LEBANON OFFSHORE ENERGY STRATEGY
Petroleum Prospects of the Offshore Region of Lebanon and Associated Economic Benefits

Executive Presentation to the President of the Lebanese Republic
H.E. President Michel Suleiman

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Subject: Lebanon Energy Strategy: For the Petroleum Prospects of the Offshore Region of Lebanon and Associated Economic Benefits

Mr. President,

It gives me great pleasure and honor to have the opportunity to present this updated study on Lebanon’s offshore petroleum potential. The study was presented in the fall of 2004 to both H.E. President Emile Lahoud and the Former assassinated Prime Minister Rafiq El Harirri for their perusal and action. This executive study shows that the potential oil and gas reserves in the Lebanese offshore region, if fully explored and exploited within a friendly and legal environment, could make a major contribution to the country’s economy and significantly further Lebanon’s national development. The study also argues that, given the extremely favorable conditions for investment in the international energy market at present, with the price of oil at around $125 a barrel, prompt action should be taken to ensure that the opportunity Lebanon now has is not lost.

The study is divided into six parts, each part focusing on a different aspect. Part I: is an introduction to the industry, specifically in the eastern and southeastern Mediterranean region. Part II: outlines the nature of the exploration and production that are ongoing in Egypt, Gaza and Israel. Part III: apart from providing a synopsis of the geological and technical reports, highlights the truly international character of the oil industry and the interdependence of its various components. It also considers the uncertainties and associated risks. Part IV: explains the projected economic value to Lebanon in a flowchart. Part V: provides an economic overview of the benefits leading up to the first discovery in Lebanon. Part VI: is the conclusion, based on careful analysis of all the available data, stressing the dynamics and interdependence of this industry.

I. Introduction

During the last decade, several significant hydrocarbon discoveries have been made in the eastern part of the Mediterranean Sea, in Egypt, Palestine and Israel. The offshore Nile Delta of Egypt has proven to be a “World Class Gas Field,” attracting investment from around the world. The discoveries made offshore of Palestine and Israel represent a new energy source for these countries and will probably be sufficient to meet their local energy demands for the next 10 to 15 years. Further north, Turkey has started also in 2007 prospecting for oil in the shallow waters around Mersin and Antalya.
The following concise report reviews the key features of the discoveries in the East Mediterranean region and provides a context to evaluate the productive potential of the Lebanese offshore region. It will analyze the results of various reports on hydrocarbon discoveries and the prospects for the region offshore of Lebanon. It will examine two economic scenarios of the potential impact, short and long term, of exploration and development activities on the national economy of Lebanon and endorse an executive decision for immediate national effect. In the following chapters, the study will also tackle the uncertainties and risks associated in this heavily capitalized industry. It also demonstrates the value to Lebanon of an executive evolution process chart and foreign direct investment. The objective of the economic scenario is to demonstrate the viability of exploration efforts and to assess their beneficial impact on the Lebanese economy in terms of sustainable economic growth and national interest. This can be broken down as follows:

(i.) Reducing the national debt,

(ii.) Satisfying a wide variety of Lebanon’s petroleum needs,

(iii.) Attracting major new investment to the country,

(iv.) Building energy-related infrastructure,

(v.) Reducing unemployment,

(vi.) Creating large scale industrial projects,

(vii.) Developing national human resources (Technology Transfer),

(viii.) Achieving a strategic positioning in the energy arena.

In view of the discussions in the early 1990s in Egypt, and in Palestine and Israel in 2000-2001, this report summarizes the potential for Lebanon which exists in what the industry calls the Syrian Ark -- the geology of the region, which runs from Tadmor in Syria all the way to Egypt.

