



"PETROLEUM EXPLORATION, DEVELOPMENT AND PRODUCTION OPPORTUNITIES IN ALBANIA" (COUNTRY OVERVIEW)

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CONCLUSIONS

I. REGIONAL SETTING

Albania is located in the Southeast of Europe.

Albania by land is bordered with Monte Negro in the North, Kosovo and "Former Republic of Macedonia" in northeast and east, and by Greece in the South and Southeast,

whereas

in the West it is bordered by the Adriatic and Ionian Seas.

It is about 28.000 km²



II. REGIONAL GEOLOGICAL SETTING

From the geological point of view,

Albania is part of the Mediterranean Alpine

Folded Belt and fits in the Dinaric-Hellenic range, between the Dinarides in the North and Hellenides in the South.

The geological structure constituting Albania is called the Albanides, a term widely used at home and abroad.

The Albanides are divided into - **INTERNAL ALBANIDES.** and

- EXTERNAL ALBANIDES.



II. REGIONAL GEOLOGICAL SETTING (2)

The Internal Albanides are characterized by developed magmatism and by intensive tectonics which has led to the over thrust and tectonic napes.

The Internal Albanides consist of thee tectonic zones, which from east to west are:

- the Korabi zone,
- The Mirdita zone

(the main ophiolite bearing zone),

- and Gashi zone.

The two post orogenic sedimentary (intermountainous) basins respectively: **Burreli Basin** in the north and **Korca Basin** in the southeastern part of Albania, overlie transgressively the Mirdita zone and partially the Krasta-Cukali zone.



II. REGIONAL GEOLOGICAL SETTING (3)

The External Albanides on the contrary are characterized by the lack of magmatism and by more regular structural models but which are associated with considerable thrusts.

From east to west, the External Albanides is devided into the following zones:

-The Albanian Alps zone, -The Krasta-Cukali zone, -the Kruja platformic zone -the Ionian trough and - the Sazani platformic zone

Northwards the overlying **Peri-Adriatic Depression (PAD)** masks the Ionian and, partly Kruja tectonic zones.

Westwards offshore, the Peri Adriatic Depression is unified with the South Adriatic Basin, which overlay the **Preapulian (Sazani zone)** and Apulia Platform.



The⁶main structural-tectonic units in Albanides

II. REGIONAL GEOLOGICAL SETTING (4)



Geological – geophysical sections on the northern and central part of Albanides.

The relative movements of the Adriatic sub plate and the Euro Asiatic plate from Mesozoic to

Tertiary mainly controlled tectonic evolution of the Albanides where some tectogenic phases have been recorded in the Albanides during the period of time.



The location of main oil and gas field in Albania

Albania was established as a Hydrocarbon bearing province as early as Roman times, when **heavy oil and asphalts of Selenica** mine were used for lamps.

In 1918 the first oil discovery was made in Oligocene flysch in Drashovica.

In 1927, 1928 respectively **Kucova and Patosi oil fields** related to Messinian clastic reservoirs were discovered.

Marinza as the biggest oil field in Albania related to Messinian-Tortonian clastics reservoirs was discovered in 1957.



9 Oil and Gas Fields in Albania

Visoka, as the first oil field related to carbonate reservoirs, discovered in 1963, was followed by other discoveries such as: Gorishti (1965), Ballshi (1966), Finiq-Krane (1974), Cakran-Mollaj (1977), Amonica (1980) and Delvina (1987).

With the first Gas discovery (1963) in the Tortonian sandstone layers of Divjaka, other gas fields respectively: Frakulla (1972), Ballaj 1983, Povelca and Panaja gas fields in 1987 and Durresi (1988) were discovered.



