www.gasandoil.com/ogel/
Issue : Vol. 5 - issue 4
Published : November 2007

This article is part of the **Energy Security** special feature edited for Oil, Gas & Energy Law by:

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Oil, Gas & Energy Law Intelligence

Energy security: analyzing US, Mexican and Cuban actions in the deepwater Gulf by A. de la Vega Navarro

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Energy security: analysing Cuban, Mexican and US actions in the deepwater Gulf*

Angel DE LA VEGA NAVARRO**

September 30th, 2007

From the point of view of oil and gas resources, the future lies in the Gulf of Mexico. This is at least the case for countries, which share maritime boundaries in this area (for a general view of this zone, see map No. 1). The significance of these resources, however, transcends pure geographic considerations: in view of current energy concerns, every single oil barrel that is produced and rationally utilized increases global energy security.

Map No. 1

Mexico must embark on a major Exploration & Production (E&P) effort in the near future, not only to maintain its role as an exporter, but also to confront its growing domestic oil and natural gas demand. This effort will almost certainly focus on the Gulf of Mexico, where others actors have already made important progress. In particular this is the case of US actors, who have exploited the current energy security climate and factors favourable to International Oil Companies E&P activities. These endeavours have, for example, recently established Perdido fold belt as a promising new oil province in the north-western deep Gulf of Mexico, with the participation of a four-

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* This article is based on previous works published recently by the author: "La frontera olvidada: México y Cuba en el Golfo", *Energía a Debate*, Tomo IV, No. 20, México, Mayo-Junio 2007, pp. 8-14 and "L'ouverture pétrolière de Cuba dans le Golfe du Mexique: entre l'immobilisme mexicain et le blocus des Etats-Unis", *Revue de l'Énergie*, No. 578, Paris, juillet-août 2007, pp. 231-240. The present article includes data collected during a research trip to the World Economy Research Centre (CIEM, La Havana, Cuba) from June 28th to July 21st 2007. The author had then the opportunity to interview a number of cuban academics and experts in the field of energy studies. This article has been translated from French and Spanish by Dr. Anne Cristina de la Vega-Leinert.

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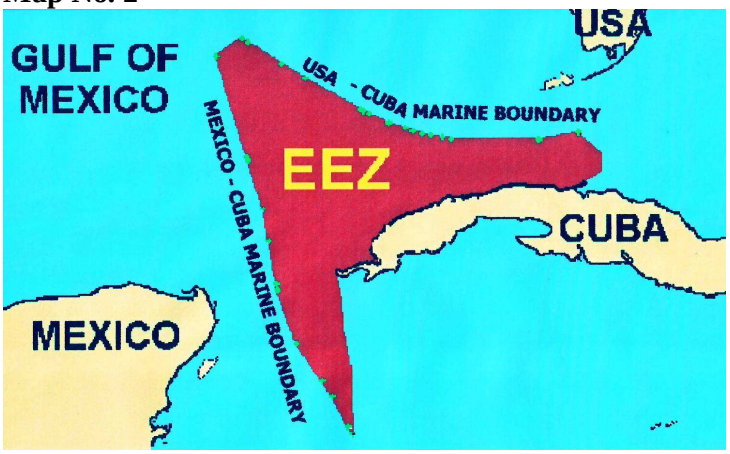
company consortium (Shell, Texaco, Amoco and Mobil). As for Mexico, PEMEX[1] has published some data about "prospective resources" in the Mexican part of the Gulf, although these require financing and technology – which PEMEX does not yet possess – to be converted into reserves. If major oil companies present in the zone, do benefit from both technology and financing, PEMEX, however, cannot establish strategic relations or pass risk contracts with them, due to constitutional and historical factors[2].

But Mexico and the USA are not alone in the Gulf. Indeed, these two countries share a common maritime frontier with an often forgotten actor: Cuba (see map No. 2, which shows the Cuban Exclusive Economic Zone - EEZ). From the Mexican perspective, borders whether to the North or to the South have too often been associated with zones of conflict and violence. This may explain why the maritime border with Cuba in the Gulf is often neglected, despite its strategic significance. Thus, a former Mexican president recently wrote: "when we think about Mexico and Cuba we do so as if these were independent countries, fairly close to each other, without common borders…"[3].

Map No. 2



Mexico, the USA and Cuba thus converge on the oil fields of the Gulf of Mexico. There, public and private actors position themselves in innovating manners in

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1 PEMEX (Petróleos Mexicanos): Mexican National Oil Company

2 Recently, numerous declarations have been made referring to a possible alliance between PEMEX and PETROBRAS (Brazilian national oil company), which despite being both national oil companies, display important differences in management and structure. The concrete nature and content of this relation has nevertheless not been detailed publicly, particularly with respect to potential joint interventions in the Gulf of Mexico. Similarly, there exists the possibility of a strategic alliance between PEMEX and the Norwegian oil company, STATOILHYDRO.

3 Carlos Salinas de Gortari, "Cuba y Estados Unidos. Construyendo puentes para la distensión y el reencuentro", *Milenio*, Magazine, Mexico, February 5, 2007, pp. 4-13.

order to take advantage of favourable circumstances and access and exploit the substantial oil and gas resources located in the area. After collaboration links with the USSR broke up in 1992, Cuba faced a complex situation in particular with respects to its energy supply. Cuba reacted by taking measures, which were largely unexpected for a country that aimed at maintaining its socialist approach at a time when other countries elsewhere in the world abandoned this perspective. An important aspect of Cuban policy in the last fifteen years has been the gradual opening of its oil industry, which already shows significant results.

It is important to gain a detailed understanding of the characteristics of Cuba's opening in the Gulf of Mexico as well as the options chosen in order to make this strategy credible at international level. We thus focus in the present paper on the measures taken by Cuba in this context with some references to the USA and Mexico. The following points will be considered:

- Energy and security in the Gulf of Mexico: opening, free trade and its contradictions;
- The Cuban position and initiatives in the Gulf of Mexico between Mexican immobility and US embargo[4];
- The causes, conditions and implications of the Cuban opening in the oil sector.