It is important to note that this oil and gas opportunity comes at a time when the international oil and gas industry is enjoying historically strong prices. This has provided exploration companies with a strong incentive to locate additional reserves and the capital to support active investment programs. There is a strong consensus in this industry that the outlook for commodity prices will remain favorable for the short term and perhaps much longer. This situation imposes two imperatives on Lebanon: First, securing investment from international oil and gas companies while conditions are favorable; Second, addressing the effects of possible sustained high energy costs by exploiting its reserve potential and becoming a hydrocarbon-producing
country. No other measure can so effectively offset the economic burden associated with energy prices. The industry consists of a wide range of activities, spatially separated and technically distinct, but all involved in getting hydrocarbon reserves from the ground to the user.

The cyclical nature of the oil and gas industry is well established. There is good reason to act quickly to bring investment to Lebanon to evaluate the country’s hydrocarbon potential while the legal, fiscal and technical legislations preparations should be well developed.

Furthermore, industry conditions at present are incredible, and Lebanon’s reputation as a stable investment environment is improving, both of which promote a strategy of exploration and production.

II. EGYPT:

During the early 1990s Egypt embarked on a new initiative for oil and gas exploration in the offshore Nile Delta to offset the expected decline in oil production from its traditional Gulf of Suez oil production basin. As a result of the offshore Nile Delta bidding round in 1993, several major international companies expressed interest in the delta system.

As you will see from the following “Figure 1” a number of international oil companies including ENI, AMOCO, Apache, Burlington Resources, BG, Dana Petroleum, Edison, BP and Shell have made large investments to explore and develop gas fields in water depths ranging from 80 meters to 2,500 meters, in the West Delta Deep Marine Concession. Several large gas discoveries have been made over the last 10 years, and today current proven gas reserves of 67 TCF[3] make offshore Egypt a major gas producing region. Most of the gas discovered will be exported to the U.S. and Europe. To achieve that, two Liquefied Natural Gas (LNG) plants are being built on the north coast of Egypt to serve as export terminals. The construction cost for these LNG plants is estimated at several billions of U.S. dollars. These exports will bring to Egypt new income to strengthen its national economy and provide much-needed resources for local development programs.

Most of the gas discoveries made offshore of the Nile Delta region have been made on shallow targets from the Pliocene age. However, recent deep drilling to Miocene and Oligocene age formations yielded new major gas and oil discoveries for the first time. These new discoveries were made on formations similar to those present offshore of Lebanon. This indicates that the specific offshore Lebanese basin region is certainly a prospect and may hold major oil and gas accumulations.
Geological knowledge, the development of historical quantitative reserves appraisal and sequential patterns of new field discoveries within the Nile Delta Region led to a nearly 10-fold increase in Egypt’s gas reserves over the last decade. Gas production in Egypt increased by almost 50 percent between 1997 and the year 2000.

Gaza:
In September 2000, BG (British Gas) drilled the first well offshore of Gaza (Gaza Marine 1 and Gaza Marine 2) (Figure 2) and made new gas discoveries. A successful appraisal well was drilled by the end of 2000 and proven...
reserves are rumored to be in excess of 300 billion cubic feet. The Tamar and Gaza prospects are believed to contain more than 10 TCF * of gas reserve potential.

*Source: BG Website-www.bg-group.com

**Figure 2- E&P Offshore GAZA**

**Israel:**

In Israeli waters, (Figure 2) BG and Samedan have made significant discoveries with three wells, and proven reserves in the offshore area are now thought to exceed seven TCF. Samedan is currently developing the Noa field located off southern Israel to supply gas at a rate of 140mmscfd (million square cubic feet a day) into the domestic grid. The total depth of the well drilled exceeded 2,000 meters. BG is developing exploration wells following a 2002 Med Licenses bid.
III. Lebanon:

A. Technical summary from reports:

Historically, initiative in the development of hydrocarbon deposits in developing countries such as Lebanon has been left to the private international oil and gas sector. The preponderant role of this sector (once the oil and gas companies demonstrate such interest), which is my view is decisive (as shown in part IV on page 15), is essential to the development of this sector, especially where they participate with their enormous financial capabilities and the latest sophisticated state-of-the art technology.

