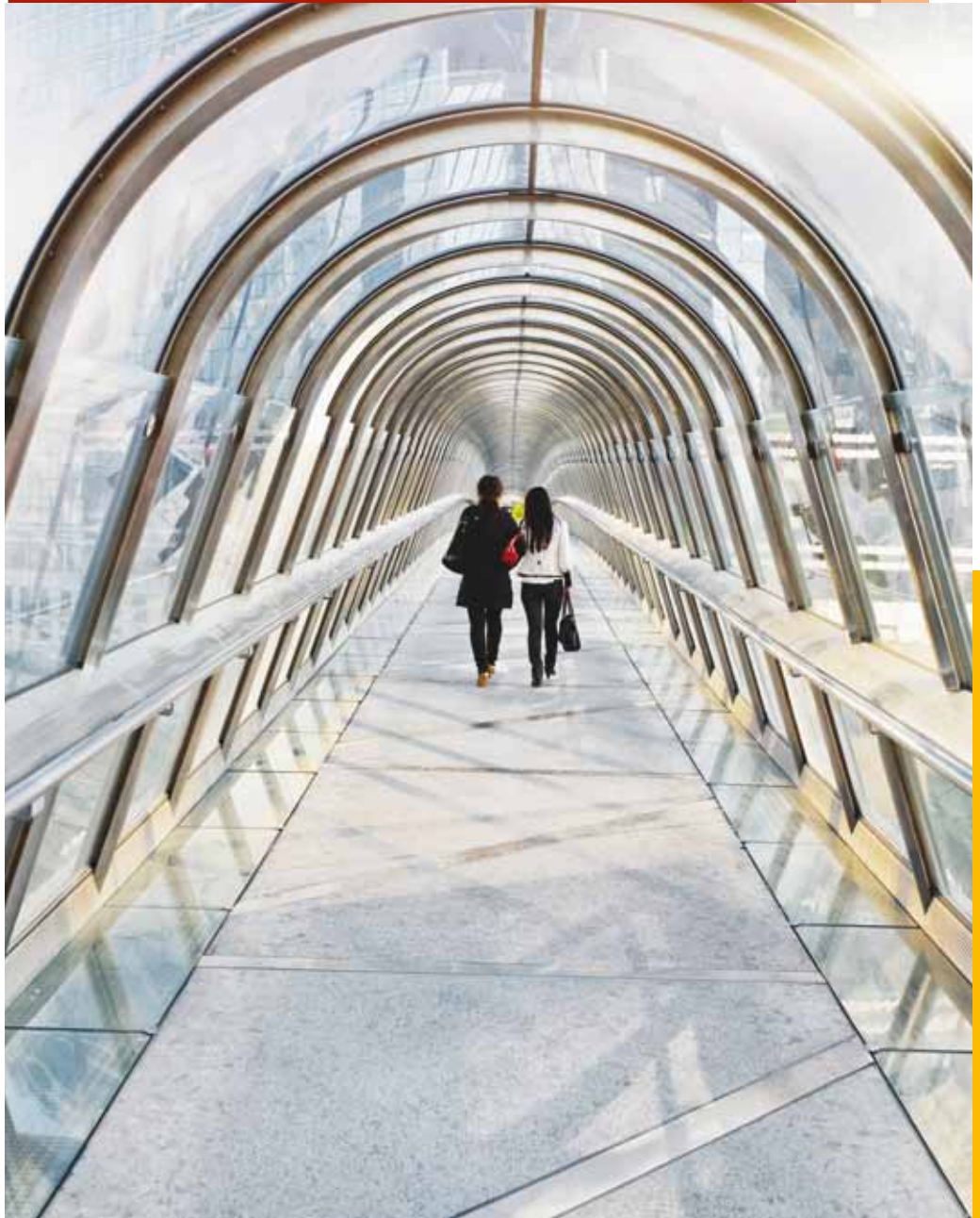


# *Cyprus hydrocarbon opportunities*

Energy, Utilities & Mining

November 2011





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## Foreword

The indications for the presence of significant quantities of hydrocarbons in the exclusive economic zone of Cyprus and the decision to proceed with their exploration may prove to be a tremendous opportunity for the island. With the EU having its own ambitious energy objectives we believe that Cyprus, if successful with its hydrocarbon exploration, can play a regional role in the achievement of Europe's energy goals.

Cyprus as a long established international financial centre is one of the main gateways for investments to and from Eastern Europe. It has gained this enviable position because of its favourable tax regime, its highly educated workforce and its excellent infrastructure facilities. On the taxation side, it offers the combination of a competitive corporate tax rate and a network of double tax treaties. This helps to maximize after tax returns for investors

At PwC Cyprus we are continuously enhancing our industry specialization to address the new opportunities and challenges facing our clients. We help our clients solve complex problems and we pride ourselves in offering quality services which help to improve trust and confidence. We listen to our clients, share specialized knowledge and experiences and help them create the value they are looking for.

A handwritten signature in blue ink, appearing to read 'Evgenios'.

Evgenios Evgeniou  
Managing Partner  
PwC Cyprus

November 2011

# Introduction

Secure energy supplies at affordable prices are crucial for achieving growth in world economies, lead to job creation and ultimately improve our quality of life. During the last few years the world is experiencing uncertainty, market volatility and unemployment only surpassed by the Great Depression. While the ongoing recession might have given a reprieve in relation to some energy decisions, the challenge of securing energy supplies at the right prices in the medium and long term poses decision makers in the industry with relentless dilemmas and requires swift action.

Global growth in energy demand in the recent years has shifted from Organisation for Economic Co-operation and Development (OECD) countries to emerging economies. According to the International Energy Agency (IEA) the global primary energy demand is expected to rise up to 30% by 2030 with oil and natural gas reserves rising by single digit figures the last few years. Fossil fuels are satisfying in excess of 80% of the world's energy needs, with gas gaining increasing importance as the fuel of choice.

The European Union (EU) continues to be heavily reliant on energy imports. Energy dependency and increasing energy prices pose European Governments with major challenges when it comes to achieving the central goals of the Energy 2020 roadmap of security of supply, competitiveness and sustainability.

As far as natural gas is concerned with only around 3% of global reserves in Europe and three countries supplying more than 80% of the block's imports, diversification of energy sources and routes remains an ever important strategic priority. The relationship that exists between the EU



and Russia in the field of energy is very important to both partners. With the Union being the largest energy resources importer from Russia this mutually beneficial relationship will not disappear in the near future and Cyprus might have a role in enhancing this relationship further.

Cyprus is almost wholly dependent on oil imports to cover its energy needs. However the recent strong indications for the presence of significant quantities of hydrocarbons offshore Cyprus might provide the island and Europe with a totally new, exciting opportunity. With the first exploratory drilling underway since last September, Cyprus, one of the smaller EU member states might have a role to play in the energy strategy of the Union.

Oil & gas Multinational Corporations (MNCs) from around the world work with us and rely on our industry focused teams in Cyprus and in 13 energy centers of excellence across the PwC network to obtain added value from trust-based relationships. In PwC we are working with every segment of the industry and we look forward to share our knowledge with your company.

On behalf of the PwC Cyprus Energy Team

A handwritten signature in blue ink, appearing to read 'Constantinos Taliotis'.

Constantinos Taliotis  
Energy, Utilities & Mining, Responsible Partner  
PwC Cyprus

# Global and European energy facts and prospects

## Energy in the world

World oil and gas reserves are said to have increased by around 12% and 7% respectively by 2010 since 2005 (*Appendix 1*) with the top 20 International Oil companies (IOCs) and National Oil Companies (NOCs) dominating every segment of the industry and controlling a significant part of these reserves (*Appendix 1*).

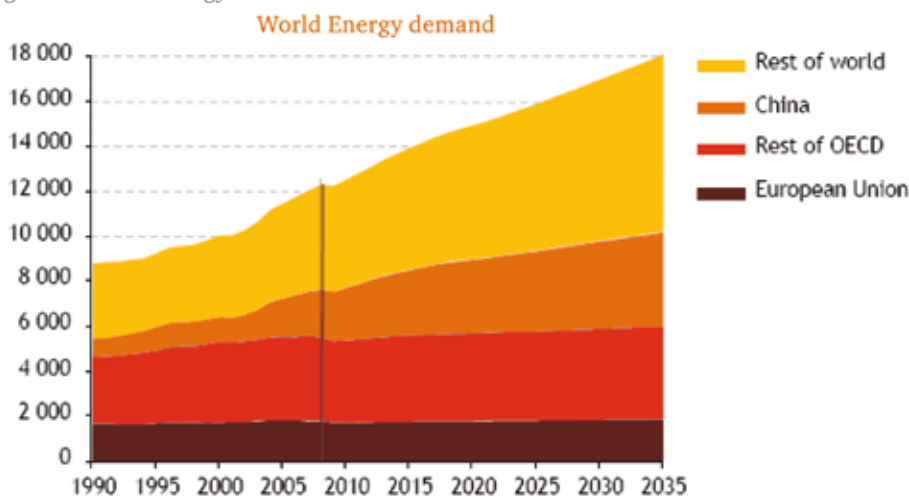
The world energy demand is predicted to rise by up to 30% by 2030 (Figure 1) with the emerging markets of China and India having a major contribution to that extent.

It is widely accepted that oil will remain dominant in satisfying global energy needs, but its importance is said to decrease going forward with natural gas and renewable sources of energy gaining more prominence. Some studies predict that by about 2030 natural gas will overtake coal as the second largest source of fuel in the primary energy mix. A number of models further predict a very close race between natural gas and oil by 2035 driven by the world's thirst for more electricity to be increasingly produced using gas (IEA - World Energy Outlook 2011-The Gas Scenario and New Policies Scenario WEO-2010).

With voices around the world calling for caution and action when it comes to Greenhouse Gas (GHG) emissions and the impact they allegedly have on the planet's climate, a significant number of countries signed in 2005 the Kyoto Protocol requiring participating countries to reduce their GHG emissions by an average of 5% below 1990 levels by 2012. In 2008 the G8 agreed to cut GHG by 50% by 2050.

The case for natural gas replacing other fossil-fuels and becoming the pillar to a greener economy is therefore gaining ground. Lower emissions of GHG are a major argument. With the increasing use of renewable sources like solar and wind, natural gas is better suited as a back up, flexible solution. Diversification of the energy supply is another argument for natural gas with an ultimate potential improvement of the world's energy security, a most sought after prize.

Figure 1: World energy demand



Source: IEA World Energy Outlook 2010

*Volatility has been intensive in commodity markets but prices of all three dominant fossil fuels have been increasing the last decade. With increasing world population and the demand for better life standards and thus more energy needed it is anticipated that prices will only keep increasing in the long run.*

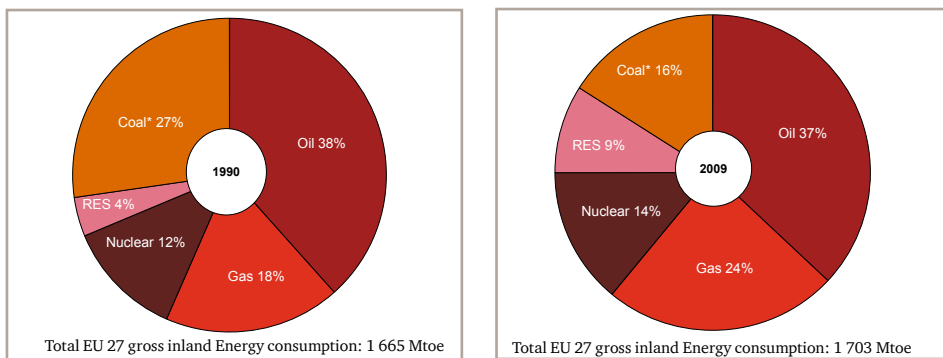
## The European Union Energy Dependency

The IEA in its 2010 World Energy Outlook (Figure 1) does not predict a significant increase in the European energy demand in the next 25 years. The mix of sources of EU energy consumption are however posed to change significantly going forward, in a similar way this has happened the last 20 years (Figure 2). Recent decisions like the staged decommissioning of Germany's nuclear power stations over the next few years are said to have an additional substantial impact on the European mix of energy sources.