Oil and Gas Fields in Albania

FIELD	DISCOVER Y YEAR	RESER VOIR TYPE	RESERVOIR DEPTH (m)	O/G GRAVITY (API)	SULPHUR CONTENT (%)
Drashovica	1918	Oligoc.flysch	100-200	Oil<10°	?
Patos	1927	Mess-clastics	Surf. To 1200	Oil (12-24°API)	2,5-6
Kucova	1928	Mess-dastics	Surf. To 1500	Oil (13-16°API)	4
Marinza	1957	Mess-dastics	1200-1800	Oil (12-35°API)	4-6
Visoka	1963	Cret/Eoc.Carb	800-1000	Oil (5-16°API)	5-6
Gorisht-Kocul	1965	Cret/Eoc.Carb	1000-2500	Oil (17°API)	6
Ballsh-Hekal	1966	Cret/Eoc.Carb	1000-3000	Oil (12-24°API)	5.7-8.4
Cakrran-Mollaj	1977	Cret/Eoc.Carb	3000-4500	Oil (14-37°API) Cond, 52 °API	0.9
Finiq-Krane	1973	Cret/Eoc.Carb	800-2000	Oil (<10°API)	3.7-4.3
Delvina	1989	Cret/Eoc.Carb	2800-3400	Oil (31°API) Cond, 53 °API	0.7
Divjaka	1963	Tort/clastics	2400-3000	Gas &Condens	Na
Ballaj-Kryevidh	1983	Plioc/clastics	300-1700	Gas	Na
Frakulla	1965	Mess/clastics	300-2500	Gas	Na
Povelca	1987	Mess/clastics	1800-3500	Gas &condens	Na
Panaja	1988	Mess/clastics	2500	Gas	Na
Ad-4 (offshore)	1994	Mess/clastics	2500-3100	Biogenic Gas & Cond, 54.3 [°] API	Na
Sqepuri	2001	Cret/Eoc.Carb	4950	Oil (37°API)	2,3

A summary of the Exploration History in Albania

First Offshore Bidding Round

In the offshore bidding round, the Albanian offshore was divided in 5 blocks with a total surface area of 11763 km² which were offered to the international oil companies. At the end of the round, 5 Petroleum Sharing Agreements were signed for 5 blocks offered, respectively.

Block Rodoni-1 to DEMINEX Co. (German) and OMW Co. (Austrian)

Block Adriatiku-2 to AGIP Co. (Italian)

Block Adriatiku-3 to Occidental Co. (American)

Block Adrialtiku-4 to CHEVRON Co. (American)

Block Joni-5 to HAMILTON OIL Co. (Australiane)

The Albanian offshore was completely unexplored with a total absence of data.

Totol investment 147 Milion USD



The Å4-1x well drilled (1993 by AGIP and Chevron in offshore Albania **(Adriatiku-4)** proved to be as a light oil (condensate) and gas bearing in Messinian clastic reservoir.

First round onshore (1992)

In 1992, the First Exploration Round for oil and gas onshore was opened for blocks A,B,C,D,E, and F, of a total surface area of 4200 km². This round was declared closed in 1994 with the signing of three exploration contracts with production sharing for four blocks as follow:

- Blocks B and F to SHELL (Dutch)
- Block C to Ina Naftaplin (Croatian)
- Block E to COPAREX International (French)

The studies made in these blocks have identified a series of formations of interest for oil and gas exploration, of which only one well has been drilled by Ina-Naftaplin without the target being reached.

Totol investment 45 milion USD



Second licensed round in Albania (onshore blocks, November 1995)

In following up the policy for the attraction of foreign investments in gas and oil exploration sector in Albania, in 1995, the Government of the Republic of Albania, through the National Petroleum Agency opened the Second Licencing Round for gas and oil exploration and production onshore, for a surface area of 22 400 km².

In conclusion, six agreements were signed in 1998, four of which are from the Second Round blocks and two blocks, A and D, from the First Round.

Blocks A and 2, 3	ks A and 2, 3 to OXY (USA)			
Blocks D	to Coparex (France)			
Blocks 5 and 4	to	OMW	and	Hellenic
	Petroleum			
Block 1	to Hellenic Petroleum			

Totol investment during this round were about **14** 70 Million USD



IV. EVALUATION OF EXPLORATION OPPORTUNITIES IN ALBANIA (1)

Based on the geological studies, old seismic lines performed by Albpetrol and these performed in the recent years by the foreign companies it appears that, **Albania**, in spite of the existing oil and gas fields, **still has a very good potential and is very promising area for further exploration in both onshore and offshore.**

ONSHORE AREAS

Thrusting westwards in the Albanides and especially in the External Albanides are associated with the masking of the separate anticline structures or anticline chains, which have potential for new oil and gas discoveries.

In the cases when thrusting westward is associated with the back thrust tectonic faults, synclines of triangular type are formed which are not easily identified but generally hide potential structures for oil and gas discoveries.

From this point of view, still there is enough room for further exploration for identifying the new possible sub thrust structures in onshore areas.

Gas Potential discoveries could be found under the existing oil discoveries in the deeper levels, but the seismic information it is not enough, to draw the prospects. New reprocessing and acquisition of new seismic data are necessary for this target.