Considering the importance of accelerating the launch of exploration progress of Lebanon and the scope of the tasks to be accomplished in Lebanon's prospective offshore zones shown here below (Figure 3), it is important to note that there are no absolute rules for determining the optimum exploration efforts to be undertaken here. However, Lebanon already has 120 2D seismic lines covering a little over 10,000 kilometers of seismic surveys and another 3D study that interested oil and gas companies could acquire. These data acquired over the last 20 years would reduce costs to individual companies.

*Compliments of TGS/NOPEC on 12/3/04 - O&G Day*
Figure 3: LEBANON – Seismic Lines

Estimating petroleum prospects is quite difficult, and can be controversial, and therefore it requires special attention. In addition to what was mentioned earlier, discovering petroleum resources in Lebanon needs effort and tenacity. The following, Mr. President, is an executive summary that reviews selected reports and provide a synopsis of the strategic considerations of the area’s petroleum geology, the prospects and the potential that exists:

Four seismic surveys have been conducted in the territorial waters of Lebanon over the years. The first was in 1976. The latest surveys were carried out by GeoPrakla in 93 (GL - 93) and by Spectrum in 2000/2002 (EMED - 00 & LEB - 02) and TGS/NOPEC (EEZ – Exclusive Economic Zone). Based on some of these surveys, ECL (Exploration Consultants Ltd.) conducted a study this year on the prospects of the offshore region of Lebanon. Below is the summary of the Spectrum, TGS/Nopec and ECL reports submitted to the Ministry of Energy and Water.

The Spectrum report states that:

“Taking into consideration that all the given elements necessary for a working petroleum system need to be present in a basin (structural and/or stratigraphic traps, source rocks, reservoir rocks, cap rocks and oil migration fairways), we can confidently say that seismic data shows many structural and stratigraphic leads over the entire offshore area, so Lebanon is entitled to issue licenses to oil companies. The geology of the region suggests that an international bidding round would be well-supported by the oil and gas industry.”

The TGS/NOPEC survey project collected geophysical data that consisted of seismic lines and magnetic information for the exploration and exploitation phase. The scope of their survey of Lebanon’s offshore EEZ outside territorial waters (12 miles or roughly 19 kilometers) covered some 3,080 square kilometers. TGS/NOPEC would provide the oil and gas (O&G) companies, through MEW, with modern high quality seismic data that could be used for seismic correlation and of stratigraphic units within proven drilled basins, and also with tested and untested basins.

ECL further details the petroleum potential by identifying five structural trends correlated with regional and onshore structural trends and identifies a new frontier basin, now called the Lebanese Basin.

Six potential source rock intervals were identified from regional exploration and were modeled in 10 pseudo-well locations across the basin to test the maturity of the source rocks and their hydrocarbon production potential. As a consequence of reservoir, seal and source recognition, six approaches were proposed and structural and stratigraphic traps were identified from the
regional seismic interpretation in water depths ranging from 1,000 to 2,000 meters and seven speculative petroleum systems were hypothesized.

The ECL report states in the executive summary:

"The offshore Lebanon area has been recognized as a new sedimentary basin, termed the Lebanese Basin, with a favorable petroleum geology, source rock, reservoir and seal development. This has led to multiple play development and the recognition of several viable petroleum systems with favorable timing of hydrocarbon charge."

ECL concluded with "a total of 210 prospects and leads have been identified from the horizon depth maps. From both deterministic and probabilistic volumetric calculations, an unrisked mean in-place reserves potential in excess of 88,000 mmbls (million barrels) was calculated from 87 prospects ... From a selected 12 prospects, using probabilistic volumetrics, ECL calculated a potential for total risked, mean STOOIP (Stock Tank Oil Originally In-Place) of 18 billion barrels" and further stated that:

- Offshore Lebanon is petrolierous and has promising prospects;
- There is a considerable hydrocarbon resource base;
- Offshore Lebanon will be an attractive area to international petroleum exploration companies.