1 - Energy and security in the Gulf of Mexico. Opening and free trade: its contradictions and new perspectives

The maritime borders[5] that Mexico shares with Cuba and the US will become increasingly important, if only due to the new global energy environment, which is characterised by energy security concerns, by worries related to "peak oil" and by the significance of the resources this region possess in deep waters. If international oil

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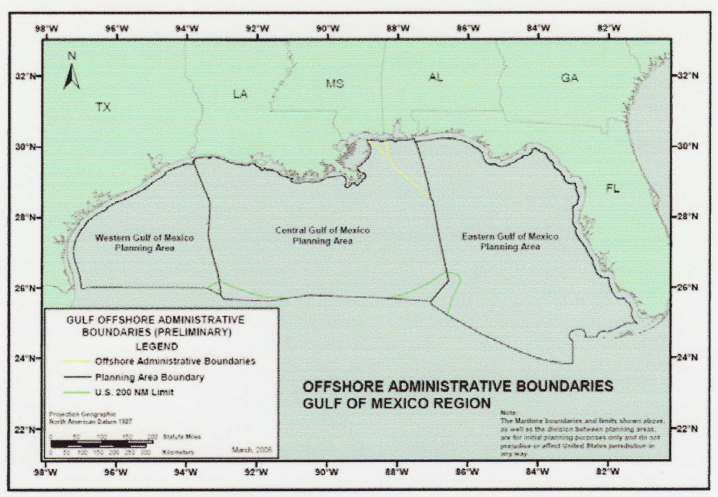
[4] There is a controversy on the utilisation of the terms « embargo » and « blockade ». If the latter is used in Cuba, other Latino American countries and in several UN General Assembly resolutions, the US government prefers the term « trade embargo », to refer to the measure imposed on Cuba on February 7th, 1962. Nevertheless, « blockade » has a precise meaning, namely: measures taken by a government in order to hammer commercial, economic and financial relations of another country. This definition fits well the Cuban situation that has lasted more than four decades.

[5] In 1977, under the presidency of James Carter, waters of the Gulf of Mexico have been divided into economic exclusive zones between the USA, Mexico and Cuba, through the Treaty on Maritime Boundaries between the United States and the United Mexican Status and the Maritime Boundary Agreement between the United States and the Republic of Cuba (December 16th 1977). The aim of those treaties was to protect economic rights of each country, including the access to resources under waters on either sides of the maritime boundaries. In spite of these treaties there are still zones in dispute. This is the case of the « *doughnut holes* ». There are two of them: 1) the western one, which only concerns Mexico and the USA (see map no. 4); their limits have been defined by a treaty signed on June 9th 2000; 2) the eastern one concerns Mexico, the USA and Cuba and its limits still have to be negotiated between the 3 countries.

prices remain close to those achieved in the third quarter of 2007, then it is likely that an important part of these resources will become economically viable reserves.

Also, these waters represent for the USA the last part of its territory (see map no. 3), where important oil and gas reserves remain to be discovered and exploited. This is of particular relevance if one takes into consideration the degree of maturity of the US oil industry. Moreover, the US part of the Gulf of Mexico is seen as the most secure and conflict free of the area. This is fundamental, particularly in view of the current US preoccupations on national security and the associated search of secure oil zones.

Map No. 3
Border line US territorial waters with Mexico in the Gulf of Mexico



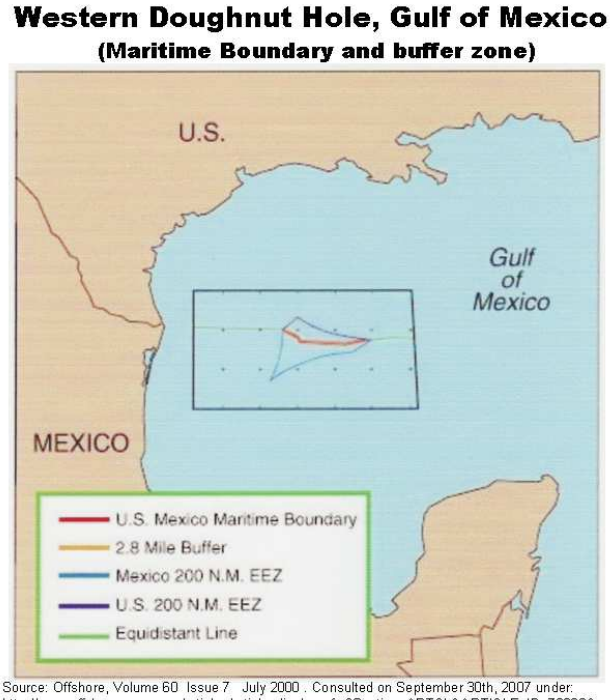
Source: Mineral Management Service

In the US part of the Gulf oil companies operate liberally in relation to competition, tax conditions, etc. As the US Government Accountability Office has stated: “the United States receives a lower government take from the production of oil in the Gulf of Mexico than do states - such as Colorado, Wyoming, Texas, Oklahoma, California, and Louisiana - and many foreign governments”. Moreover, the Gulf Of Mexico Energy Security Act, from November 20th 2006, has the aim of facilitating oil and gas production, thereby permitting access to potential resources exceeding a billion additional oil barrels and 6 trillions cubic feet of natural gas.

Specific issues in this area will soon emerge between Mexico and US, related to E&P activities in their respective territorial waters. This will be particularly the case in the trans-boundary deep-water Perdido foldbelt where PEMEX has announced the existence of rich resources in the Mexican part. Contrary to other trans-boundary fields

in the world, where neighbouring countries find ways to cooperate for the joint exploitation of hydrocarbon resources ("unitisation", joint-ventures, etc.), there are no agreements, or even preparatory work on either fiscal regimes, legislation or regulations to undertake trans-boundary mineral deposits. A fundamental point is the lack of a common institutional framework concerning property rights. Much remains to be investigated and clarified from the legal, institutional, fiscal and diplomatic point of view in order for Mexico and the US to be adequately prepared for a cross-border joint exploitation of its mineral deposit.

Map No. 4



Source: Offshore, Volume 60 Issue 7 July 2000 . Consulted on September 30th, 2007 under: http://www.offshore-mag.com/articles/article_display.cfm?Section=ARTCL&ARTICLE_ID=79026&page=2

From now on the link between energy security and national security has been explicitly established by the USA. This is confirmed in a number of key governmental documents, which state for example that: "energy security is a fundamental component of national security" (National Energy Policy, 2001) or that "[a] sound energy policy is also vital to national security" **(**Bush Advanced Energy Initiative, 2006).

An era of "new liberal governance of global oil" appeared to emerge at the beginning of this century, characterised by the free market access to resources or based on political agreements and the development of good governance institutions related with trade agreements or multilateral economic institutions (e.g. WTO). Instead this

new century seems dominated by policies based on expressions of power and force, which seemed to have been eradicated forever.