The European Commission in its roadmap document Energy 2020 has set out an ambitious plan in achieving its strategic goals of security of supply, competitiveness and sustainability. The Union aims for a 20-20-20 target in reduction in GHG emissions, increase in the share of renewable sources and increase in energy efficiencies by 2020. Despite progress to date and the presumed slowdown in energy consumption from the ongoing recession in some countries, recent projections adopted by the EU regarding the target of 20% increase in energy efficiencies are not very encouraging.

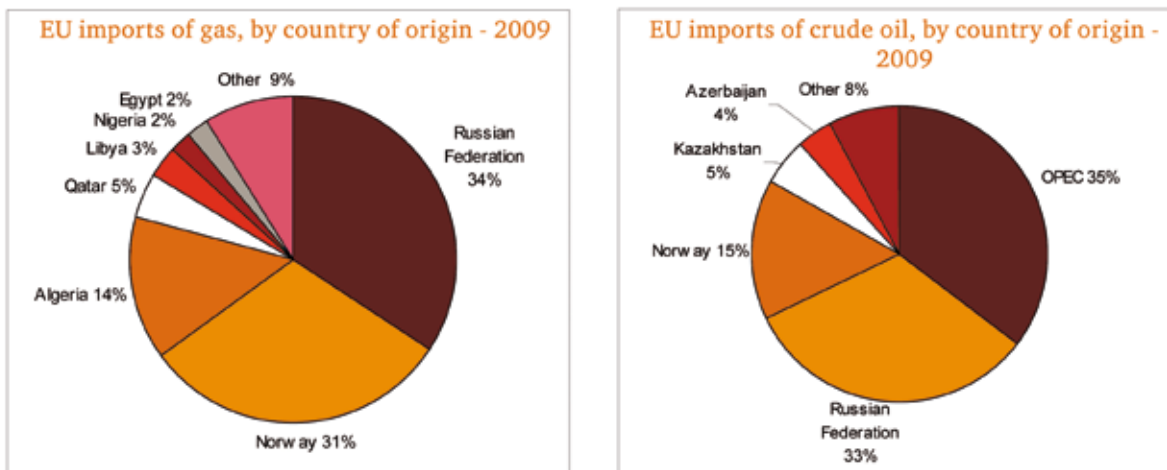
Currently EU produces around 48% of its energy needs and imports the remaining. EU depends on imports of gas on Russia, Norway and Algeria (the three countries make up around 80% of the block's total gas imports) and on Organisation of Petroleum Exporting Countries (OPEC), Russia and Norway for its imports of oil (around 83% of total EU imports) (Figure 3). EU's own energy production is based primarily on nuclear and to a lesser extent on oil, natural gas and renewable sources. In 2009 only Denmark out of the 27 member states was a net energy exporter (also the only net exporter of oil) and with The Netherlands were the only gas exporting countries.

Figure 2: EU gross inland energy consumption by fuel in 1990 and 2009



Eurostat May 2011: \* Coal and other solid fuels - RES: Renewable Energy Sources

Figure 3: EU imports of gas and oil by country



Eurostat May 2011: \* Coal and other solid fuels - RES: Renewable Energy Sources

## Natural gas in the European Union

As far as natural gas is concerned with the UK's and Netherland's gas production expected to be reducing sharply according to IEA estimates and Norway remaining the only European country with increasing production, some models predict an increase of around 30% in imports of natural gas by the Union by 2030 (Primes Reference 2009 and Eurogas Environmental 2010)

Taking into consideration the advantages of natural gas and the Union's stated objectives in the Energy 2020 roadmap and especially the GHG reduction targets it does appear that natural gas could be the fossil fuel of the future for the Union.

The main countries supplying natural gas to the EU are facing their own challenges (e.g. falling or expensive production depleted reserves or vastly explored fields). Currently, the Norwegian supply appears to be promising with hope also placed on new Russian projects in Yamal and Shtokman, as well as unconventional gas in Europe.

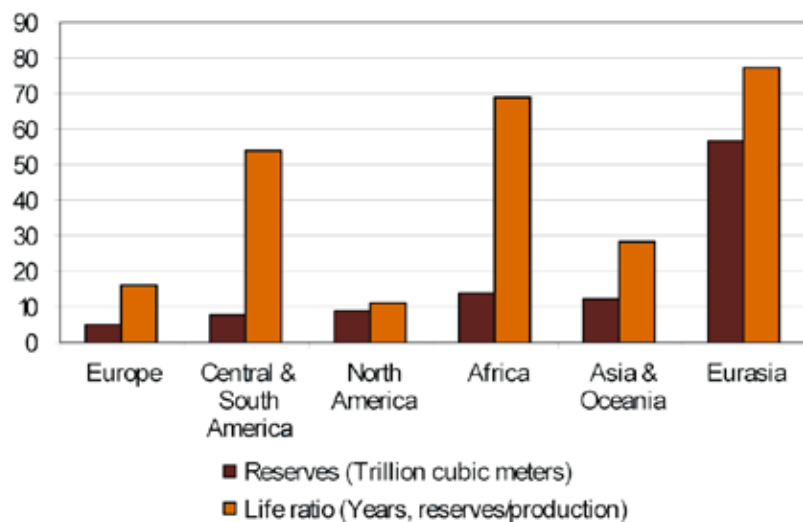
The development of gas production and gas markets in the Caspian and Caucasus could be helpful, but this option is not without its political, economic, financial, and technological difficulties.

According to the US Energy Information Administration Europe is the world's area with the most urgent need for developing new natural gas reserves. Europe appears to be the territory with the lowest reserves of natural gas (4.8 tcm) (Figure 4) and the second lowest reserve-to-production ratio (just 16 years) as well as one of the highest rates in production decline (around 10%).



Figure 4: Natural gas reserves and life ratios

**NATURAL GAS RESERVES AND LIFE RATIOS—2009**  
(Excluding the Middle East)



Source: US Energy Information Administration.



## The Special Relationship with Russia

The special relationship that exists between the EU and Russia in the field of energy is very important to both partners (Table 1). With official relations dating back to 1994 (Partnership and Cooperation Agreement-

PCA signed in 1994) this mutually beneficial relationship is expected to be present in the long run.

Table 1: EU- Russia energy relationship

Russia – the Union’s largest energy resources importer (2009)	The EU – Russia’s largest trade partner for energy goods
36% of the EU’s total gas imports originate from Russia	80% of all Russian oil exports go to the EU
31% of the EU’S total crude oil imports originate from Russia	70% of the Russian gas exports go to the EU
30% of the EU’S coal imports originate from Russia	50% of all Russian coal exports go to the EU

Source: European Commission - Directorate - General for Energy, EU - Russia Energy Relations



In February 2011 the two partners signed a Common Understanding on the Preparation of the Roadmap of the EU-Russia Energy Cooperation until 2050 and since 2008, the Russian Federation and the EU are also negotiating a new agreement to replace the current Partnership and Co-operation Agreement (PCA). Both parties agree that the energy sector, as a strategically important area of cooperation, will be one of the substantive elements of this new agreement.

As the nation producing 20% of the world’s natural gas and without losing track of the fast growing Asian markets, Russia is drawing its own strategy as one of the world’s leading energy producing countries.

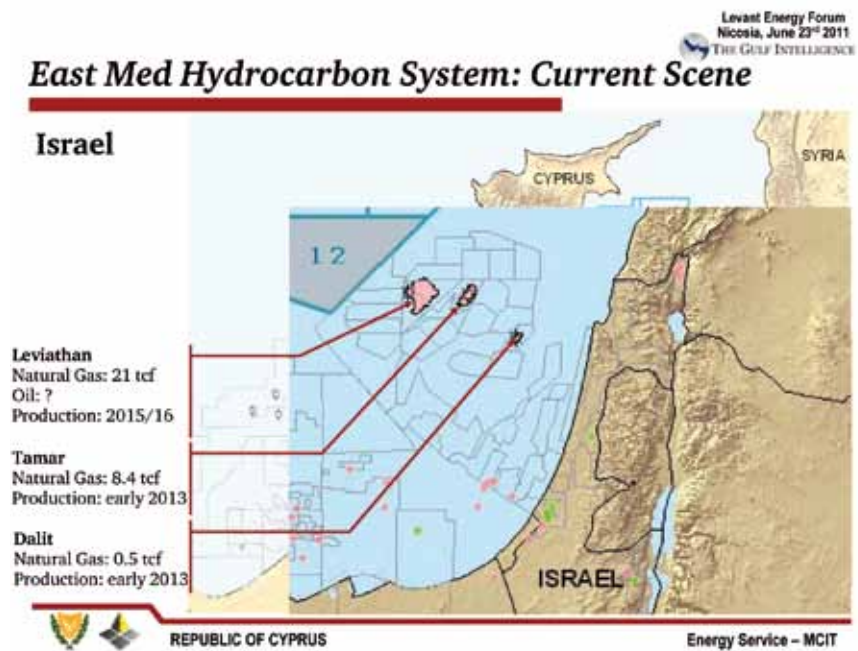
# European hydrocarbon opportunities in Cyprus

Cyprus, a full EU member since 2004, is located at the Eastern Mediterranean and stands at the crossroads of big international energy routes. Assessments by US Geological Surveys (USGS) put the level of undiscovered oil and gas resources in the Eastern Mediterranean to a total of 3.4 bbl for oil and circa 345 tcf for natural gas in

the Nile Delta and Levantine basins. In all probability some of the abovementioned potential reserves lie in the island's EEZ.

Figure 5: East Med Hydrocarbon System : Israel

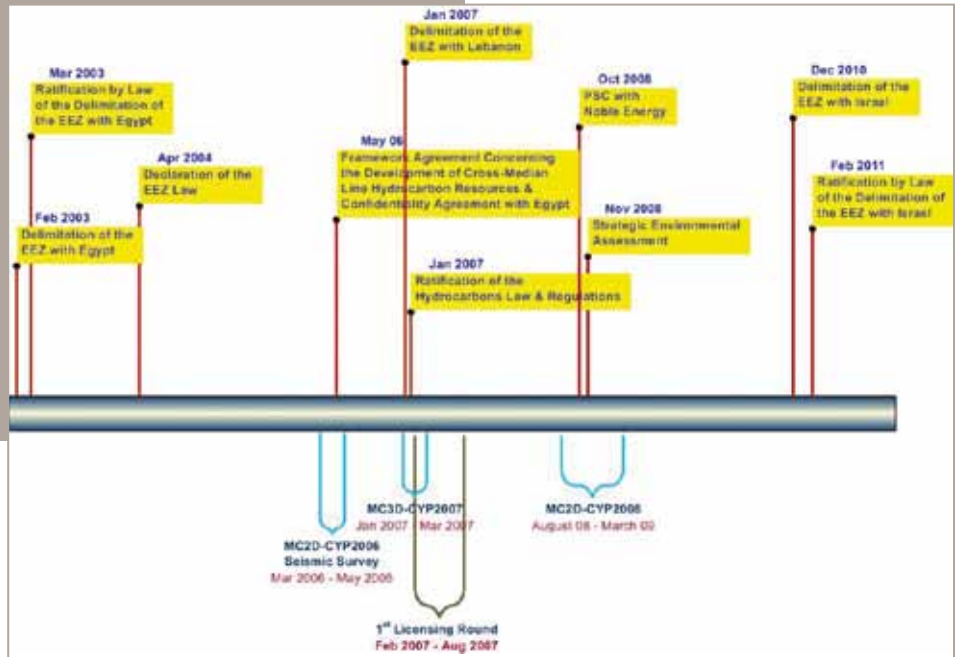
Israel has already announced offshore findings at Dalit, Tamar and Leviathan totalling 30tcf of natural gas and still unproven quantities of oil (Figure 5).