The advantage of this type of positive data is that it will let O&G geologists extrapolate the results in Lebanon’s undrilled areas. It will therefore assist the O&G companies to identify leads and may help place future prospective wells in optimal locations. By encouraging O&G companies to purchase the data, this will generate increased interest in the energy petroleum community for offshore hydrocarbon exploration in Lebanon.

In 2005, the Ministry of Energy and Water (MEW) signed a contract with PGS for conducting a 3D seismic study of offshore Lebanon. PGS undertook multi-client 3D seismic and acquisition and processing of new data in the territorial exclusive water zone and continental shelf of Lebanon. PGS also conducted a multi-client 3D geophysical survey and interpretation in survey areas, and is supposed to reprocess new data, assist with the petroleum law, and assist with the negotiations with potential investors.

The survey area is divided into two phases: the first phase that was completed by February 2007 covered around 1500 square kilometers while the second phase covered 900 square kilometers. The Ministry of Energy and Water will be the party (like with previous studies) benefiting from the sales of the licenses of the seismic data.
In addition, GGS Spectrum published a report in 2007 stating that the Levantine Basin appears to contain up to 10,000 meters of Mesozoic and Cenozoic rocks above a rifted Triassic-Lower Jurassic terrain. The report notes that the undrilled parts of the Levantine Basin are prospective and are reconfirming from previous studies that offshore Lebanon will be an attractive area to international petroleum exploration companies.

Figure 4: GGS-Spectrum seismic survey coverage in the East Mediterranean
Some of the leads in the Levantine Basin area offshore Lebanon and Syria

Key:
Lead areas: yellow overlain on Tectonic Elements map.

Figure 5: Location of some of the plays in the Levantine basin (reference: D. Peace) Source: Spectrum Technical paper –Morocco, 2007

The results of the accumulated exploration results, the economic discoveries in the region, the forecast reserves and the reserve accrual estimation results are attractive enough to recommend to the government that a strategic decision is needed to explore Lebanon’s fields.

The following “Figure 6” is presented as an artistic presentation of what Lebanon’s offshore could be divided in partitioned blocks.
B. Uncertainties and Risks:

Of course the nature of oil and gas exploration activities carry uncertainties that make it appropriate to apply a financial and political risk factor to the value of estimated reserves when carrying out a preliminary business study. The first and most obvious one is the risk in the exploration phase, where the oil and gas company stands to lose a substantial amount of money should the search prove futile. As mentioned earlier, there is political risk in this industry, from socio-commercial and political conditions in Lebanon. O&G companies use the entrepreneurial approach to help them succeed in this high risk business. While Lebanon should try to mitigate risks when the connection between the evolution and the accrual of oil and gas field reserves discovered in its offshore region, it is highly recommended that these opportunities be seized. These uncertainties include the following:

- The existence of petroleum needs to be verified. Drilling offshore exploratory wells is the only way to test hydrocarbon potential.
Many of the identified leads and prospects are speculative in nature due to a lack of discoveries in this area in Lebanon.

Many of the generated prospects were based on limited seismic data consisting of two 2D and 3D seismic lines and therefore lack the accuracy of prospect definition that would be provided with exploration activities.

Several identified prospects could be small in size, in deep water locations and would be uneconomic to drill and operate unless production from several fields is combined.

Most sizable identified prospects are in deep water locations where there is currently insufficient coverage of seismic appraisal data.

Accumulation of hydrocarbons are always associated with a certain risk due lack of reservoir seal, low gas/oil saturation and a hydrocarbon trapping mechanism. The exploration success rate in the offshore Nile Delta of Egypt, for example, is about 85 percent, which is very positive for offshore Lebanese exploration potential. This would encourage oil and gas companies to forecast and conduct a proper resources evaluation for Lebanon’s offshore region and in particular to forecast the number and size of yet undiscovered fields. This is also due to the classification of this region and the reserve discoveries already at hand.

It is worth mentioning here that deep water field economics are always governed by the geological risks as mentioned earlier, the recoverable reserves, the fiscal terms to be determined by the Lebanese government in the forthcoming hydrocarbon law and the well productivity.