IV. EVALUATION OF OF EXPLORATION OPPORTUNITIES IN ALBANIA (2)

OFFSHORE AREAS

Oil Potential in the offshore area is related to the Possible Ionian carbonate structures and morphological highs of Apulia platform. In the appropriate conditions and places in the offshore there are possibilities for finding of the new and potential oil accumulations both in the clastic section (charged by the underlying platform carbonate) as it was the case in A4-1x well, and/or in the platform carbonate reservoirs.

Gas Potential is related to the Miocene-Pliocene folded structures, as identified in the offshore to be valid based on old seismic (1991) and confirmed by the new seismic recently acquired.

Taking into consideration the fact that, the dimensions of the prognoses structures in offshore are considerably larger than their analog structures in the existing gas fields in onshore, big reserves of biogenic and /or termoogenic area expected to be found in the area,



Offshore seismic section on the Block 4

IV. EVALUATION OF OF EXPLORATION OPPORTUNITIES IN ALBANIA (3)

Geological survey has been in the leading role of the all oil and gas exploratory methods in Albania thrust belt over the past sixty years. So, based chiefly on surface geology data is realized the discovery of the Gorisht field, etc.

Meanwhile, 2D seismic survey has been the second progress resulted in some other discoveries as Finiq-Krane, Cakran and Amonica fields. Whereas the 2D & 3D seismic survey has faced serious restrictions owing to the existence of intensive flysch folding frequently complicated by different faults, steep flanks and closers, as well as small wideness of the oil prospects, which sometime are masked by eroded and thrusted anticline structures.

Anyhow, the seismic survey method, frequently have faced serious restrictions and consequently, since the project of the wildcat of the last field discovered there is huge time gap of dry exploration in Albania.

On the other hand considering enormous compelled geological geophysical data and syntheses carried out so far have revealed a great similarity between the Albanides and Hellenides geological setting

IV. EVALUATION OF OF EXPLORATION OPPORTUNITIES IN ALBANIA (4)

Most likely the negative results have come from:

• The presence of the carbonate sheets with high impedance to surface represents a major obstacle to the propagation of seismic energy.

• The inadequate method adopted for resolving the complex velocity field in poor signal-noise conditions.

• Carrying out insufficient surface geological mapping or former maps revisions.

• Improper orientation of seismic lines for recording carbonates prospects' structural features.

IV. EVALUATION OF OF EXPLORATION OPPORTUNITIES IN ALBANIA (5)

Actually are under operation for the exploration oil and gas the following Petroleum Agreements:

- * **Durresi block** offshore, with the company SANLEONE
- * Joni 5 block offshore, with the company Medoil, which was bought by Cairn Energy company and the Agreement for this block is covered by the branch Capricorn Albania Ltd
- * A-B blocks onshore and the Agreement on blocks D-E onshore, with company Petromanas Albania
- * Blocks 2-3 onshore, with company Petromanas Albania
- * **Block F** with Bankers-Petroleum.
- * Block 4-5 and Dumrea, with company Sky Petroleum

Until now in this activity is invested about **60** milion USD



	NR.	Company	Block	Effective Data	Investment in Million USD		
					Up to 2010	2011	Total up to 31.12.2011
	1	San Leone	Durresi	27.08.2004	11,618.00	7,269.00	18,887.00
	2	Capricorn	Joni 5	24.08.2007	9,441.00	188.00	9,629.00
	3	Petromanas	A+B	12.2007	4,758.00	887.41	5,645.41
	4		D+E	12.2007	9,809.00	1,171.30	10,980.30
	5		2+3	07.2009	6.088.00	5,005.76	11,093.76
	6	Bankers Petroleum	F	17.12.2010	·	1,454.00	1,454.00
		Total			41,714.00	15,975.47	57,689.47

Investment by current Exploration in Albania Bllock by the companies

V. EVALUATION OF DEVELOPMENT AND PRODUCTION OPPORTUNITIES IN ALBANIA (1)

Concerning oil and gas development and production from the existing oilfields are in operation through the Petroleum Agreement, with Albpetrol, actually state company, the following companies for the respectively field :

•Bankers-Petroleum ALBANIA. On the Patos-Marinza oilfield.

•Stream Oil & Gas" Ltd. On limestone oilfields Ballsh-Hekal, Cakran-Mollaj, Gorisht-Kocul and Delvinë .