Source: Ministry of Commerce, Industry and Tourism, Republic of Cyprus

The island is a newcomer to hydrocarbon exploration and has started putting together the relevant legislative framework and entering into international bilateral agreements with most of its neighbouring countries (Egypt, Lebanon, Israel) the last decade (Figure 6).

Figure 6: Cyprus hydrocarbon legislative framework and bilateral agreements

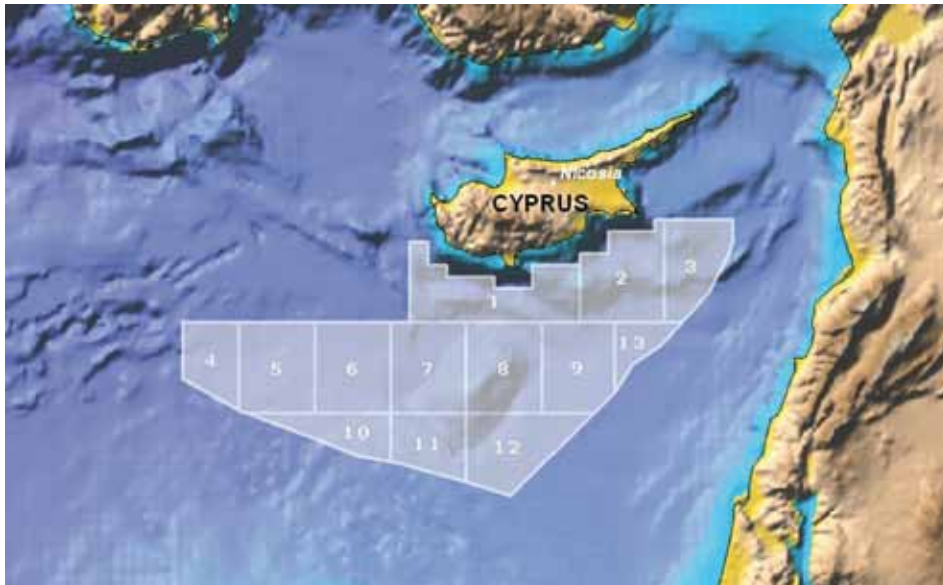


Source: Ministry of Commerce, Industry and Tourism, Republic of Cyprus

Thirteen offshore exploration blocks (Figure 7 & Table 2) have been defined to date in the Republic of Cyprus EEZ. Substantial geological and geophysical data has been gathered the last few years for a number for

these blocks and are available in the form of 2D and 3D Multi Client Seismic Surveys and Interpretation Reports (Appendix III).

Figure 7 Cyprus offshore exploration blocks



Source: Ministry of Commerce, Industry and Tourism, Republic of Cyprus

Table 2: Information for Cyprus offshore exploration blocks

Block No.	Bathymetry Range (m)	Surface (Km <sup>2</sup> )
1	397-2574	5740
2	248-2051	4741
3	782-2020	3510
4	2449-2866	2734
5	2201-2750	4555
6	2002-2619	4561
7	846-2613	4562
8	730-2588	4562
9	1887-2351	4279
10	1652-2475	2561
11	1194-2186	2958
12	1185-2026	4597
13	2010-2124	1439

During the 1st licensing round for exploration licences which was conducted in 2007, one licence was awarded to Noble Energy Group for block 12. A PSC was signed with the Republic of Cyprus in 2008 and the company commenced exploratory drilling in September 2011 about 160 km offshore Cyprus.

## *What's next?*

The attractive terms (during the first licensing round there was zero taxation on revenues from offshore hydrocarbon exploitation) and the welcoming business environment in Cyprus, which was ranked 40th amongst 183 countries in the 2012 World Doing Business Report of the World Bank, up 9 places from 2011 makes Cyprus attractive for business and of course for setting up for hydrocarbon exploration.

The authorities in Cyprus are expected to initiate a 2nd licensing round towards the end of calendar 2011 /beginning of 2012.

Furthermore the Government of Cyprus is planning the construction of an energy centre which will eventually include a terminal for the storage of the island's strategic and operational oil stocks, facilities for their transit and facilities for the import

and prospective exploitation of natural gas. Options are also considered for the construction of a pipeline which will transfer gas discovered offshore the island to the above mentioned natural gas exploitation facility.

We believe that if significant, commercially exploitable gas reserves are found offshore Cyprus, the island can not only solve its own energy dependency and isolation but eventually make a contribution to Europe's energy security as well as contributing to the development of the East Mediterranean region.



Updated information in relation to the 2nd offshore licensing round can be found on

[www.pwc.com/cy/en/industries/Energy-Utilities-Mining.jhtml](http://www.pwc.com/cy/en/industries/Energy-Utilities-Mining.jhtml)

# Legal and regulatory framework for hydrocarbon exploration



The legal framework applies to the territorial waters, the continental shelf and the Exclusive Economic Zone of the Republic of Cyprus. Hydrocarbon activities are subject to general Cypriot laws and regulations on environmental protection, health and safety. The following laws and regulations are applicable for Hydrocarbon activities:

- The Hydrocarbons (Prospecting, Exploration and Exploitation) Law (2007)
- The Hydrocarbons (Prospecting, Exploration and Exploitation) Regulations (2007 and 2009)
- Harmonization with Directive 94/22/EC of the European Parliament and Council concerning the Hydrocarbon prospecting, exploration and production activities
- The Contiguous Zone Law (2004)
- The Declaration of the EEZ Law (2004) – (UNCLOS’82)
- Strategic Environmental Assessment (SEA)

## ***The Hydrocarbons (Prospecting, Exploration and Exploitation) Law and Regulations***

This law and regulations determine the conditions for granting and using authorisations for the prospecting, exploration and exploitation of Hydrocarbons activities in Cyprus Offshore Exploration Blocks. Furthermore, they provide guidelines and evaluation criteria over a prospective application for licensing. For further details, please refer to the “Upstream Sector” section in pages 14 to 15.

## ***Harmonization with Directive 94/22/EC of the European Parliament and Council***

The purpose of Directive 94/22/EC, is to set up common rules for all EU member states for ensuring that the procedures for granting authorisations for prospecting, exploration and exploitation of hydrocarbons are open to all entities possessing the necessary capabilities, whereas authorisations must be granted on the basis of objective, published criteria.

Cyprus as a full member state of the EU harmonised the above law and regulations for Hydrocarbons activities legislated in the Republic of Cyprus with the provisions of this Directive and other relevant EU legislation.

*Key legislation, regulations and other useful information have also been included in Appendix V (please see pps and pdf files).*



### ***The Contiguous Zone Law (2004)***

By this Law, the Contiguous Zone is proclaimed, the inner limit of which is identical with the outer limit of the territorial sea and the outer limit of which shall not extend beyond the 24 nautical miles from the baselines from which the breadth of the territorial sea is measured.

In cases where part of the Contiguous zone overlaps with part of the Contiguous Zone of any other State, the delimitation shall be effected by agreement between the states involved. In the absence of an agreement, the delimitation of this zone shall not extend beyond the median line or the equidistance line, measured from the respective baselines from which the breadth of the territorial sea is measured.

### ***The Declaration of the Exclusive Economic Zone (EEZ) Law (2004)***

In 1988, the Republic of Cyprus ratified the United Nations Convention on the Law of the Sea (UNCLOS'82). Based on this ratification, the Declaration of the EEZ Law was legislated in 2004.

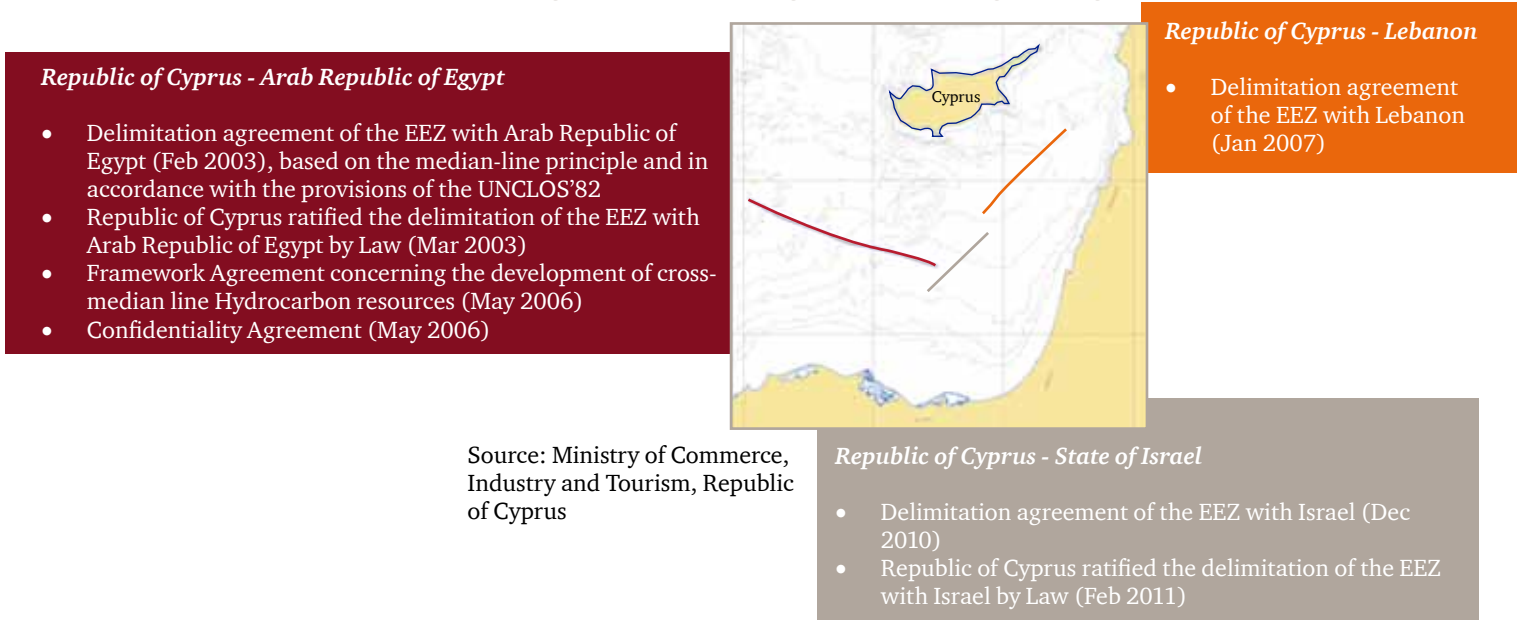
By this Law, the exclusive economic zone is defined as an area beyond and adjacent to the territorial sea, subject to the specific legal regime established, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention. The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

Where the coasts of two States are opposite or adjacent to each other, neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the median line every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured.

The Republic of Cyprus has signed a series of delimitation agreements with its neighbouring countries, as presented below (Figure 8), in order to define its EEZ, as provided by the above law.