Furthermore the inherently dynamic nature of the petroleum industry is always subject to a process of progressive adaptation. In other words, we are now in the position to try to demonstrate the substance of the process, especially once we simulate the flow of a real Exploration and Production (E&P) process and understand the economic mechanisms and consequences driving this industry. It is also important to note that all companies will review Lebanon’s petroleum legislation. Consideration of Lebanon’s legislation (on hold since 2004) will affect positively the conduct of petroleum operations as this will affect the companies’ investment decisions and give them a level of comfort to conduct their operations. Two matters that have been interrelated since the early stages in Lebanon’s case are the degree of risk, mentioned earlier, and the constant need for capital and a review of fundamental legal legislation. These issues are the most crucial for Lebanon’s development of its resources and I believe that it is imperative they are properly addressed.
C. Exploration Program:

To design an appropriate program for a developing country like Lebanon, where no exploration has taken place, the O&G companies will use the positive results described in the different reports mentioned above (2D & 3D) to formulate hypotheses and set out programs to be promoted on the basis of their merit. Geophysical methods have made such progress in the last two decades that appropriate programs could easily be developed for Lebanon.

More specifically, since the geology and hydrocarbon data of offshore Egypt, Israel and Gaza can be extrapolated to judge Lebanon’s basin and the entire region, a typical process of exploration can be divided into the following phases, requiring the formulation of specific programs:

(i) The valuation phase (preliminary) confirming the prospects for the basin in Lebanon, to demonstrate the sound assessment and value of offshore Lebanon;

(ii) The pre-drilling exploration phase -- geological and geophysical subsurface investigation; better understanding of geology and enhance cost estimates of exploration phase;

(iii) The offshore drilling phase; confirmation of derivable prospects

(iv) The post-drilling exploration phase -- positive results will shape the following program, which will start to generate a cash flow for Lebanon’s treasury.
*Source: Total Website

Figure 7: Typical O&G Field Arrangement
IV. Value to Lebanon: A Typical Evolution Process Chart

MEW

MEW Investments:
+ $10MM. Recoverable through data sales

International Service Companies:
Infrastructure and Investment i.e.

Shell, Total, AGIP, Amerada Hess, Petrona, British Gas, Conoco, Petro-Canada

International Service Companies:
Infrastructure and Investment

Offshore Rigs, Logging, Drilling Fluids, Cementing, Vessels and Helicopters, Testing, & other

FDI* Investment - Exploration (or ROI in 5yrs to MEW):
Drilling = $250 MM
Seismic = $30 MM
Others = $200 MM

Boosting Lebanon Infrastructure

Development and Production
FDI Investment in Billions $
Production Revenues in 20 years
20 Billions $

Human Resources/Technology Transfer, Installations, Transport, Hotels, Banking/Insurance, Industrial Participation, Housing, & other

* FDI: Foreign Direct Investment. Please Refer to page 20 of the study
V. Economic Overview up to the first discovery in Lebanon

This study scenario highlights the benefits, rewards and dividends that Lebanon would enjoy from its ongoing efforts in the first exploration phase over the next 5 years, after the first licensing round of Lebanese offshore blocks.

Through the marketing of delineated blocks and the ongoing preparation of a strategy for optimizing Lebanon’s petroleum exploration and a legal framework for this program campaign, the international oil and gas companies will be awarded one or more blocks offshore of Lebanon. This will be based on bids submitted in the upcoming Lebanon International licensing round. The award of the bids and execution of development (production sharing) agreements will trigger the exploration cycle. After the award, the exploration phase would typically start with a high-resolution 3D seismic survey to improve the definition of the prospected block and reduce exploration risk in the deep water environment. Based on the interpretation of the seismic data, drilling will begin, to establish the presence of hydrocarbons in quantities sufficient to constitute commercial discoveries.

The acquisition and reprocessing of high quality 3D seismic data for this geologically attractive offshore area is essential before drilling commences. An estimated investment of about $3MM (million) to $6MM per block will be required for such measures.