•Sherwood International Petroleum Inc. On the oilfield of Kucove

•IEC Visoka Inc. On the oilfield of Visoke .

In this activity until now are invested about **840** milion USD



V. EVALUATION OF DEVELOPMENT AND PRODUCTION OPPORTUNITIES IN ALBANIA (2)



V. EVALUATION OF DEVELOPMENT AND PRODUCTION OPPORTUNITIES IN ALBANIA (Bankers Petroleum)

Profile & Strategy of Bankers Petroleum

Canadian, Public, Calgary-based E&P company with an operational focus in Albania

Large scale growth of recoverable heavy oil reserves through proven techniques and expertise

Maximize the value of Bankers assets by funding growth through current cash position, cash flow and existing credit facilities

Production

About

Strategy

Q1 - 2012 - Average Production 14,120 bopd Targeting 30% Annual Production Growth in 2012



2012 Capital Expenditure Program

PATOS-MARINZA	Capital (Million US\$)
Horizontal and Vertical Wells	131
Well Reactivations	18
Base Program	45
Facility Infrastructure	
Pipeline/Sales Infrastructure	
Water Control/Disposal	
Environmental Stewardship	
Geology and Geophysics	
Thermal Pilot Project	4
BLOCK F Seismic and Drilling	5
KUÇOVA Wells/Waterflood	12
Total	215

BEYOND 2012

Continuation of drilling, reactivations, water control and infrastructure

Capital for thermal pilot programs only - commercial expansions to be determined after obtaining results of the thermal pilots



2012 Drilling program will focus 75% on Production Growth, 25% on Reserves Growth

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* 2013 - 2015 capital programs to average \$200 - \$300 million/year subject to oil price

V. EVALUATION OF DEVELOPMENT AND PRODUCTION OPPORTUNITIES IN ALBANIA (Stream Oil & Gas Ltd)

Stream Oil & Gas Ltd. is a Canadian-based emerging oil and gas production, development and exploration company focused on the re-activation and redevelopment of three oilfields and a gas/condensate field in Albania. The Company's strategy is to use proven technology, incremental and enhanced oil recovery techniques to significantly increase production and reserves.

Stream oil and gas has increased its current oil and gas production capacity to approximately 2,730 gross boed (approximately 2,100 net boed) despite surface facility constraints. Gross production has ranged between 2,100 and 2,700 boed as facility upgrades are implemented, which represents a net production capacity growth of over 300% since year end 2010. Production is currently constrained due to surface facility water handling capacity which is restricting full utilization of installed artificial lift equipment, The Company is undertaking surface facility improvements to resolve this issue. Additional sustained natural gas liquids production is expected after the installation of the injection compressor in Delvina in the second half of 2012.

Stream has focused its field activities on completing a variety of pump installations and workovers of existing wells, while concurrently progressing with programs to access the Company's large resource opportunity. During fiscal 2011

At the Cakran-Mollaj oilfield, gross production peaked at 1,450 bbls/d (approximately 1,240 net bbls/d)

At the Gorisht-Kocul oilfield, current gross production averages approximately 780 bbls/d (approximately 380 net bbls/d).

At the Ballsh-Hekal oilfield The current field production of approximately 140 gross bbls/d (approximately 110 net bbls/d)

Stream's 2012 oilfield work plan includes the following:

I Execute approximately 100 well interventions and installation of modern pump systems;

Optimize production operations to realize full benefit of the pump installations;

Rehabilitate, debottleneck and modify the existing gathering and treatment facilities;

I Undertake geoscience programs to firm up incremental opportunities from infill drilling and EOR;

I Implement development planning activities to confirm CO2 flooding as an appropriate mechanism for EOR;

I Complete geoscience studies to confirm applicability of thermal recovery mechanisms (Gorisht-Kocul); and

I Continue the pilot water flood scheme while preparing to deploy the commercial waterflood program.

Delvina Block exploration program continues to advance in support of mid-2013 field activities and the subsequent plan of development submission to Albanian government.

VI. PRIVATISATION OF ALBEPTROL S.A.

Privatization in exploration and production sector has been foreseen to be through the granting of right of use of existing oil and gas fields on the basis of Petroleum Agreements. So most of the oil and gas fields are given for development in this form.

Currently according to the Government policies it is being carried out full privatization process of public company ALBPETROL Sh.A. for 100%, for which it is approved the legal framework and relevant legislation.