The exact limits of the EEZ at any given time shall be made public by Notification issued by the Minister of Foreign Affairs, as these limits will be shaped according to the specific areas and the possible delimitation agreements to be reached.

Figure 8: Delimitation agreements with neighbouring countries



### Strategic Environmental Assessment (SEA)

The Ministry of Commerce, in accordance with the EU Directive 2001/42/EC of 27 June 2001, has carried out a Strategic Environmental Assessment to identify, describe and evaluate the likely significant effects on the environmental effects of implementing hydrocarbon exploration and exploitation activities. The SEA will bind all the licensees to follow and comply with the results and recommendations of this assessment. The environmental assessment can be found at the website of the Ministry ([www.mcit.gov.cy](http://www.mcit.gov.cy), Hydrocarbon Exploration under Energy Service).

Every licensee shall ensure that hydrocarbon operations are conducted in an environmentally acceptable and safe manner, consistent with the environmental legislation and the good international industry practice.

# Upstream sector



The upstream business activities are carried out, in the offshore blocks prescribed by the Republic of Cyprus (currently as shown in Figure 7). In order for these upstream business activities to be carried out, the interested parties should follow the prescribed procedure for obtaining the relevant licenses.

## Licensing for Hydrocarbon Activities

### Prospection Licence

The Hydrocarbon Prospection Licence, issued for a maximum of one year, gives permission for prospection using various geophysical techniques (no drilling) and evaluating the offshore Cyprus hydrocarbon potential by identifying geological structures.

### Exploration Licence

A Hydrocarbon Exploration Licence is granted for an initial period of three (3) years and may be renewed for up to two (2) terms, each term not exceeding two (2) years, provided that the licensee has fulfilled all their obligations with respect to a current exploration term. Upon each renewal of the term of the exploration period, the licensee relinquishes at least 25% of the initial surface of the licensed area.

In case the appraisal program of an oil discovery at the end of the second renewal period is not completed, an extension of 6 months could be granted. Moreover, in case the appraisal program of a natural gas discovery at the end of the second renewal period is not completed, an extension of

24 months or more could be granted for a viable gas market to be established. In case of a discovery, the licensee has the right to be granted an exploitation license for that discovery.

### Exploitation Licence

A Hydrocarbon Exploitation Licence is granted for a period not exceeding twenty-five (25) years and may be renewed for a maximum of ten (10) years. A Hydrocarbon Exploitation Licence, with respect to a commercial discovery during exploration, shall be granted after the approval of a Development and Production Plan.

During decommissioning, some production facilities (e.g. pipelines) may remain in place and can create an “artificial reef effect”.





- Evaluation Criteria

A number of evaluation criteria has been established as follows:

- National security and public interest
- Technical, legal and financial ability of the applicants
- Ways in which the applicant intends to carry out the licence activities
- Financial consideration that the applicant is offering in order to obtain the licence
- Previous track record
- Environmental, biological and mineral resources and national treasures considerations
- Safety of workers and installations and transport security

#### *Application Guidelines and Criteria*

An Application for each Exploration Block is submitted to the Minister of Commerce, Industry and Tourism. A selected applicant for an Exploration Block shall enter into a Production Sharing Contract (PSC) with the Republic of Cyprus pursuant to the model PSC made available by the Republic. The competent authority for the granting of Hydrocarbon Exploration and Hydrocarbon Exploitation Licence is the Council of Ministers.

- Content of Applications

The Application shall contain the following items:

- The Application Letter
- Technical, Financial and Legal Capacity documentation
- Technical and Financial Proposal for the block.

#### *Model Production Sharing Contract*

- A Model PSC to be used in the licensing procedures and concluded between the licensee and the Republic has been issued
- Main terms include:
  - Minimum exploration work program (2D/3D seismic surveys, number of exploration well, depth, etc).
  - Cost Oil/Gas Recovery (up to a maximum %).
  - Profit Oil/Gas Sharing % (for oil according to production tiers and price; for natural gas according to production tiers).
  - Signature and Production Bonus.
  - Minimum annual training budget.
  - Annual Surface Fees.
  - Performance Guarantee.

*Detailed information and official documents in relation to the model PSC is included in Appendix V (please see pps and pdf files).*

#### *Available Surveys for the offshore Blocks*

A considerable amount of seismic data has been acquired offshore Cyprus, which can be used by interested parties.

*The surveys available can be found in Appendix III*

## **Downstream sector**



*The energy production in Cyprus is almost wholly dependent on oil supplies (95% vs EU average of 37%) with the main downstream players being primarily the Electricity Authority of Cyprus and the cement industry. Distribution is undertaken by main oil companies.*

### **Power generation overview**

The Electricity Authority of Cyprus (EAC) is the main consumer of oil products and generator of electricity for domestic, commercial, industrial and agriculture purposes. EAC owns the National Transmission System for electricity, which connects the power stations with the load centres. The distribution network links the EAC's transmission system to the final consumer. At present EAC operates three power stations with a total installed capacity of approximately 900 MW.

According to EAC's development plan, a number of new Combined Cycle Gas Turbines (CCGT) units running on natural gas are scheduled for future operation. Apart from establishing a number of new gas turbine generators, EAC also plans to gradually convert its existing oil-fired thermal power units to run on natural gas.

In addition to EAC, one of the two cement companies generates electricity for its own needs.

### **Evolution of the energy centre**

The Government of Cyprus, through its Council of Ministers, has decided to establish and is in the process of developing an Energy Centre at the Vasilikos area (Figure 9). The Energy Centre will comprise of the following:

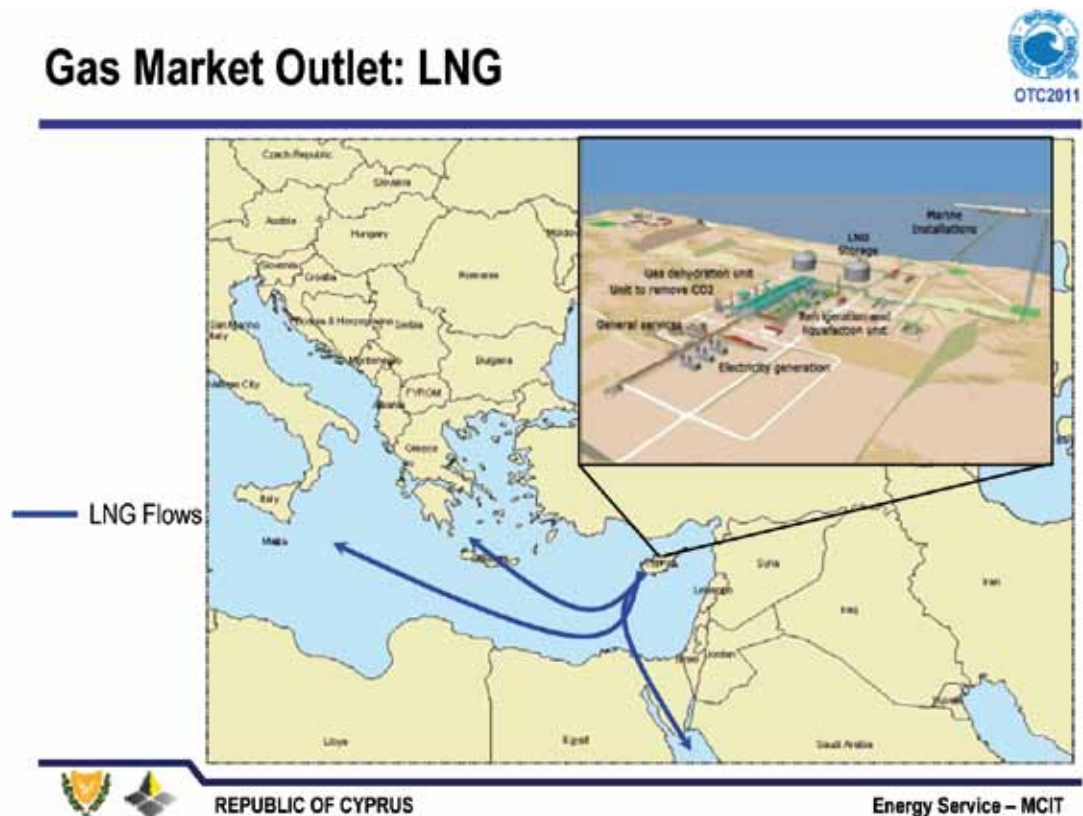
- an onshore Liquefied Natural Gas (LNG) import, storage and regasification terminal;
- and an oil products import, storage (both operational and strategic reserves) and handling/distribution depot.

The proposed new oil storage terminal at Vasilikos will include facilities for the storage of operational and strategic oil reserves and for the operation as an oil trading hub.

The aim is that all current oil storage needs and facilities are accommodated into a state-of-the-art infrastructure terminal that incorporates potential economies of scale, exploits possible synergies and provides the opportunity for new entrants and thus enhancement of competition.

An Invitation for Expression of Interest (Eoi) for the Oil Terminal was issued and a total of 10 companies/consortia have submitted a relevant application. Currently, the applications submitted are under evaluation.

Figure 9: Gas market outlet: LNG



Source: Ministry of Commerce, Industry and Tourism, Republic of Cyprus

### Natural gas supply

A Public Natural Gas Company (DEFA) has been founded as a private legal entity, with the Government of Cyprus as its main shareholder and the option for EAC to participate in its share capital. DEFA will be the sole importer and supplier of natural gas in Cyprus.

The purpose of the Public Natural Gas Company, according to its constitution, is to buy, import, store, distribute, transmit, supply and trade natural gas, make use of the LNG regasification terminal, as well as manage and develop the local distribution and supply system of natural gas.

The estimated local gas demand spans from 0.9bcm in year 2013 to 2bcm in year 2035.

### Cyprus energy authorities

The Government of the Republic of Cyprus has undertaken several steps for the establishment of necessary energy authorities in Cyprus.

*Please refer to Appendix V (please see pps and pdf files) for the current structure of Cyprus Energy Authorities and for a brief description of the responsibilities of each Authority.*

# Tax framework and international tax structuring

Tax costs play a significant role in investment decisions. Corporations aim in maximising their after tax returns on investments often including specific KPIs on effective tax. Therefore investment structures that optimise the tax exposure are becoming increasingly popular for large multinational organisations operating within the EU&M industry.

Cyprus, with the lowest corporate income tax rate within the EU, a simple, investor-friendly and fully EU and OECD compliant tax system, an extensive double tax treaty network and full access to the EU Directives is an ideal location for international business. Taking advantage of the beneficial Cyprus tax system EU&M multinationals use Cyprus for oil and gas trading activities, exploration and production of oil and natural gas, holding and financing structures.

## Key attributes of Cyprus corporate tax legislation

Cyprus enjoys the lowest corporate income tax rate within EU at a uniform rate of 10%. Further, dividend income is exempt from tax (with minor limitations) and the same applies for profits from foreign permanent establishments (such as Oil & Gas exploration sites located outside the EEZ of Cyprus). No tax is charged on capital gains or trading profits from the disposal of shares and other titles and no withholding taxes are levied on repatriation of profits in the form of interest, dividend and royalty payments abroad. Finally, Cyprus tax legislation does not include any thin capitalisation or Controlled Foreign Corporation provisions.

## Cyprus Double Tax Treaty network and EU Directives help reduce/eliminate double taxation

Cyprus has an extensive double tax treaty (“DTT”) network to eliminate double taxation. In addition to the DTTs in-force, the Republic of Cyprus being a full member of the EU, applies fully all the EU Directives to eliminate withholding taxes when collecting income from the EU. Unilateral tax credit on foreign taxes withheld at source is also available.