Once the key prospects have been identified and ranked based on their economic potential, drilling an average of two offshore exploratory wells per block will be necessary to test the hydrocarbon formations. These wells will have a direct cost of approximately $90 MM per well from mobilization to demobilization, including testing costs, assuming the water depth is between 500 and 2,000 meters. Additional delineation wells will be required to confirm the extent of any discovery.

Once a commercial discovery has been confirmed, work to design a development program and production facilities will commence. Engineering work in this phase will include designing platforms, identifying pipeline routes, preparing environmental impact studies and other related work. This activity will involve further investments from the international oil and gas companies of up to $200 MM/$250 MM per block.
Oil and gas development projects typically include production platforms and other related facilities, as well as pipelines and terminals. These measures will require direct foreign investment of between $500 MM and $600 MM.

To summarize the above, international oil and gas companies who commit to developing a project offshore of Lebanon will spend an average of $60 MM to $100 MM during the exploration phase under terms to be prepared for the initial licensing round. Appropriate legislation and the enactment of a hydrocarbon law is a prerequisite to attract private oil and gas companies to invest. Decent exploration and licensing terms would enhance Lebanon’s business environment ranking. Should the discovery prove commercial, the company would typically invest a further $500 MM individually or through joint ventures, to develop production, oil and/or gas transport facilities.

Several peripheral and support services will be required during the exploration and production phases of O&G operations. These services include: wireline logging, cementing, mud logging, supply boat services, drilling fluids, pipe, facilities maintenance and management, and other requirements. All these services would be provided by specialized companies who have no presence in Lebanon today. Upon the award of the first exploration contracts to a company through a licensing round, many of these service providers will set up offices in Lebanon. This will mean these companies will hire local companies and personnel and use travel and accommodation services and facilities to meet the requirements of the operating companies. It is realistic to expect the establishment of new service companies in Lebanon. An additional upside will be the creation of new companies or new business relations with existing companies, which will lead to direct employment opportunities in Lebanon and foreign capital investment.

Local suppliers will also be needed to support the new offshore industry. This support will include local legal and fiscal advisory services, food and beverage/catering services, shipping and transit services, real estate rentals of offices and housing facilities, car rentals and the like.

It would seem realistic to assume annual expenditures of approximately $10MM/year/operator with 3 to 5 operators, producing $30 to $50MM/year. Aggregate expenditures would range from $100MM to $150MM during the first 5 years after licensing.
Therefore, in evaluating initial potential, the first phase of offshore exploration would bring to Lebanon an investment of over $500 MM during the first 5 years of operations. In addition, the requirements of the international petroleum industry would boost Lebanon’s infrastructure and its private sector, reaping benefits in capacity building and employment.

Figure 8: Simplified model of the Exploration and Production Process
VI. Second economic overview - From First Oil or Gas discovery to the Next 20 years of Production – 2009 - 2019

Using the reserve values from only the 12 selected ECL prospects as the basis for this financial exercise, the following assumptions were utilized in this overview and are aimed at protecting Lebanese energy security for the next 20 years:

(a.) A recovery factor of 25 percent, which is conservative for the region,

(b.) Light condensate would be produced, which is the most likely type of hydrocarbon to be discovered,

(c.) The productive life of a field is 20 years, (average)

(d.) The average price of oil in this exercise is assumed at US$120/Barrel, and US$140/Barrel,

(e.) The sale of only 40 percent of the blocks offshore occurs in the international bidding round.

Based on the aforementioned, the initial calculations are:

- 18,000 mmbls x 25 percent = 4500 mmbls of recoverable reserves (based on 100 percent sales of the blocks)

- if only 40 percent of these reserves were exploited from the sale of 40 percent of the blocks therefore giving Lebanon:

- 4500 x 40 percent = 1800 mmbls of exploited recoverable reserves.