- According to the Law Nr.10490, dated 15.12.2011 "For determining the shape and the structure of privatization formula of the the company" Albpetrol ", it is foreseen to go in privatization :
- □ the technical assets such as two mechanical factory and some others services assets.
- Tree oil fields (Amonica, Drashovica and Pekisht Murizi) throw the Petroleum Agreements
- □ All gas fields which are at the final (depleted) phase.
- The right for Petroleum Agreement's in 7 exploration Block (Velca, Panaja, Blloku C,1, 6,7,8.)
- The right to manage all existing petroleum Agreements for EVALUATION OF OF EXPLORATION in existion oil fields.

The development and regulation of the hydrocarbon energy sector ia based on three main laws:

Law no.7746, dated 28.07.1993"The Petroleum Law (Exploration and Production)", as amended, which is harmonized with the **Directive 94/22/EC** of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons,

Law no.8450, dated 24.02.1999 "On refining, transportation and trading of oil, gas and their by-products", as amended. The provision of this law does not refer to a specific directive but is based on the legislation in force in some countries of EU (e.g. Greece) and in some directives.

Law No. 9946, dated 30.06.2008 "On the natural gas sector", which is fully in compliance with: Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas.

Concerning the activities in oil and gas sector, there are a number, beside these three main law, of specific legal acts and secondary legislation that regulate specific aspects of activities related to ensuring:

- a international standard on exploration for oil and gas
 a more efficient exploitation of the oil and gas fields,
- production and trade of biofuels,
- fiscal policies,
- •technical norms and standards for facilities and installations in the petroleum sector,

•regulating the relations for the construction and operation of relevant infrastructure,

•environmental issues etc...

- Law no.7746, dated 28.07.1993 "On petroleum (Exploration and Production)", as amended, created space and a bigger security for foreign investors in the exploration and production activities of hydrocarbons.
- The law recognizes the sovereignty of the Albanian state over hydrocarbons reserves, which remain property of the Albanian state.
- Contractors are granted exclusive rights for a period not more than 25 years to develop and exploit the petroleum reserves in the area of contract in accordance with the terms of a development plan approved by the Ministry responsible for energy, as well as to renew this right for another period as the agreement provides for.
- According to Petroleum law (Exploration and Production) the exploration and production can be conducted based on a Petroleum Agreement which has to be approved by the Council of Ministers.
- The Petroleum law contains other important provisions especially as to the protection of the environment and social rights of the communities in the area where an exploration and production activity is authorized.
- This law provides also for a stability clause which guarantees the contractors that any new law should not impact the economics terms of agreement.

- In 1994, the Albanian Parliament approved Law no.7811, dated 12.4.1994 "On the fiscal system of hydrocarbons sector" as amended.
- This law, which is a specific law applied only to the contractors operating in the petroleum exploration and production activities, created a greater security for private investors because, based on this law, all contractors were exempted from tax and other fiscal duties imposed by the Albanian state, and they would be subject only to the profit tax.

Mineral rent tax (Roylty tax), is a tax provided in Law No 9975, dated 28.7.2008 "On national tax", as amended.
 In the event of selling mineral wealth for end consumption in the domestic market, mineral rent tax is paid to tax authorities (10%),

by the subject owning the petroleum agreement.

CONCLUSIONS:

• Faced problems and negative exploration results in Albania thrust belts and elsewhere worldwide do not imply poor hydrocarbon perspective.

•On the contrary, many oil and gas condensate prospects exist, but they need more accurate acquisition, processing, reprocessing, integration and interpretation of the all exploratory methods data.

• Surely, geological survey must be in the leading role of the oil exploratory works in the thrust belt regions.

• Seismic and all the other geophysical and geochemical exploratory methods must increase their solution capability carrying out methodical tests before shooting the all works volume.

•Wherever placing of flysch folds is far of thrusting anticlinal belts and tectonic setting is relatively gentel, seismic sections present clearly reflection horizons. In such cases a small amplitude of thrust and a gentle folding asymmetry express the possibility that surface flysch fold reflect respective carbonate structures in depth (Gorisht, Cakran).

• In this region, the presence of the sub-thrust structures with considerable amplitude increase the possibility for new discoveries , that means the region corporation is necessary .

•The cooperation with international oil companies is very importante for Albania for more efficient exploration and exploitation of the oil and gas fields



THANK YOU FOR YOUR ATTENTION

For any further information you are welcome to visit www.mete.gov.al or contact me personally at

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