*For further information in relation to Cyprus Double Tax Treaty, please refer to Appendix IV.*



## Tax Structuring through Cyprus

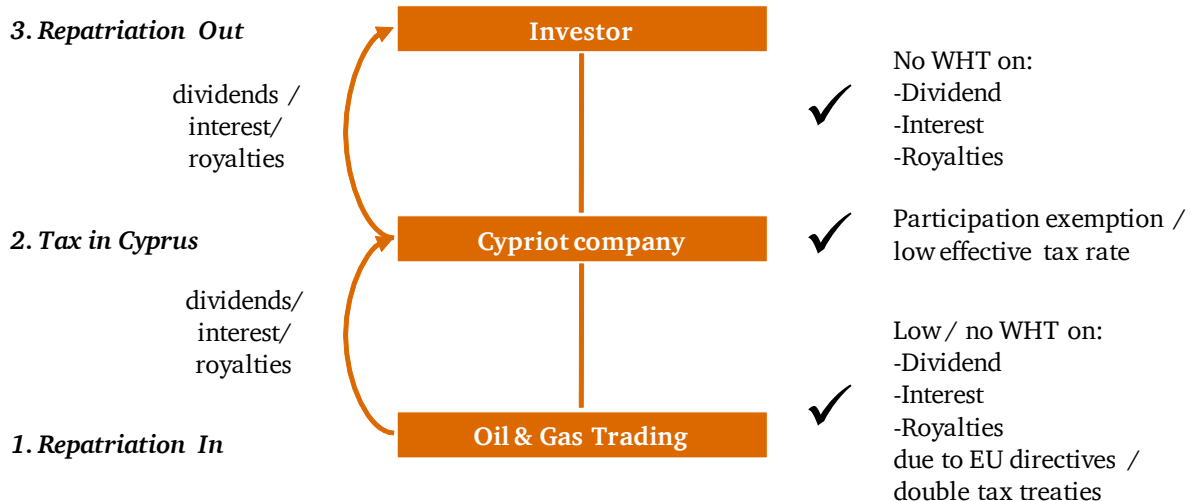
Cyprus has long been used by international companies in the EU&M industry. To this extent, many structures have been used widely taking advantage of Cyprus' attractive tax system. Some very high level ideas are presented below which in practice can of course be a lot more sophisticated through application of tax planning ideas and instruments used in international tax structuring.

### EU&M holding companies in Cyprus

Oil and Gas trading groups can structure their trading operations via holding companies in Cyprus. Such structuring can assist international groups to cash pool funds in one or more Cypriot holding companies and re-invest or repatriate profits tax efficiently.

- Profits generated in the jurisdiction where the trading company's activities are located may be repatriated back to the shareholder Cypriot company tax efficiently by utilisation of Cyprus' extensive tax treaty network or EU Directives (if applicable).

- Dividend income emanating from trading activities of subsidiary company is exempt from taxation in Cyprus. Effective taxation on interest and royalty income may be limited to thin back-to-back transaction spreads. All expenses incurred by the Cypriot holding company for production of taxable income are tax deductible.
- If profits are not re-invested in other trading operations at the level of Cypriot holding company, these can be tax efficiently repatriated back to the investor with no withholding of tax in Cyprus.

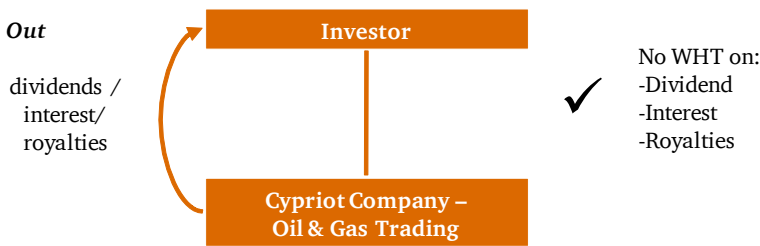


## EU&M trading companies in Cyprus

Trading operations of Oil and Gas groups are also present in Cyprus where the actual operations do not place geographical restrictions of where the trade must be carried out:

- Trading profits generated in Cyprus are taxed at the flat corporate income tax rate of 10% after deduction of all relevant direct and indirect expenses. No taxation is expected to arise on profits of successful hydrocarbon exploration applicants as the Model PSC published for the first round of hydrocarbon exploration applications contains provisions stating that any taxes are included in the Republic of Cyprus' share of profits from exploration.
- After tax profits may be repatriated back to the shareholder/investor tax efficiently (nil Cypriot withholding tax).
- If the Cypriot trading company is financed through loans, trading profits are reduced by interest and other financing expenses.

### Repatriation Out



## EU&M trading companies with foreign Permanent Establishment

Oil and Gas trading groups can take advantage of the exemption from taxation of the profits of foreign branches of Cypriot companies:

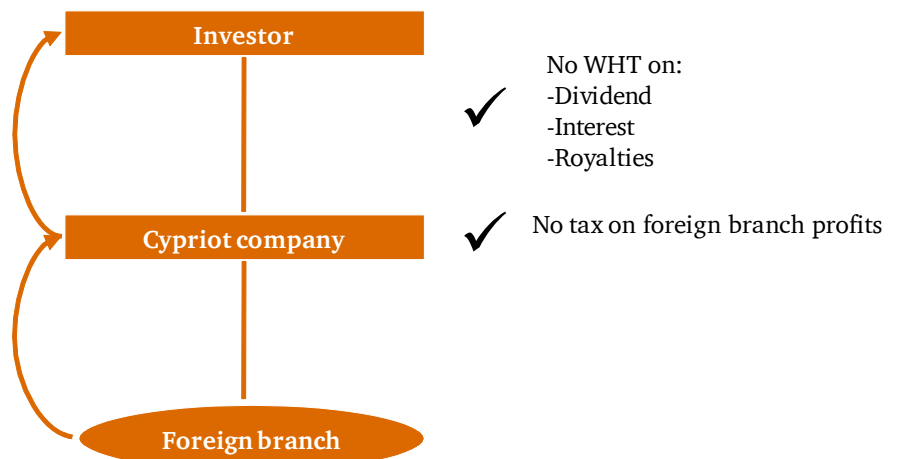
- Trading profits generated in the foreign branch of the Cypriot company are not subject to tax in Cyprus.
- After tax profits may be repatriated back to the shareholder/investor tax efficiently (nil Cypriot withholding tax).

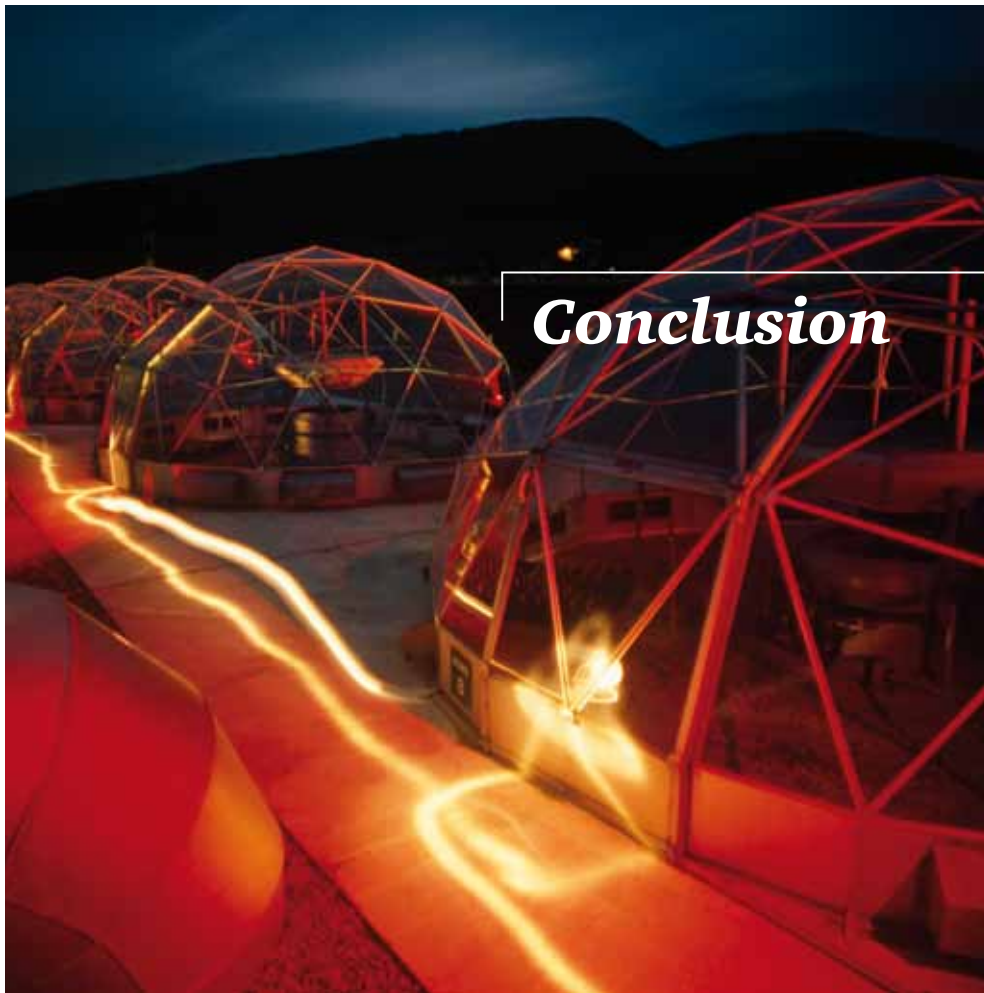
### 3. Repatriation Out

dividends / interest / royalties

### 2. Tax in Cyprus

### 1. Repatriation In





## Conclusion

It is argued that despite accounting for one-fifth of the world's energy use with its 500 million consumers, the EU continues to have less influence on international energy markets than its economic weight would suggest. As the world's largest energy importer and with a very low reserve to production ratio for natural gas, which might become the fossil fuel of choice for the future, the EU might be even more vulnerable to supply risks.

The Union has a very important energy relationship with Russia and it also maintains a number of agreements with third countries when it comes to energy matters.

Cyprus, a member of the EU and an established investment gateway to and from Russia can be the bridge of co-operation between EU, Russia as well as other countries in the region and beyond with the potential benefits of hydrocarbon discoveries in its EEZ offering unity, stability and prosperity.

*At PwC we have significant expertise in working with energy companies around the world for over 100 years. We are looking forward to work with you and your people to become your trusted advisor in Cyprus.*



## *Why PwC?*

We are striving to offer our clients the value they are looking for, value that is based on the knowledge that our teams draw from 161.000 experts in 154 countries and based on experience adapted to local needs. PwC Cyprus focuses on two main areas: Assurance & Advisory Services and Tax & Legal Services. We work closely with our clients. We ask questions. We listen. We learn what they want to do, where they want to go. From all our international knowledge we share with them the piece that is more suitable for them and thus we support them on how to achieve their goals.

In the operation of the world's capital markets we play an important role and as business advisors we help our clients solve complex business problems. We aim to improve their ability to manage risk and improve performance. At the same time we take pride in our quality services which help to improve transparency, trust and consistency of business processes.

Our position is strengthened with our almost 1.000 professionals and our offices throughout Cyprus.



### **Assurance & Advisory Services**

Our Financial Assurance services comprise of statutory and regulatory audit services, which include evaluation of information systems, advisory services for capital market transactions, accounting and regulatory issues for all types of businesses through specialist industry divisions:

Financial Services (FS), Consumer and Industrial Products and Services (CIPS) and Technology, Information, Communications, Entertainment and Media (TICE).