Regressions and contradictions could be noticed indeed before the beginning of this century, as illustrated by the US embargo on Cuba, which imposed almost fifty years ago, still remains in place today. This explains, as will be developed further, one of the characteristics of the Cuban opening of its oil sector, namely the absence of US energy companies. Effectively, the USA has proclaimed itself the free trade torchbearers in the world and more specifically in the energy arena. Accordingly, the Secretary of Energy Spencer Abraham stated in 2002: "[f]ree trade and free markets are at the heart of our vision of a healthy international energy system". Nevertheless, the USA has decided to leave Cuba, a country with which they share a maritime border, at the margins of important economic, scientific and technological exchanges. Moreover, the Bush administration has taken measures to reinforce all possible regulations in order to isolate Cuba even further. To do so, it has developed a discourse and policies associated with a very old conceptualisation of power and military strategy, namely to pressure a country through the control of its access to natural resources and commercial routes, of traffic to and from its harbours, etc.

The geographical proximity, however, could foster a different sort of relationships between these two countries as well as with Mexico. For example, factors such as the availability of technology, transport costs and the new US preoccupations on its energy security, should encourage a mutually beneficial relationship in energy matters. Cooperation programmes could be established not only in E&P activities, but also in the oil refinement process, the storage of oil-based products or the elaboration and distribution of natural gas, as illustrated by the current US imports from neighbouring Caribbean islands, including Trinidad Tobago, the Dutch Antilles, Virgin Islands or Puerto Rico. Also relevant are the recent growth rates in Cuba, which make the renewal of its energy infrastructure necessary. Indeed, GDP per capita in Cuba has grown by 6.1% in average between 2000 and 2006 according to the Economic Commission for Latin America and the Caribbean (ECLAC). In order to maintain growth rates of this order Cuba needs to increase its energy consumption and develop new energy services. This will still be the case even if one takes into consideration the elaboration of new options to transform the Cuban economy into one capable of producing high added value services, such as those related to the medical, educational, sport and cultural sectors, among others. For Cuba, these options imply clear

complementarities with its northern neighbour. However, the rationale of the geographical proximity has been overshadowed by the rationale of a policy of distance and estrangement[6].

Without discarding the current events on the international scene, particularly in oil issues, it is interesting to approach the present evolution in the Gulf of Mexico from a different angle. It is moreover possible that oil companies will lobby in order to raise the embargo fully or, at least, in the energy sector. One might also think that new forces may push towards a policy that would take advantage of the free trade discourse and the proximity to Cuban markets. It is clear that the US position seems at odds with its internal needs at a time when it gives highest priority to energy security.

An important factor to take into consideration in new US policies is that Cuba is behaving in a pragmatic way. Following initial E&P studies, Cuba designated an important part of its territorial waters to external investment offering production-sharing agreements to attract foreign companies. In this way, Cuba has aligned itself with international practices and is offering highly attractive conditions for foreign investment. Companies from Canada, Spain, Norway, China, India and Venezuela, among others, have accepted the invitation and have reserved some areas for E&P. The Cuban government has also invited US oil companies, although as mentioned previously the on-going 46-years-old US embargo prevents them from accepting.

2 – Cuban initiatives between Mexican immobility and US embargo.

There is no need here to review the importance of the Gulf of Mexico in world history, particularly with respect to the USA and Mexico. During recent decades until the 90s, the Gulf, however, was perceived as a "Dead Sea". The technological and organisational progress, which has been achieved since, especially in the sector of deepwater exploration, has significantly changed this perception, as well as the consequences of studies, which have clearly demonstrated the finite character of fossil energy (*peak oil*, depletion). Suddenly the Gulf of Mexico became a new frontier and there was a revival in E&P activities in the area. Currently, oil is extracted at circa 2,000 m depth and drills reach beyond 3,500 m.

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[6] Cuba has often called for dialogue with the USA, particularly since Raul Castro has become interim head of state. On July 26th of this year, the national day of Cuba, he renewed once more his appeal, this time to the future US administration. The latter "will have to decide if it maintains its absurd, illegal and unsuccessful policy against Cuba, or if it accepts the olive branch we have offered", December 2nd 2006 (this was the date of the first Cuban offer of dialogue since Raul Castro is interim head of state).

The Gulf of Mexico represents for the US proven reserves around 13% (18.75 MMMB of oil and 176.8 TCF of gas in 2002, according to the US Minerals Management Service) and around 20% of its offshore oil and gas production. It has been planned that in 2015 US oil production in the Gulf should increase by 1.2 million barrels. On the other hand Mexico is a world leader in offshore production, although only in shallow waters

In 2005, PEMEX has publicised official data on the "prospective resources" in the national territory (54 billions barrels of oil equivalent), of which deepwater resources in the Gulf should reach 29.5 billion barrels[7], a promising hydrocarbon potential. As mentioned previously, to transform these resources into effective reserves considerable financial and technological means are required, which PEMEX has not so far been able to fully mobilise[8] or obtain through alliances with foreign companies[9]. Pemex only started exploratory activities in the deepwaters of the Gulf of Mexico recently (2002), in the bordering area with the USA and in Chuktah-201, Nab-1, Noxal-1, and Lacach-1, where discoveries took place. In recent years, Pemex has also conducted integrated multidisciplinary mega-projects in association with IMP (Mexican Petroleum Institute) in order to have a better evaluation of petroleum systems of the Gulf of Mexico[10]. Nevertheless, many efforts have still to be acomplished to catch up with the more advanced actors in the Gulf. Indeed, in comparison with the Mexican efforts in deep waters, which are until now mainly limited to exploratory studies and to prospect generation, in the US part of the Gulf, intensive leasing and drilling take place (see maps 6, 7 and 8). Pemex is conscious of this situation, as it appears clearly in an official presentation: "Taking into consideration the widespread distribution and size of the opportunities, we recognize that the progress we have made so far to assess the Gulf of Mexico deepwaters potential is quite modest and limited. Plans to intensify

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[7] Press Bulletin No. 024, March 5th 2007: "PEMEX maintains its evaluation of prospective resources in the Gulf of Mexico".

[8] PEMEX aims at changing this situation: between 2004 and 2006 exploration investments in deep waters amounted to US $ 265 millions, in comparison US $ 1.21 billions are planned for 2007-2009.

