2.560	1.464
9				296				296	160		35	3.520	3.064
10				296				296	160		44	4.400	3.944
11				296				296	160		53	5.280	4.824
12				296				296	160		60	6.000	5.544
13				104				104	160		58	5.840	5.576
14								0	160		52	5.200	5.040
15								0	160		47	4.720	4.560
16								0	160		42	4.240	4.080
17								0	160		38	3.840	3.680
18								0	152		34	3.440	3.288
19								0	145		31	3.120	2.975
20								0	137		28	2.800	2.663
21								0	130		25	2.480	2.350
22								0	124		22	2.240	2.116
23								0	118		20	2.000	1.882
24								0	112		18	1.840	1.728
25								0	106		17	1.680	1.574
26								0	101		14	1.440	1.339
27								0	96	400	14	1.360	864
Totals		56	320	2.080	1.040	800	320	4.716	2.821	400	680	68.000	60.063

Petroleum	100	US$/bbl
Sonangol share	20%	

Case study results (sharing)

Depreciation (MUS$)	Uplifted depreciation (MUS$)	Remaining reserves (Mbbl/a)	Provision for decomissioning (MUS$)	Recoverable costs (MUS$)	Recoverable excess (MUS$)	Petroleum cost (MUS$)	EBIT (MUS$)	Government share	Government petroleum (MUS$)	Petroleum profit (MUS$)	Deducted income (MUS$)	Carry forward (MUS$)	Taxable amount (MUS$)	IR (MUS$)	Net cash flow (MUS$)	Present value of net rate (MUS$)	Present value of net cash (MUS$)
		680										4			-120		-120
		680										10			-50		-46
		680										40			-200		-171
		680										40			-200		-159
		680										70			-350		-257
		680										200			-1.000		-681
		680						25%				234			-1.170		-737
874	1.283	680		1.443	419	1.024	1.536	25%	384	1.152	733	-222			1.302	0	760
892	1.338	654		1.917	509	1.408	2.112	25%	528	1.584	1.494	-568	2.419	1.210	1.895	653	1.024
966	1.449	619		2.118	358	1.760	2.640	40%	660	1.980	2.131	42	2.089	1.044	2.197	522	1.099
1.040	1.560	575		2.078		2.078	3.202	60%	1.281	1.921	2.279	0	2.279	1.140	2.404	528	1.113
296	444	522		604		604	5.396	80%	3.238	2.158	2.158	0	2.158	1.079	1.227	463	526
248	372	462		532		532	5.308	80%	4.246	1.062	1.062	0	1.062	531	799	211	317
174	261	404		421		421	4.779	80%	3.823	956	956	0	956	478	739	176	272
100	150	352		310		310	4.410	80%	3.528	882	882	0	882	441	591	150	201
26	39	305		199		199	4.041	80%	3.233	808	808	0	808	404	443	127	140
		262		160		160	3.680	80%	2.944	736	736	0	736	368	368	107	107
		224		152		152	3.288	80%	2.630	658	658	0	658	329	329	89	89
		190		145		145	2.975	80%	2.380	595	595	0	595	298	298	74	74
		158	71	208		208	2.592	80%	2.074	518	589	0	589	295	295	68	68
		130	63	193		193	2.287	80%	1.830	457	520	0	520	260	260	56	56
		106	57	181		181	2.059	80%	1.648	412	468	0	468	234	234	47	47
		83	51	168		168	1.832	80%	1.466	366	417	0	417	208	208	38	38
		63	46	158		158	1.682	80%	1.345	336	383	0	383	191	191	33	33
		45	42	149		149	1.531	90%	1.225	306	349	0	349	174	174	27	27
		28	36	137		137	1.303	90%	1.173	130	167	0	167	83	83	12	12
		14	34	130		130	1.230		1.107	123	-243	0			-243	0	-33
4.616	6.896		400								17.142	-150		8.767	10.704	3.383	3.799

Depreciation rate		25,00%	4	years	Provision limit		25%				IR	50%				8%	interest rate
Depreciation uplift		50,00%	(exploitation only)		Cost recovery limit		40%										

Conclusions

- Government take is very high, comparable to the Norwegian model
- Net present value is relatively small, as a consequence
- Complex model, but very stable

Thank you!