Our Risk Assurance Consulting (RAC) offers expertise on internal audit services, internal controls optimisation, corporate governance and reporting, as well as assurance and advisory services related to security and controls of information technology systems including Enterprise Resource Planning (ERP) systems (e.g. SAP, Oracle, Navision), Project Implementation Assurance (PIA), Computer Assisted Audit Techniques (CAATs), Spreadsheet Integrity and IT Risk Diagnostic and Benchmarking. A particular focus of the team is in supporting the financial services industry on matters related to regulatory compliance, licensing and risk management.

Our Performance Improvement Consulting (PIC) is offering specialist advisory services on strategy and operational effectiveness, process improvement, cost reduction, people and change and sustainability issues.

Our Deals & Corporate Finance (DCF) provides consulting on M&A's, valuations, feasibility studies, transactions support and crisis management.

### **Tax & Legal Services**

Our PwC network's tax and legal services include Global Compliance Services, Direct and Indirect Tax Services, Services to Small and Medium Enterprises and Legal Services.

### **Global Compliance Services**

Comprising the whole spectrum of company administration and corporate statutory compliance services, bookkeeping, accounting and payroll services as well as specialised services such as private client services, advice on establishment and administration of local and international business companies, collective investment schemes, UCITS, investment firms and trusts.

### **Direct tax services**

Corporate: Advisory Services for tax planning, international tax structuring, mergers and buyouts and other business issues, tax returns administration, agreement with Tax Authorities and obtaining tax rulings.

Personal: Tax planning, completion submission and agreement of tax returns, tax services to expatriates, pensioners and other non-Cypriot individuals.

### **Indirect Tax Services**

VAT: Advisory services for VAT, VAT recovery and VAT minimisation and tax compliance (administration of VAT returns, communication with VAT authorities, agreement of disputed assessments, etc).

### **Services to Small and Medium Enterprises (SME)**

The Services to Small and Medium Enterprises are addressed to individuals, small and medium - sized enterprises with local activity and cover the whole spectrum of accounting, tax, VAT, family business and financial structuring and statutory compliance services.

### **Legal Services**

The legal firm, full member of the PwC international network, offers legal services that cover the whole spectrum of corporate and business law, including advising and representing clients in M&A transactions, re-organizations, European Union law and Competition law, setting up and regulating private companies, setting up joint ventures and other forms of businesses and carrying out legal due diligence.

## Delivering value with industry-focused services

### What makes us distinct

PwC firms are located wherever the industry is exploring for producing, refining and selling hydrocarbons and mining products. More than 3,100 specialists are assigned full-time to the global EU&M Group, making in the largest group of its kind in the industry. With over 300 partners serving global EU&M companies worldwide, the PwC network has thirteen regional Centers of Excellence in key industry locations to enable us to support our clients.

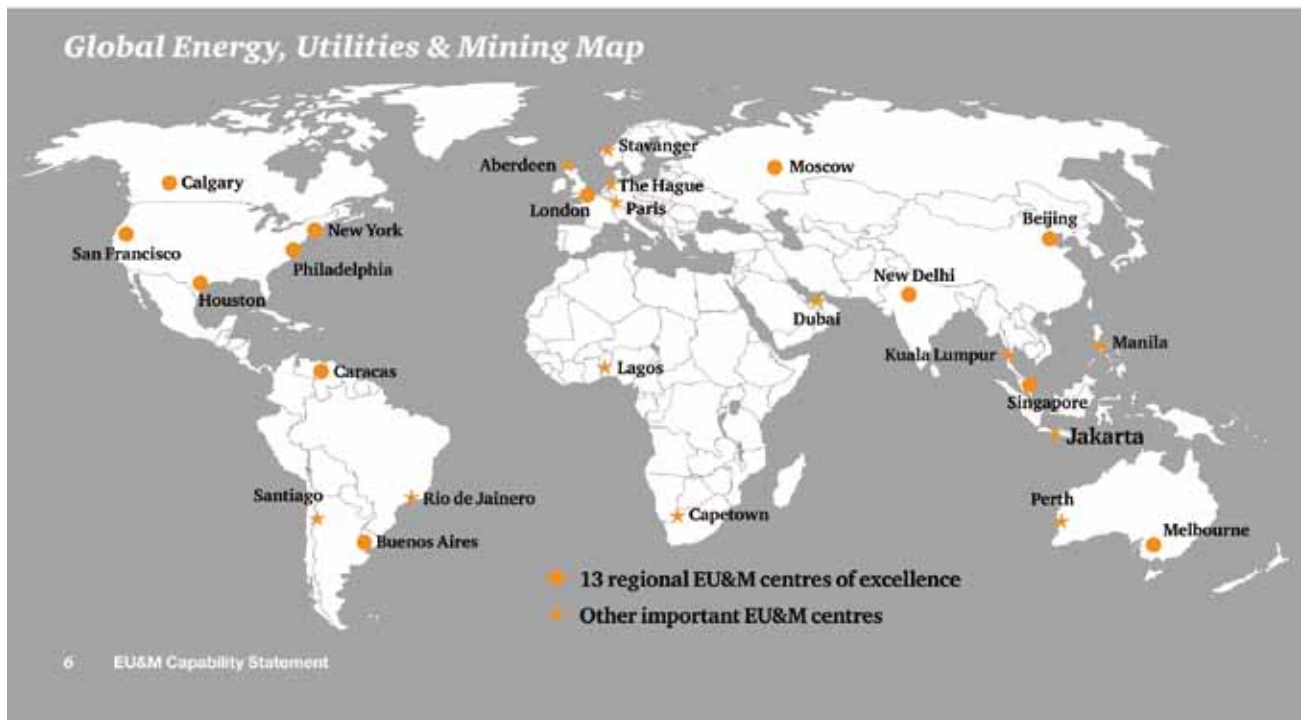
*The PwC Global network of Energy, Utilities and Mining (EU&M) Groups is the professional services leader in these industry sectors, advising clients through our global network of fully trained and dedicated industry specialists.*

### People

The PwC network has 3,100 dedicated industry specialists and benefits from the biggest global deployment programme of any of the professional services firms. In addition, more than 300 partners worldwide specialize in energy, utilities and mining. This means they are not just familiar with the issues in your market but are also able to contribute first hand insight and experience from their time in other markets. At PwC, having people familiar with EU&M environments worldwide means that we are able to put ourselves in your shoes but also readily introduce fresh perspectives and solutions from elsewhere.

### Reach

The PwC network of firms means that we are, literally, wherever you are. With a network of more than 300 partners dedicated to the EU&M industry and 13 centers of excellence covering major regions worldwide, PwC firms are able to be wherever clients most need us. We work with all types of EU&M companies and industry stakeholders in all different markets worldwide.



**Financial expertise to help our clients and their stakeholders with advice that enhances sustainable value.**

*Knowledge*

PwC's network of industry specialists are linked by a sophisticated internal knowledge management system, giving them the tools to use their wide-ranging insights and draw upon the most up to date information for the benefit of our clients.

The PwC network's programme of 'thought leadership' is widely respected. From round-table discussions to global surveys, we share knowledge with our clients on industry role in many key developments in the industry. For instance, we are represented on the committee of the World Energy Council (WEC) and are a WEC patron.

**Our extensive experience**

- In FY2010, PwC firms provided services to 415 of the companies in the Fortune Global 500 and 415 of the companies in the FT Global 500.
- PwC firms serve over 2,500 of the largest and most complex energy, utilities and mining companies in the marketplace.
- More than 161,000 people in 154 countries in firms across the PwC network share their thinking, experience and solutions to develop fresh perspectives and practical advice.
- The PwC network has offices in 757 locations in 154 countries.
- PwC firms serve 64% of the world's largest energy companies listed in the FT Global 500.
- PwC firms audit 28% of the utilities companies in the Global S&P 1200 list.
- PwC firms audit 47% of the FT Global 500 mining companies and provide other professional services to the remainder of them.

**PwC Services Oil & Gas Sector**

Oil and gas prices have fluctuated wildly over the last year. Despite the price cycles, energy companies know they must focus on the long term and make sound decisions to achieve growth. Investments in R&D, people and technology are crucial to maintaining a lasting competitive edge. While making these important investments, companies also have to focus on controlling costs, improving controls and managing risks.



**How PwC can help you**

- Complying with regulatory & reporting requirements
- Improving performance and operational effectiveness
- Industry transactions & consolidation
- Managing financial risk
- Managing geopolitical risk
- Recruiting and retaining a skilled workforce
- Securing the supply



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Centrica plc  
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Chesapeake Energy  
Chevron Corporation  
China National Petroleum Corporation  
CHS Inc.  
Compapia de Petroleos de Chile  
DCC Plc  
Dong Energy  
E.ON AG  
Ecopetrol S.A.  
Empresas Copec S.A.  
Enbridge Inc.  
EnCana Corporation  
Exxon Mobil Corporation  
Federation of Migros Cooperatives  
Gas Natural SDG, S.A.  
Gazprom Neft Trading GmbH  
Hellenic Petroleum S.A.  
Hutchison Whampoa Limited  
Kenya Oil Company Limited  
Kinder Morgan Energy Partners, L.P.  
Koç Holding A.S.  
Marathon Oil Corporation  
Neste Oil Oyj  
Newfield Exploration  
Nippon Mining Holdings, Inc.  
Novatek OAO  
OAO Gazprom  
Oando (Nigeria) Plc  
ONEOK, Inc.  
Plains All American Pipeline  
Plains Exploration & Production  
Royal Dutch Shell plc  
RWE Aktiengesellschaft  
Saudi Arabian Oil Company  
Schlumberger Ltd.  
SHV Holdings N.V.  
Sime Darby Berhad  
S-Oil Corporation  
Suncor Energy Inc.  
Transneft' AK OAO  
Technip  
Wood Group  
World Fuel Services Corporation



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1



## 1. *Financial reporting in the oil and gas industry* International Financial Reporting Standards

This publication considers the major accounting practices adopted by the oil and gas industry under International Financial Reporting Standards (IFRS). The need for this publication has arisen due to the absence of an extractive industries standard under IFRS; the adoption of IFRS by oil and gas entities across a number of jurisdictions, with overwhelming acceptance that applying IFRS in this industry will be a continual challenge; and ongoing transition projects in a number of other jurisdictions, for which companies can draw on the existing interpretations of the industry.

2



## 2. *Financial reporting in the power and utilities industry* International Financial Reporting Standards

This edition of Financial reporting in the power and utilities industry: International Financial Reporting Standards describes the financial reporting implications of IFRS across a number of areas selected for their particular relevance to utilities companies. It provides insights into how companies are responding to the various challenges, and includes examples of accounting policies and other disclosures from published financial statements. It examines key developments in the evolution of IFRS in the industry.

3



## 3. *Financial reporting in the mining industry\** International Financial Reporting Standards

Financial reporting in the mining industry: International financial reporting standards  
This edition describes the financial reporting implications of IFRS across a number of areas selected for their particular relevance to the mining industry.

4



## 4. *Nuclear energy global statement of capabilities*

PwC works with companies, governments and industry stakeholders in every region of the world to assist with the decisions, planning and implementation of nuclear power projects.

5



**5. Offshore proof Turning windpower promise into performance**

The offshore wind power industry has some way to go to prove it can take its place as a sustainable part of the energy mix. Cost and technological track record remain major challenges.

**6. Achieving your solar potential Solar Power Generation and Transmission, PwC Services and Citations**

This booklet sets out how PwC has played and continues to play a key role in helping governments, business and society make the transition to renewable solar energy options. Building on our experience of working with the global energy sector for over 100 years, it outlines the services that we can bring to bear to support programmes of work, provides examples of the work that we have completed in recent years, and sets out some of the thought leadership that we have published in the area of renewable energy to help shape and support the debate in the coming years.