- Producing over 20 years, we can assume a production rate of 90 mmbls/year or 240,000 BBL/Day

Taking for example Syria’s consumption of about 300,000bbls/day for a population of 18 million people, and extrapolating to the Lebanese population of over 4 million people, domestic consumption would be approximately 80,000 bbl/day.
The Lebanese Government jointly with the O&G companies would benefit from the export of around 160,000 bbl/day, which would bring a return of $7 billion dollars or $8.2 billion dollars per year for the next 20 years based on a $120 barrel of oil or $140 barrel of oil, respectively.

Consumption is estimated of 80,000 bpd. Lebanon would have financial incentives and would reap associated cost savings because it would NOT have to import this amount, saving at least transportation and other charge costs on the equivalent of 80,000 bpd.

VII. Conclusion:

In conclusion, Mr. President, it is clear that the offshore Lebanese basin has favorable geological prospects and has huge potential for hydrocarbon production. Oil and gas discoveries in this promising basin would attract significant foreign investment and would certainly boost the economic growth of our country. Lebanon is struggling under a national debt of $41 billion; the importance of a find conservatively estimated at $140 billion in 20 years (based on a price of $120 a barrel) is obvious.

The benefits to Lebanon go beyond the purely fiscal. Meeting local demand through domestic supplies of energy would insulate the country from volatile energy prices, and exports of oil and/or natural gas would provide the treasury with extra revenue. The development of a local hydrocarbon industry would further the development of the national human resource base, reduce unemployment and foreign capital inflows for future infrastructure development. If the prospects identified and leads are proven after exploration drilling exploration, this will position Lebanon as an oil and gas producing country and establish its strategic position in the global energy market.

Conditions in the international oil and gas industry are very favorable at present, with commodity prices near historic highs. While the short term outlook is for continued high energy costs, the global market for oil and gas is notoriously volatile, and budgets for new projects tend to shrink rapidly if the price of energy declines. Prompt action to explore and exploit Lebanon’s potential reserves would catch the investment cycle of the hydrocarbons industry at its peak. The longer this is action delayed, the more Lebanon is exposed to the risk of a fall in global energy prices.

\[\text{BPD: Barrel of oil per day}\]
The industry is watching opportunities in Lebanon closely, and there is a lot of interest at present. Delay in conducting the planned international licensing round may be seen as evidence of unfavorable conditions for investment, which could impair Lebanon’s ability to attract capital from international oil and gas companies and would have implications for the country’s national economic competitiveness.

Mr. President, the petroleum prospects for Lebanon’s offshore province could be a key factor in Lebanon’s economic development. I strongly believe that a “Presidential Energy Message,” in setting the tone and scope for what energy policy instruments and appropriate transparent legislation are adopted by the government, is critical. Such a message, built upon political consensus, would force new thinking about Lebanon’s energy security and ensure that positive momentum is maintained by effective and prompt implementation of an international licensing round.

This report represents my individual contribution to resolve the nation’s persistent energy shortage, a contribution I consider my responsibility as a Lebanese citizen and a professional in the energy field. I am at your disposal for any queries you may have about Lebanon’s offshore petroleum exploration and will be honored to clarify any point.

Warmest personal regards,

Roudi E. Baroudi

cc: File – Offshore/REB 1/2008
Figure 9: Table Outlining F.D.I.

**Foreign Direct Investment (FDI) and Production Revenue**

**Oil & Gas Potentials for Lebanon**

**Economic Aspects**

![Diagram: Value to Lebanon]

- **Production**
  - Lebanon Credibility and the Multiplier Effect on Lebanon's National Economy
  - Revenue From Production
    - $140 Billion in 20 years
    - 7 $ Billion / year
    - $600 Million (FDI)
    - $150-250 Million
    - $0 Million

1. NDSP: National Data Store Project
2. PSA: Production Sharing Agreement
3. C.C: Concession Contracts
4. S.C: Service Contract

* E&P: Exploration & Production
* NDSP: National Data Store Project
* There are three general categories of agreements:
  1. Concession Contracts (C.C)
  2. Production Sharing Agreement (PSA)
  3. Service Contract (S.C)