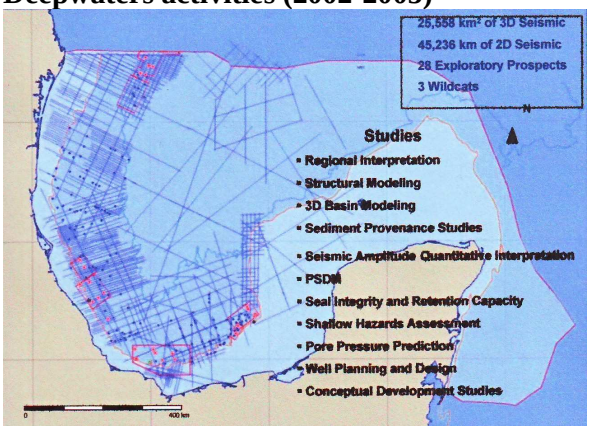
[9] Any form of association or contract (e.g. *production sharing contracts, risk contracts*) is explicitly banned in Mexico, if it implies the appropriation or share of reserves considered "property of the nation". This is due to specific constitutional arrangements that establish the property of the nation on hydrocarbon resources (Article 27 of the Mexican constitution) and the exclusivity of the State in E&P activities and the whole industrial chain. A particular segment of Article 27 is of special importance here: "No concessions or contracts will be granted for the extraction of petroleum or solid, liquid, or gaseous hydrocarbons, or for radioactive minerals. The Nation will carry out the exploitation of these products in the terms that the respective regulating law specifies". See: "Mexican Constitution as of 2002", Translated by Ron Pamachena, consulted on October 6th under: http://historicaltextarchive.com/sections.php?op=viewarticle&artid=93#T1C1

[10] Limon et al. [2007]

exploratory activities and eventually develop available hydrocarbon resources are in progress"[11].

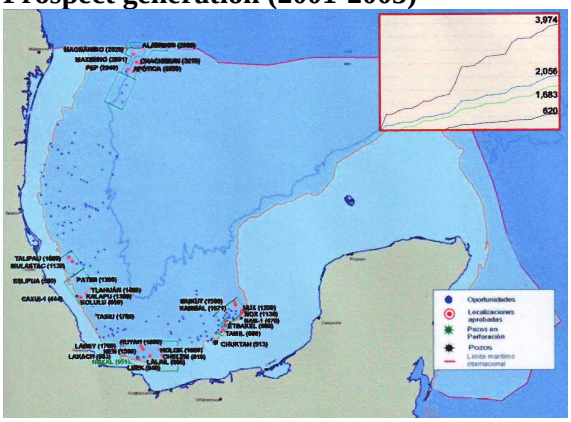
Recent governmental and PEMEX declarations portray realistically the Mexican situation. For example, in May of the current year, the Mexican government has clearly stated that PEMEX lacks the technology to develop resources in ultra-deep water and faces restrictions in the development of trans-boundary fields. Moreover, on June 18th 2007, the director of the PEMEX E&P subsidiary has drawn attention on the risk that the Mexican oil fields might be drained by US extraction activities at the maritime boundary. The latter is of particular concern, since the ten-year moratorium on drilling in the Western "donut hole" will expire in 2010[12].

Map No. 5
Deepwaters activities (2002-2005)



Source: Oviedo Adán [2006]

Map No. 6
Prospect generation (2001-2005)



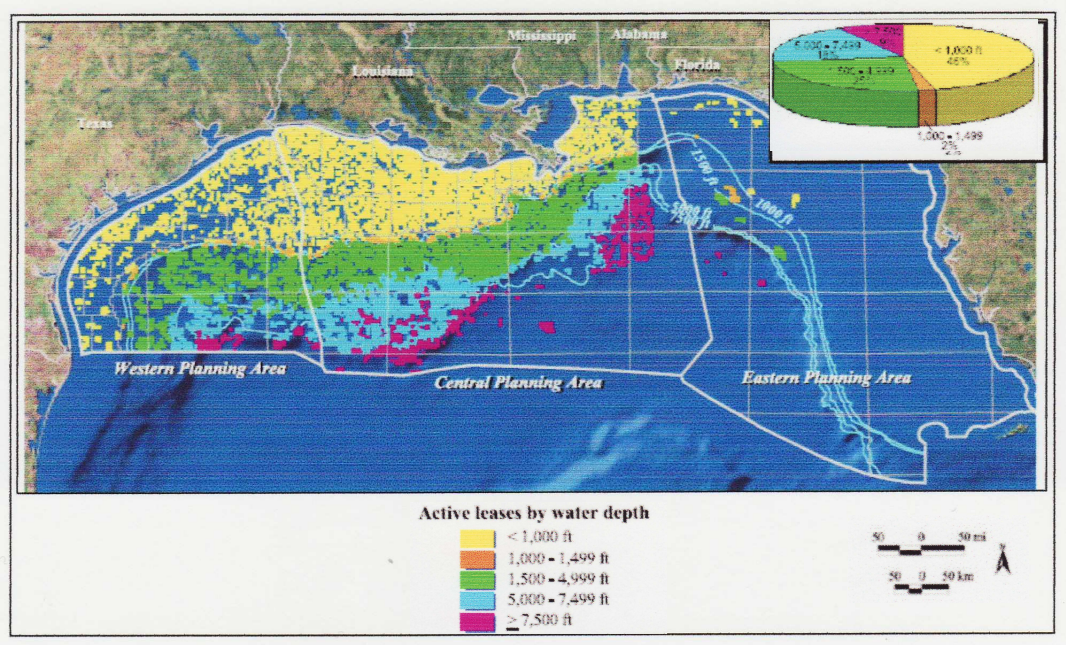
Source: Oviedo Adán [2006]

[11] See PEMEX [2007]

[12] Mexico and the US have signed an agreement dividing up the Western "Doughnut Hole". They established a 10-year moratorium on oil and gas exploration and drilling in a 2.8-mile-wide buffer zone along the dividing line (see map no. 4). Nevertheless, each country can conduct its own seismic studies and prepare for drilling in its respective buffer zone following the moratorium. Each country must notify the other when it is ready for drilling.

Map No. 7

Active leases by water depth in the US Gulf of Mexico



Source: Minerals Management Service (MMS)

http://www.gomr.mms.gov/homepg/pubinfo/MapsandSpatialData.html

In terms of visions and strategies for the future of hydrocarbons could the Gulf that bears Mexico's name become only that of Cuba or the USA? Indeed, one can imagine that the new oil energy situation and companies' interests could constitute important factors leading in the near future to new arrangements between Cuba and the USA. Interestingly, meetings and declarations from governmental spheres, academic circles and even oil companies abound, which aim at analysing the Cuban perspective[13].