**7. Renewables Deals 2010 analysis and 2011 foresight**

This PwC report examines the rationale behind the overall trends and key individual deals in the renewable energy sector. The analysis covers the increasingly important field of energy efficiency as well as looking separately at important initial public offering (IPO) activity. We also highlight some of the critical issues for companies engaging in deal activity within the sector.

**8. Power Deals 2010 Annual Review**

Mergers and acquisitions activity within the global electricity and gas markets Power Deals includes analysis of all global cross-border and domestic electricity, gas and renewable energy deal activity.

**9. Oil and Gas Global Deals Q1 2011 'Mega Deals' continue to blaze a trail**

There were 163 deals globally in the Oil and Gas industry in the first quarter of 2011, the lowest level of Mergers & Acquisitions (M&A) activity since early 2009 and down by around 20% on the levels seen in 2010 albeit at higher than average deal sizes supported overall deal value.

**10. Holding Companies in Cyprus**

Publication which describes the significant Cypriot tax issues of relevance to a holding company together with available exemptions, which have resulted in Cyprus becoming increasingly attractive as a location for holding companies.



# Appendix I

## World's estimated gas reserves

						2010 % OF
	2006	2007	2008	2009	2010	TOTAL
<b>ESTIMATED WORLD GAS RESERVES, BY COUNTRY</b>						
<i>(Trillions of cubic feet, at end of year)</i>						
West. Hemisphere, total	517.6	544.9	575.3	586.1	587.1	8.8
USA	204.4	211.1	237.7	244.7	244.7	3.7
Venezuela	152.4	166.3	170.9	176.0	178.9	2.7
Canada	57.9	58.2	57.9	62.0	62.0	0.9
Bolivia	24.0	26.5	26.5	26.5	26.5	0.4
Argentina	16.1	15.8	15.6	14.1	13.4	0.2
Others	86.8	93.6	93.2	63.0	61.8	0.9
West. Europe, total	168.3	160.1	157.1	154.3	142.0	2.1
Norway	82.3	79.1	81.7	81.7	72.0	1.1
Netherlands	50.0	50.0	50.0	50.0	49.0	0.7
United Kingdom	17.0	14.6	12.1	10.3	9.0	0.1
Others	19.0	16.5	13.3	12.3	12.0	0.2
East. Europe & FSU, total	2,026.8	2,026.7	2,005.8	2,176.8	2,176.6	32.7
Russia	1,680.0	1,680.0	1,680.0	1,680.0	1,680.0	25.3
Turkmenistan	100.0	100.0	94.0	265.0	265.0	4.0
Uzbekistan	65.0	65.0	65.0	65.0	65.0	1.0
Kazakhstan	100.0	100.0	85.0	85.0	85.0	1.3
Ukraine	39.0	39.0	39.0	39.0	39.0	0.6
Azerbaijan	30.0	30.0	30.0	30.0	30.0	0.5
Others	12.8	12.7	12.8	12.8	12.6	0.2
Middle East, total	2,566.0	2,548.9	2,591.7	2,658.3	2,686.4	40.4
Iran	974.0	948.2	991.6	1,045.7	1,045.7	15.7
Qatar	910.5	905.3	891.9	899.3	895.8	13.5
Saudi Arabia	239.5	252.6	258.0	263.0	275.2	4.1
Abu Dhabi	198.5	198.5	198.5	198.5	212.0	3.2
Iraq	112.0	111.9	111.9	111.9	111.9	1.7
Kuwait	54.5	55.5	62.9	63.0	63.0	0.9
Others	77.0	76.8	76.8	76.8	82.8	1.2
Africa, total	484.4	489.6	494.1	495.3	517.7	7.8
Nigeria	181.9	184.0	184.2	185.3	186.9	2.8
Algeria	161.7	159.0	159.0	159.0	159.0	2.4
Egypt	58.5	58.5	58.5	58.5	77.2	1.2
Libya	52.7	50.1	54.4	54.4	54.7	0.8
Others	29.6	38.0	38.0	38.1	39.9	0.6
Asia-Pacific, total	419.5	415.4	430.4	538.6	537.5	8.1
Indonesia	97.8	93.9	106.0	106.0	106.0	1.6
Malaysia	75.0	83.0	83.0	83.0	83.0	1.2
China	80.0	80.0	80.0	107.0	107.0	1.6
India	38.0	38.0	38.0	38.0	37.9	0.6
Pakistan	28.0	28.0	31.3	29.7	29.7	0.4
Australia	30.4	30.0	30.0	110.0	110.0	1.7
Other Asia	70.4	62.5	62.2	65.0	63.9	1.0
<b>TOTAL WORLD</b>	<b>6,182.7</b>	<b>6,185.7</b>	<b>6,254.4</b>	<b>6,609.3</b>	<b>6,647.3</b>	<b>100.0</b>
OPEC	3,152.4	3,151.7	3,216.0	3,182.8	3,211.2	48.3
Non-OPEC	3,030.3	3,034.0	3,038.3	3,426.5	3,436.2	51.7

FSU-Former Soviet Union.

Source: Oil & Gas Journal



# Appendix I

## World's estimated oil reserves

<b>ESTIMATED WORLD OIL RESERVES, BY COUNTRY</b>						
<i>(Billions of barrels, at end of year)</i>						
	2006	2007	2008	2009	2010	2010 % OF TOTAL
West. Hemisphere, total	316.1	321.1	332.6	329.4	441.9	30.1
Canada	179.2	178.6	178.1	175.2	175.2	11.9
Venezuela	80.0	87.0	99.4	99.4	211.2	14.4
USA	21.8	21.0	21.3	19.1	19.1	1.3
Brazil	11.8	12.2	12.6	12.8	12.9	0.9
Mexico	12.4	11.7	10.5	10.4	10.4	0.7
Ecuador	4.5	4.5	4.7	6.5	6.5	0.4
Others	6.5	6.1	6.0	6.0	6.6	0.4
West. Europe, total	14.7	13.2	12.5	0.0	0.0	0.0
Norway	7.8	6.9	6.7	6.7	5.7	0.4
United Kingdom	3.9	3.6	3.4	3.1	2.9	0.2
Others	3.0	2.7	2.5	(9.8)	(8.5)	(0.6)
East. Europe & FSU, total	100.0	100.0	100.0	100.0	100.0	6.8
Russia	60.0	60.0	60.0	60.0	60.0	4.1
Kazakhstan	30.0	30.0	30.0	30.0	30.0	2.0
Azerbaijan	7.0	7.0	7.0	7.0	7.0	0.5
Others	3.0	3.0	3.0	3.0	3.0	0.2
Middle East, total	739.2	748.3	746.0	753.4	752.9	51.2
Saudi Arabia	259.8	264.3	264.2	259.9	260.1	17.7
Iran	136.3	138.4	136.2	137.6	137.0	9.3
Iraq	115.0	115.0	115.0	115.0	115.0	7.8
Kuwait	99.0	101.5	101.5	101.5	101.5	6.9
Abu Dhabi	92.2	92.2	92.2	92.2	92.2	6.3
Qatar	15.2	15.2	15.2	25.4	25.4	1.7
Oman	5.5	5.5	5.5	5.5	5.5	0.4
Neutral Zone	5.0	5.0	5.0	5.0	5.0	0.3
Dubai	4.0	4.0	4.0	4.0	4.0	0.3
Yemen	3.0	3.0	3.0	3.0	3.0	0.2
Others	4.2	4.2	4.2	4.2	4.2	0.3
Africa, total	114.1	114.8	117.1	119.1	123.6	8.4
Libya	41.5	41.5	43.7	44.3	46.4	3.2
Nigeria	36.2	36.2	36.2	37.2	37.2	2.5
Algeria	12.3	12.2	12.2	12.2	12.2	0.8
Angola	8.0	9.0	9.0	9.5	9.5	0.6
Sudan	5.0	5.0	5.0	5.0	5.0	0.3
Egypt	3.7	3.7	3.7	3.7	4.4	0.3
Others	7.4	7.2	7.2	7.2	8.9	0.6
Asia-Pacific, total	33.4	34.4	34.0	40.1	40.3	2.7
China	16.0	16.0	16.0	20.4	20.4	1.4
India	5.6	5.6	5.6	5.6	5.7	0.4
Indonesia	4.3	4.4	4.0	4.0	4.0	0.3
Malaysia	3.0	4.0	4.0	4.0	4.0	0.3
Other Asia	4.4	4.4	4.4	6.2	6.2	0.4
<b>TOTAL WORLD</b>	<b>1,317.4</b>	<b>1,331.7</b>	<b>1,342.2</b>	<b>1,354.2</b>	<b>1,469.6</b>	<b>100.0</b>
<b>OPEC</b>	<b>902.3</b>	<b>932.0</b>	<b>944.0</b>	<b>951.3</b>	<b>1,064.8</b>	<b>72.5</b>
<b>Non-OPEC</b>	<b>415.1</b>	<b>399.7</b>	<b>398.2</b>	<b>402.9</b>	<b>404.8</b>	<b>27.5</b>

Source: Oil & Gas Journal

# Appendix I

## World's Top 20 oil companies - 2009

PIW* RANK	COMPANY	COUNTRY	STATE OWNERSHIP (%)	RESERVES		OUTPUT		REFINERY CAPACITY (THOUS. B/D)	PRODUCT SALES (THOUS. B/D)
				LIQUIDS (MIL. BBL)	GAS (BCF)	LIQUIDS (THOUS. B/D)	GAS (MMcf/ DAY)		
1.	Saudi Aramco	Saudi Arabia	100	264,100	267,300	10,846	7,561	2,374	3,148
2.	NIOC	Iran	100	137,600	1,045,700	4,325	11,259	1,566	2,051
3.	ExxonMobil	US	(public)	12,006	65,879	2,405	9,095	6,210	6,761
4.	PDV	Venezuela	100	99,377	176,015	2,451	3,544	3,035	2,941
5.	CNPC	China	100	21,957	94,403	2,779	6,405	2,825	1,699
6.	BP	UK	(public)	10,353	45,208	2,401	8,334	2,678	5,698
7.	Royal Dutch Shell	UK/Netherlands	(public)	4,440	43,339	1,771	8,569	3,678	6,568
8.	ConocoPhillips	US	(public)	6,066	24,948	1,555	5,203	2,678	3,040
9.	Chevron	US	(public)	7,350	23,075	1,676	5,125	2,139	3,429
10.	Total	France	(public)	5,695	26,218	1,456	4,837	2,604	3,658
11.	Pemex	Mexico	100	11,865	12,702	3,101	4,489	1,710	1,719
12.	KPC	Kuwait	100	101,500	62,900	2,784	1,239	1,109	972
13.	Sonatrach	Algeria	100	11,000	147,963	1,853	7,516	493	703
14.	Gazprom	Russia	50	9,536	642,460	859	53,018	613	637
15.	Petrobras	Brazil	32.2	9,155	12,215	1,978	2,530	2,111	2,715
16.	Rosneft	Russia	75.2	17,694	27,687	2,121	1,194	1,078	938
17.	Lukoil	Russia	(public)	11,566	23,402	1,537	1,499	1,002	1,560
18.	Petronas	Malaysia	100	7,720	115,800	761	6,209	419	800
19.	Adnoc	UAE	100	52,700	122,100	1,603	2,423	500	285
20.	Eni	Italy	30	3,385	20,229	1,026	4,424	737	1,004

NOTE: BP's ranking is based on data prior to the Deepwater Horizon blowout in the Gulf of Mexico. \*Petroleum Intelligence Weekly's ranking as of December 2009, based on 2008 year-end operating results. BBL-barrels. BCF-billion cubic feet. B/D-Barrels per day. MMcf/D-Million cubic feet per day.