Indeed, despite the threats of the Helms-Burton Act[14], US oil companies do not intend to remain inactive while their European, Canadian, Asian and Latino American[15] rivals penetrate the deep waters of the Cuban Exclusive Economic Zone (EEZ), which is only located a few kilometres from the US maritime boundary. Effectively, a recent legislative initiative seeks to establish exceptions to the implementation of the US

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[13] One important example is the "U.S.-Cuba Energy Conference", which took place in Mexico on February 2nd 2006, where among others ExxonMobil, Valero Energy, the Louisiana Department of Economic Development were represented in order to exchange information with Cuban energy sector representatives on investment opportunities in Cuban oil industry.

[14] This is a US federal law, which reinforces the embargo, extending its territorial application to apply to foreign companies trading with Cuba or dealing with properties formerly owned by U.S. citizens, who were expropriated after the revolution.

[15] Particularly the Venezuelan oil company PDVSA

embargo, to the sole profit of oil companies[16] and with the specific aim of allowing the hydrocarbon exploration in Cuban waters. One of the motivations of US oil companies in supporting this initiative has certainly been the news on oil reserves located to the North of Cuba, very near the USA. Indeed, it would have been surprising if hydrocarbon resources had not been found in the Cuban EEZ, since this is located in the proximity of proved US reserves.

One of the foreign companies present in Cuba, the Canadian company Sherritt International Corporation, has not only made public statements on hydrocarbon findings in Cuban territory, but has also plans to export some of the oil it has been allocated under the signed contracts[17]. Will then Cuba be an oil exporter in the next decade? Ironically, scenarios predict that Mexico will over the same timeframe become a net importer of oil[18]. It is true that potential volumes for Sherrit's hydrocarbon exports are not very high, but these remain significant since their possible buyers are from the country, which consumes the most oil in the world. Sherrit's production indeed originates from heavy oil fields located along the northern Cuban coast.

Thus, by pursuing the embargo against Cuba, the USA violate international law as well as their own legislation, and also act against their own interests. Indeed, their policy has allowed other regional companies (from Europe, Asia and Latin America) to take a definitive advantage in the oil race. Also important hydrocarbon resources may thereby end up outside their control, at a time when energy security represents a major axis in their overall policy. Some US actors have realized what is at stake here. For example, Kirby Jones, president of the US-Cuba Trade Organization, has recently stated: "[f]or the first time in 45 years, Cuba now has something of strategic importance to the US - oil and [natural] gas"[19].

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[16] See for example the 2006 "Western Hemisphere Energy Security Act", labelled H.R. 5353 in the House of Representatives and S. 2787 in the Senate. This initiative was framed as a measure, which could contribute to a solution to the current energy crisis.

[17] Sherritt International, in a 2006 report said that in 2007 it "plans to export a portion of its Cuban production as a consequence of anticipated production growth and limited demand for domestic heavy oil". Sherritt had revenue of approximately US$ 1 billion in 2006 and produces an estimated 68,000 barrels of crude oil in Cuba, which represent almost half of Cuban petroleum needs.

[18] In a report to the US Securities and Exchange Commission (SEC), on which the Mexican press reported on July 26th 2007, PEMEX stated that by December 31st 2006, proven oil reserves reached 8.98 billion barrels, while yearly production in 2006 reached 1.33 billions. This suggests that at that rhythm Mexico would only have reserves for seven more years.

[19] *International Oil Daily*, February 2nd 2006. Kirby Jones has been the main organiser of the "U.S.-Cuba Energy Conference", which took place in Mexico (See footnote No. 13).

Paradoxically, if the embargo were to be raised, US oil companies, which cannot enter the Florida waters due to existing environmental norms, could enter Cuban near shores. Cuba offers oil companies that are already present in the Gulf of Mexico and irrespective of their origin the opportunity to explore, drill and extract crude oil in areas, which border US zones to which they have no access. A possible oil "sucking" effect (known as "straw effect" in Mexico) could occur and result in US companies draining US oil fields from Cuban territory. This very plausible situation could have a significant importance. Indeed, a number of companies from broad horizons (e.g. China India, Norway, Spain, Canada and Venezuela) have already initiated activities in the potentially important hydrocarbon fields very near the USA coasts in the waters of the Florida Strait. These companies reserve oil exploration blocks since 2003 on the basis of *Production Sharing Contracts* (PSC). Here, Cuba aligns itself to usual practices of the international oil industry and even offers improved conditions to attract companies, as will be elaborated later in this paper.

US companies are closely following the association between REPSOL-YPF and CUBAPETROLEO (CUPET), the Cuban national oil company, who in 2005 classified 5 "high quality" fields located in the deep waters of the Florida Strait, only 32 km north from la Havana.[20]. Shortly afterwards, the US Geological Survey confirmed that the northern Cuban basin contained important quantities of good quality oil. Estimates were set between 4.6 and 9.3 billion crude oil barrels and between 9.8 and 21.8 billion cubic feet of natural gas[21]. Cuban energy experts envisage that an important part of these resources, once converted into reserves, could be commercialised circa 2012.

[20] However, REPSOL had to abandon this entreprise after spending US$ 53 millions. The oil extracted was of a good quality but in "non comercially viable quantities". REPSOL is now planning to continue its activities in Cuban deep waters, but this time in association with NORSK HYDRO and ONGC-Videsh. REPSOL's contribution would amount to 40%, while that of the other two companies would be 30% each.

[21] See the USGS report: "Assessment of Undiscovered Oil and Gas Resources of the North Cuba Basin 2004", published in February 2005.

3 - Causes, conditions and implications of the Cuban opening in the oil sector.

Cuba has expressed in many ways its interests for the participation of foreign capital from broad origins in the exploration and exploitation of its resources. As early as 1993, oil companies have favourably answered to the first steps in Cuban opening[22], including French companies such as Total[23].

Regarding US companies, an official document raises straightforward questions[24]: "why US oil companies could not participate in the very close deep waters, this high potential new frontier in the Gulf of Mexico? The growing Cuban E&P on land and offshore activities demand a lot of supplies and services. Why not also from the USA?" Then the document goes on openly inviting US companies to participate: "US oil supplies and services companies, are invited to participate in the emerging Cuban petroleum industry on the base of mutual respect and benefits". How to explain the Cuban strategy with respects to the participation of international oil companies in its territory, which is so different from that of Mexico? Firstly, besides the insufficient degree of technological development of the Cuban oil industry and its reduced financial capacity, Cuba demonstrates a clear comprehension of the important role private investments have in this sector. Cuba has perfectly understood that from the economic point of view, it is impossible to enter the sector of deepwater oil extraction as an individual actor, since exploratory activities entail high inherent economic risks (e.g. *dry holes*). Two other groups of factors also can explain the opening of Cuba: 1) its energy situation inherited from the collapse of the USSR, and 2) the characteristics of the institutional and regulatory environment with respects to foreign investments. Concerning this latter point, a fundamental aspect is that Cuba has imposed itself a modern conceptualisation of public property, which does not amalgamate the property of the nation over resources[25] with the exclusive intervention of the state in their exploration, exploitation and transformation.

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22 In 1993, forty eight oil companies have shown interest at the Cuban international invitation to tender for prospection and exploration activities in eleven oil areas (*Cf.* Calgary and London meetings, February 1993).

23 Total abandoned Cuba in 1995 after unsuccessful drilling activities in two "*dry holes*".

24 "Current status of exploration-production activities in Cuba", document presented by Cuban officials at the "U.S.-Cuba Energy Conference" mentioned earlier.

25 Indeed, according to the Constitution of the Republic of Cuba, all mineral resources located on the surface and underground of the territory are the property of the Cuban people as well as all natural resources located in the sea and below the sea bottom of the exclusive economic zone.

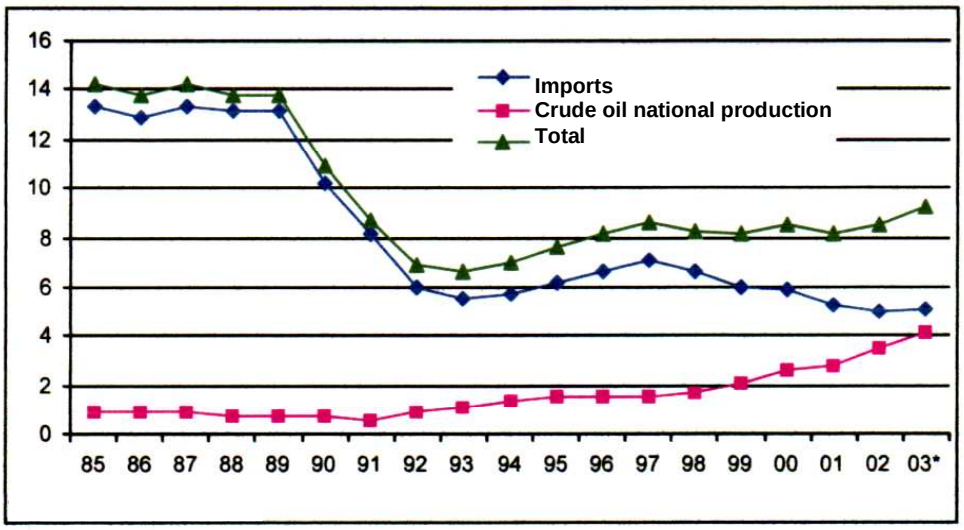
3.1. – The Cuban energy situation after the collapse of the USSR

Since Cuba belonged to the socialist block and suffered the specific conditions of being marginalized through the US embargo, it had been able to ensure its energy supply for a number of decades, largely thanks to oil imports at preferential prices. In 1989, Cuba, for example, received 220,000 barrels per day from the USSR, one part of which was sold in the international market. These conditions encouraged an increase in energy consumption, the latter being largely based on oil. The total primary energy supply (i.e. the total energy used, including losses) rose from 10,934 Ttoe (thousand tones oil equivalent) in 1971 to 16,877 Ttoe in 1989. Following the fall of the Berlin wall, this volume drastically dropped, although it increased again to 12,464 Ttoe in 1999 and reached 11,381 Ttoe in 2003. This same year, the contribution of oil in the total energy supply reached 80%. If only oil, gas and coal are considered, then oil products represented 96.2% of that total, 80% of which were imported.

The collapse of the USSR and the dismantlement of COMECOM (Council for Mutual Economic Assistance) deprived Cuba of its preferential alliances in economic, financial and technical assistance domains. From one day to the next, Cuba lost access to its traditional financing sources and its exports markets and, thus, had to drastically reduce its imports. In 1993 Cuban exports reached only just a fifth of those of 1990, whereas its imports decreased by 75% during the same period. For example, between 1989 and 1992, oil imports fell from 13.3 million barrels to 6.1 between 1989 and 1992. The dramatic decrease of the contribution of crude oil and oil-derived products in the Cuban economy is clearly illustrated in Figure 1 (Cuba: oil and products 1985-2003).

Figure 1

Cuba: Oil and products 1985-2003 (millions barrels)



Fuent : Comisión Económica para América Latina y el Caribe (CEPAL), Programa de las Naciones Unidas para el Desarrollo (PNUD) e Instituto Nacional de Investigaciones Económicas de Cuba (INIE). 2004. Política social y reformas estructurales: Cuba a principios del siglo XXI. (LC/MEX/G.7, LC/L.2091). Mexico, p. 11.
En ligne. <http://www.eclac.cl/publicaciones/Mexico/7/LCMEXG7/L2091-AE.pdf>.

The situation resulting from the interruption of soviet supply has implied a tremendous adaptation process in Cuba as well as the development of a new energy policy, which was characterized by radical energy conservation measures, the search for new suppliers and an endeavour to increase national oil production among other factors. These efforts have aimed at resolving acute energy issues (exemplified by serious power cuts still recurrent two years ago), as well as developing opportunities for a renewable energy supply, including wind and solar power generation as well as the production of ethanol based on sugar cane. Progressively an "energy revolution" has taken place, although the role and contribution of oil remains preponderant due to the economic and technological structure of Cuban economy. According to the National Statistics Office, even in 2003 Cuba needed to import crude oil and hydrocarbon products to the amount of approximately one US $ billion, which represented circa 22% of total imports. In 2004, crude oil produced in Cuba reached 57% of national primary energy supply and natural gas a little more than 10%[26]. The rest needed to be imported, which represented a significant weight on the Cuban economy before the agreements with Venezuela were signed, thereby guaranteeing access to a cheap oil supply.

[26] Cubaenergía: http://www.cubaenergia.cu/lo_ultimo/datinteres.htm consulted on September 1st, 2007.

One must note that until now Cuban production is comprised primarily of very heavy oil (between 10° and 20°), which contains a high level of sulphur. This kind of oil can only be used in specific industrial plants, including those producing cement, nickel and in particular electricity. Oil utilization for the generation of electricity has raised enormous problems, as Cubans themselves are clearly aware[27], but it has started to decline as early as 2004. Indeed, whereas in 2002 the contribution of oil in national electricity production reached 92%, it has fallen to 81% in 2006.

Thus Cuban internal efforts in matters of energy supply have been supported by foreign companies, and since 2000, by access to Venezuelan oil. Numbers vary, although, according to evaluations collected, crude oil and oil product imports from Venezuela reach approximately 95,000 b/d under favourable conditions[28].

The Cuban conditions have thus changed significantly with the new role played by Venezuela. However, Cuba seems to have learnt from past experiences of almost total dependency from the USSR and decided to avoid a similar situation in future. Indeed in 1991, Cuba produced only 10,000 b/d, whereas the current production reaches 85,000 b/d, almost half of its total consumption, which amounts approximately to 180,000 b/d. National production has thus been multiplied by 8.5, which is the result, as explicitly stipulated by the Cuban government, of the participation of foreign companies. A trend the government seems decided to continue and even extend to include the participation of US oil companies. Indeed, it is well known that since Hugo Chavez has won the presidency measures of a nationalistic character have been taken with regards to foreign companies, while the modalities of opening of the oil sector, which had been taken in the 1990s, have been revised.

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[27] "It is well known that national crude oil has been largely utilized for electricity generation in the NES (National Electric System) thermoelectric plants. This has created a number of problems to these technologies and components, due to the high level of sulfur, the high viscosity and other inconvenient techniques that this fuel presents", Julio Torres Martínez and Ricardo Torres Pérez [2007], p. 42.

[28] On 30th Octobre 2000, presidents Hugo Chavez and Fidel Castro signed an agreement on oil supply under favourable payment conditions for Cuba, one part over the short term and another over the long term. Moreover, specific modalities for transactions in kind were approved, which include the supply of Cuban services, technologies and diverse products in the medical, education and sport sectors to support the process of development in Venezuela. The agreement was originally planned for a duration of five years and could be renewable. It has continued within the framework of new initiatives for alternative forms of integration in Latinoamerica (i.e. ALBA : Bolivarian Alternative for the Americas) and PETROCARIBE, which is an energy cooperation initiative between Carribean countries under the Venezuelien leadership

3.2.– Construction of a specific institutional and regulatory framework allowing the participation of foreign oil companies

> *"You could sign risk contracts and you do not have either technology or capital. What you must know very well are all the international norms that govern these agreements, discuss in detail and firmly", Fidel Castro*[29].

The introduction of advanced exploration and drilling technologies is indispensable for Cuba in order to achieve a better knowledge and exploitation capacity of its oil and gas resources, particularly those that are located in deep waters (between 2,000 and 4,000 m) in the Gulf of Mexico. These state-of-the-art drilling methods and techniques in exploration are, however, under the control of foreign companies, with whom Cuba must, therefore, negotiate. Despite the presence on the Cuban oil scene of companies from a range of countries, the embargo still prevents Cuba to access the most advanced technologies, which are often controlled by the USA. Moreover, the embargo forces Cuba to look for equipments in such difficult conditions that operation costs often increase beyond 30%. Despite these obstacles, estimates based on studies carried out by companies already active in the Cuban sector of the Gulf of Mexico suggest that Cuba could dispose in those areas of recoverable reserves in excess from 4 billion barrels, under current economic and technological conditions.

An interesting aspect of the Cuban case is its capacity to establish an institutional and regulatory framework sufficiently coherent and credible to attract foreign investments. Since 1991, foreign investments have been encouraged in a number of key economic sectors. For this purpose relevant changes have been made to, for example, define property rights in case of associations between Cuban and foreign companies. The Cuban Constitution, which has been modified in 1992, now recognizes the property of companies, joint ventures and economic associations, which have been formed according to the legislation in force. With regards to oil, the primary component of the current legal framework is the Foreign Investment Act (Bill No. 77 of the Republic of Cuba), which was passed by the National Assembly in 1995. This bill contains fairly flexible and attractive terms for foreign companies, as well as specific guarantees for foreign investors, who may participate in any sector of the Cuban economy, except the health and education sectors and in matters of national security. Thus, CUPET is legally authorized to negotiate associations with foreign companies,

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[29] From Ignacio Ramonet, *"Fidel Castro. Biografía a dos voces"*, Debate, México 2006, 655 p. A French version,*"Fidel Castro. Biographie à deux voix"*, has been published by Fayard/Galilée in 2006.

which wish to invest in oil prospection and exploitation on Cuban territory within PSC frameworks. It is on this basis that the 112,000 km^2 of the Cuban EEZ have been divided into 59 exploration blocks, each circa 2,000 km^2 in size, in order to attract foreign companies under the modality of risk contracts. In this type of economic association, foreign companies bring in capital, technology and *know how* in exchange for a portion of the final production. Every contract is approved individually by the government and its duration ranges from 25 years (for activities onshore and in shallow waters) to 30 years for oil exploitation and 35 years for gas exploitation in deep offshore. Production can either be sold back to CUPET, who has priority access, or exported. In this latter case, there will be no tax on the produced oil. Thus Cuba shall have the first option for purchasing the contractor's crude oil, paid at international market prices. Net annual profits of any transactions realized in Cuba will be taxed up 30%. Moreover, production sharing and the allocation of a portion of the production for cost recovery will be negotiated according to the hydrocarbon potential and characteristics of each block.

Two important aspects of these contracts, which other oil producing countries endeavour to refuse, have been included in the Cuban PSC. Firstly, the fiscal system does not envisage the payment of either royalties or of *signature bonus*. Indeed, the Cuban state taxes oil companies exactly in the same way as other businesses, which means that it does not ask for a ground rent. Secondly, in case of conflict, Cuba accepts the procedure of arbitration and the arbitration rules of the International Chamber of Commerce. This latter aspect is of particular relevance since producing countries have often opposed such clauses and used national sovereignty as their key argument.

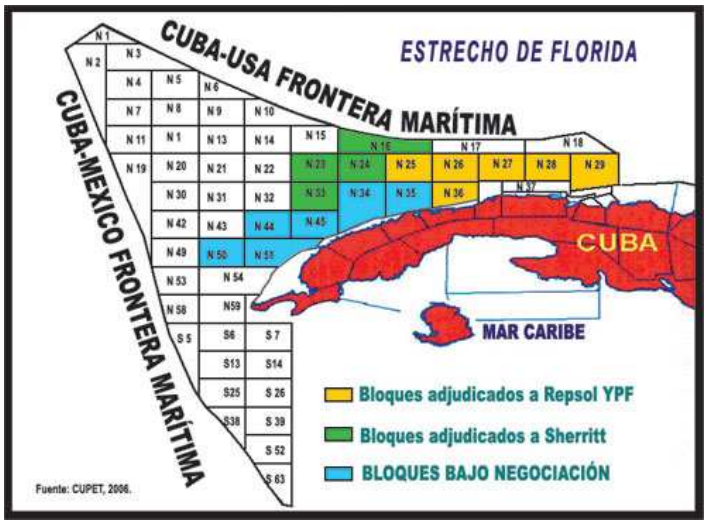
Other important characteristics of the contracts granted by Cuba are the following[30]: equipment and materials imported pay custom duties, but these are considered reimbursable; additionally, the contractor has the right to open bank accounts, receive and withdraw revenues, make payments and transfers.

Since 1999, a number of contracts for different blocks have been signed. Some of the allocated blocks are located immediately to the south of three sections of the US Minerals Management Service, near the south-eastern coast of Florida. In total, 24 blocks, covering a total surface of 45,000 km^2, are under contract: 6 have been granted

30 Taken from the document "Legal framework. Production sharing contract", presented at the U.S.–Cuba Energy Conference, Mexico, February 2nd 2006.

to the consortium formed by Repsol, Norsk Hydro and ONGC Videsh, 4 to Sherritt International, 2 to ONGC Videsh alone, 4 to Petronas (Malaysia), 4 to Petrovietnam and 4 to PDVSA. Map No. 8 shows the block distribution towards the end of 2006. This map is already out of date, as many more blocks have been granted, although it remains useful to have an overall perspective of the Cuban exploration blocks.

Map No. 8



Absent companies from the list of those, which are currently taking part to the Cuban opening in deepwater, are worth considering. It is in particular the case of the Brazilian company Petrobras, which is the world technological leader in deepwater exploration and which has in other times participated in Cuban oil exploration activities. Important political aspects related with Cuban foreign policy and strategies, and which are unavoidable in the process of the Cuban opening, need to be considered. These could explain the presence of the Venezuelan or the Vietnamese companies in the Cuban deepwater exploration scene, although other factors such as the characteristics and performances of these companies evidently play a role too.

As argued previously, the Cuban opening in the energy sector has been innovative and apparently effective. However, the results of the Cuban opening should not only be evaluated in terms of resources found and production secured. Other considerations of a strategic nature must be taken into account, particularly from the Cuban point of view. Nevertheless, some quantitative elements can be proposed: from the beginning of its opening process, Cuba has received foreign investments amounting

US$ 1.5 billion for the development of oil exploration in the Gulf of Mexico and the onshore and offshore production of crude oil has increased sevenfold. The initiation of deepwater exploration in the Gulf of Mexico has been accompanied by the introduction of advanced technology, the modernization of E&P infrastructure (e.g. horizontal drilling, pumping improvement, etc.), the training of Cuban personnel and regulatory innovations for a better development of E&P activities [31]. Concerning energy consumption, the results obtained have permitted the utilization of associated gas for generation of electricity and the supply for domestic uses.

Final considerations

Cuba has managed to disentangle itself from a complex situation and to locate itself decisively on the world map of oil producers. This has occurred in a rather unexpected manner, even for experts. Effectively, this country has succeeded in opening its territory to foreign companies in a credible manner, and can today present significant outcomes. Beyond economic and technological factors, the Cuban oil opening can be explained by the critical situation created by the US embargo and the breaking up of the collaboration links Cuba had with the USSR for several decades. The results and the credibility of this opening must be related to the capacity of Cuba to construct a coherent institutional and regulatory framework that is able to attract foreign investment in high-risk E&P activities. Both sides are benefiting from these new collaboration links. On the one hand Cuba needs oil to acquire autonomy, at a time when it must face a difficult energy transition. Oil will, however, keep on playing a predominant role in Cuba due to economic and technological structures inherited from its past. On the other hand, foreign companies have access to hydrocarbon resources from a strategically important zone, at a time when, due to the current energy conjuncture, every oil barrel counts.

Thus, for Cuba, the first results of its opening are satisfactory since it enables an important part of its internal consumption to be met. In parallel of these new cooperation links with foreign companies, Cuba has moreover succeeded in developing a close relationship with Venezuela, within the latter's incipient alternative framework for regional integration and energy cooperation.

[31] In particular, the creation of the National Office of Mineral Resources (ONRM), the mining and petroleum authority, created in 1995. This office is in charge of regulation, supervision and control of oil and mining activities, including utilization and rational exploitation of oil and mineral resources.

Returning to the topic of the USA and US oil companies, which Cuba has invited to participate to its opening, the question remains. Will the inflexible guest one day make a friendly move towards Cuba, rather than harden further its embargo, or worse, attack a country, which has raised the values of independence and sovereignty and the dignity of its people above everything else? Paradoxically, the USA ignores the Cuban calls and invitations to participate in the exploration and exploitation of the energy resources of its EEZ, at the time when some still in the USA pressurize Mexico into opening its ground resources.

The supposed Mexican lack of confidence in a possible comeback of international oil companies, which is expressed in the same discourse as during the 1938 nationalization of the energy sector, is heavily criticised by its northern neighbour. However, at the beginning of the 21st Century which country may appear more archaic than the USA in its position and discourse towards Cuba?

Geography, energy needs, the availability of technology, and the modernization of energy infrastructure, are among factors that could help establish new relations and partnerships in the Gulf of Mexico, not only in E&P activities, but also in refining, transport and distribution of oil products and processing and distribution of natural gas. Nevertheless, we should always remember the possibility of conflict in this neuralgic and strategic zone, especially due to energy security considerations.

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Note: The maps No. 2 and 8 were taken from : "Current status of exploration-production activities in Cuba", a document presented by Cuban officials during the U.S.–Cuba Energy Conference, Mexico, February 2nd 2006.