Source: Petroleum Intelligence Weekly.

# Appendix II

## Units and conversion factors

This appendix provides general information on units and conversion factors. Further details may be found at [www.worldenergyoutlook.org/docs/weo2010/World\\_Energy\\_Model.pdf](http://www.worldenergyoutlook.org/docs/weo2010/World_Energy_Model.pdf).

Energy	toe	tonne of oil equivalent
	Mtoe	million tonnes of oil equivalent
	Mt LNG	million tonnes of liquefied natural gas
	MBtu	Million British thermal units
	MJ	megajoule (1 joule x 10 <sup>6</sup> )
	GJ	gigajoule (1 joule x 10 <sup>9</sup> )
	TJ	terajoule (1 joule x 10 <sup>12</sup> )
	EJ	exajoule (1 joule x 10 <sup>18</sup> )
	kWh	kilowatt-hour
	MWh	megawatt-hour
	GWh	gigawatt-hour
Gas	TWh	terawatt-hour
	cm	cubic metres
	mcm	million cubic metres
	bcm	billion cubic metres
tcm	trillion cubic metres	
Mass	kg	kilogramme (1 000kg = 1 tonne)
	kt	kilotonnes (1 tonne x 10 <sup>3</sup> )
	Mt	million tonnes (1 tonne x 10 <sup>6</sup> )
	Gt	gigatonnes (1 tonne x 10 <sup>9</sup> )
Oil	b/d	barrels per day
	kb/d	thousand barrels per day
	mb/d	million barrels per day
	mpg	miles per gallon
Power	W	Watt (1 joule per second)
	kW	kilowatt (1 Watt x 10 <sup>3</sup> )
	MW	megawatt (1 Watt x 10 <sup>6</sup> )
	GW	gigawatt (1 Watt x 10 <sup>9</sup> )
	GWth	gigawatt thermal (1 Watt x 10 <sup>9</sup> )
	TW	Terawatt (1 Watt x 10 <sup>12</sup> )

## General conversion factors for energy

	<i>bcm</i>	<i>Mt LNG</i>	<i>TJ</i>	<i>GWh</i>	<i>MBtu</i>	<i>GCal</i>	<i>Mtoe</i>
<b>1 bcm=</b>	1	0.7350	4.000 x 10 <sup>4</sup>	11.11 x 10 <sup>3</sup>	3.79 x 10 <sup>7</sup>	9.552 x 10 <sup>6</sup>	0.9554
<b>1 Mt LNG=</b>	1.360	1	54 400	15 110	5.16 x 10 <sup>7</sup>	1.299 x 10 <sup>7</sup>	1.299
<b>1 TJ=</b>	2.5 x 10 <sup>-5</sup>	1.838 x 10 <sup>-5</sup>	1	0.2778	947.8	238.8	2.388 x 10 <sup>-5</sup>
<b>1 GWh=</b>	9.0 x 10 <sup>-5</sup>	6.615 x 10 <sup>-5</sup>	3.6	1	3412	860	8.6 x 10 <sup>-5</sup>
<b>1 MBtu=</b>	2.638 x 10 <sup>-8</sup>	1.939 x 10 <sup>-8</sup>	1.0551 x 10 <sup>-3</sup>	2.931 X 10 <sup>-4</sup>	1	0.252	2.52 x 10 <sup>-8</sup>
<b>1 GCal=</b>	1.047 x 10 <sup>-7</sup>	7.698 x 10 <sup>-8</sup>	4.1868 x 10 <sup>-3</sup>	1.163 x 10 <sup>-3</sup>	3.968	1	1 x 10 <sup>-7</sup>
<b>1 Mtoe=</b>	1.047	0.7693	4.1868 x 10 <sup>4</sup>	11 630	3.968 x 10 <sup>7</sup>	1.00 x 10 <sup>7</sup>	1

### Other notes

- Gas volumes are measured at a temperature of 15oC and a pressure of 101.325 kilopascals.
- The Gross Calorific Value (GCV) of gas is defined as 40.0 MJ/cm for conversion purposes in the table above.
- The global average GCV varies with the mix of production over time, in 2009 it was 38.4 MJ/cm.

# Appendix III

## Seismic Surveys

Available Data Packages	Prices (Minimum amount of data to be purchased is 2,000 line-km)
<p><i>Offshore Seismic Survey - 2006</i></p> <p><b>MC2D – CYP2006</b></p> <ul style="list-style-type: none"> <li>Norway's PGS Geophysical acquired a multi-client 2-D survey consisting of 6,770 line-km of 2-D seismic in 2006</li> <li>The survey was acquired with in an area of approximately 51,000 km<sup>2</sup> within the Exclusive Economic Zone of the Republic of Cyprus</li> <li>The survey provides high-resolution deep imaging (sub-salt) as well as ties to key wells in the NEMED Block (Egypt)</li> <li>20 x 20 km 2D seismic grid</li> </ul>	<p><b>MC2D-CYP2006 (6,770 line-km)</b></p> <p>From 2,000 – 4,000 line-km: US\$350 per line-km</p> <p>From 4,000 – 6,000 line-km: US\$310 per line-km</p> <p>The whole survey: US\$280 per line-km</p> <p>Uplift licence fee: US\$500 per line-km on seismic date within the awarded licence</p>
<p><i>Offshore Seismic Survey - 2007</i></p> <p><b>MC3D – CYP2007</b></p> <p>PGS Geophysical acquired a multi-client 3-D in 2007 in offshore Cyprus: 659 km<sup>2</sup></p> <p>The survey:</p> <ul style="list-style-type: none"> <li>Identified several hydrocarbon indicators such as flat spots, bright spots and amplitude anomalies</li> <li>Gave better understanding of intra Messinian and pre Messinian structures</li> <li>Mapped out extremely well the Pre Messinian fault systems</li> </ul>	<p><b>MC3D-CYP2007 (659 km<sup>2</sup>)</b></p> <p>659 km<sup>2</sup>: US\$2,500 per km<sup>2</sup></p> <p>Uplift licence fee: US\$5,000 per km<sup>2</sup> on seismic date within the awarded licence</p>

# Appendix III

## Seismic Surveys

Available Data Packages	Prices (Minimum amount of data to be purchased is 2,000 line-km)
<p><b>Offshore Seismic Survey - 2008</b></p> <p><b>MC2D – CYP2008</b></p> <ul style="list-style-type: none"> <li>About 12,200 line-km of 2-D seismic data</li> <li>New Geostreamer technology by PGS</li> <li>First biggest multi-client survey to use the GeoStreamer technology</li> <li>Enhanced resolution</li> <li>Better penetration revealing deeper targets</li> <li>Improved operational efficiency</li> <li>10 x 10 km seismic grid on the western side of the are, and 5 x 5 km on the eastern side</li> </ul>	<p><b>MC2D-CYP2008 (12,200 line-km)</b></p> <p>From 2,000 – 6,000 line-km: US\$400 per line-km</p> <p>From 6,000 – 10,000 line-km: US\$380 per line-km</p> <p>The whole survey: US\$300 per line-km</p> <p>Uplift licence fee: US\$500 per line-km on seismic data within the awarded licence</p>
<p><b>2D Interpretation Report (2009)</b></p> <p>The New Integration Report entitled “New Opportunities for Exploration Offshore Cyprus, Exploration Plays and Leads (from Interpretation of PGS 2D Seismic Surveys: MC2D-CYP2006 and MC2D-CYP2008)”. This Report has been prepared by Beicip-Franlab in collaboration with the Energy Service of the Ministry of Commerce, Industry and Tourism of the Republic of Cyprus.</p> <p>The objective of the Report is to reassess the Hydrocarbon Prospectivity Offshore Cyprus by interpreting the new 2D seismic data 2008 in addition to the 2006 data. The part of the Republic of Cyprus Exclusive Economic Zone covered in this evaluation represents approximately 51,000 km<sup>2</sup>. The 2D seismic data interpreted comprise 6,770 line-km obtained in 2006 (MC2D-CYP2006) and 12,200 line-km obtained in 2008-2009 (MC2D-CYP2008). With the seismic grid now available offshore Cyprus, it is possible to define more precisely plays and even leads.</p>	<p>The Report is available for purchasing directly by the Energy Service at the price of €55,000 (€35,000 for companies that purchased the 2007 2D Interpretation Report).</p>
<p><b>3D Interpretation report (2008)</b></p> <p>The objective of this Report, prepared by Beicip-Franlab in collaboration with the Energy Service of the Ministry of Commerce, Industry and Tourism is to conduct a geological interpretation of a speculative 3D seismic survey acquired and processed by PGS during 2007 on Block 3, offshore Cyprus, preparing a lead inventory.</p> <p>The 3D Report covers an area of approximately 659 km<sup>2</sup> and the interpretation results based on:</p> <ul style="list-style-type: none"> <li>the TWT structure maps of five horizons and faults;</li> <li>the depth structure maps of the five horizons using the seismic derived velocities;</li> <li>the time slices extracted at five levels;</li> <li>three amplitude maps illustrating the distribution of potential reservoirs;</li> <li>two representative West-East TWT seismic profiles converted in depth geological cross-sections.</li> </ul>	<p>The Report is available for purchasing directly by the Energy Service at the price of €40,000.</p>
<p><b>2D Interpretation Report (2007)</b></p> <p>The Report entitled “New Opportunities for Exploration Offshore Cyprus: Geological Interpretation of a Regional 2D seismic survey (PGS, MC2D-CYP2006)” prepared by Beicip-Franlab in collaboration with the Energy Service of the Ministry of Commerce, Industry and Tourism and assess the hydrocarbon prospectivity offshore Cyprus.</p> <p>One of the important results of the evaluation is the evidence of a great number and variety of play concepts associated with different tectono-stratigraphic domains:</p> <ul style="list-style-type: none"> <li>The Eastern Cyprus Arc play;</li> <li>The plays linked to the deformation front South of the Cyprus Arc;</li> <li>Plays East of the Eratosthenes Continental Block;</li> <li>The Eratosthenes Carbonate Play;</li> <li>West Eratosthenes Basin Play;</li> <li>The Herodotus Basin and deep Nile delta plays.</li> </ul>	

# Appendix IV

## Notes

### Received in Cyprus

	<b>Received in Cyprus</b>		
	Dividends %	Interest %	Royalties %
Armenia (17)	0	0	0
Austria	10	0	0
Belarus	5 (15)	5	5
Belgium	10 (6)	10 (4, 16)	0
Bulgaria	5 (20)	7 (4, 21)	10 (21)
Canada	15	15 (2)	10 (3)
China, P.R.	10	10	10
Czech Republic	0 (26)	0	0 (27)
Denmark	10 (6)	10 (4)	0
Egypt	15	15	10
France	10 (7)	10 (8)	0 (1)
Germany	10 (6)	10 (4)	0 (1)
Greece	25 (9)	10	0 (10)
Hungary	5 (6)	10 (4)	0
India	10 (7)	10 (8)	15 (13)
Ireland, Rep. of	0	0	0 (10)
Italy	15	10	0
Kuwait	10	10 (4)	5 (5)
Kyrgyzstan (17)	0	0	0
Lebanon	5	5	0
Malta	0	10	10
Mauritius	0	0	0
Moldova	5 (24)	5	5
Montenegro (23)	10	10	10
Norway	0 (11)	0	0
Poland	10	10 (4)	5
Qatar	0	0	0 (25)
Romania	10	10 (4)	5 (5)
Russia	5 (14)	0	0
San Marino	0	0	0
Singapore	0	10 (4, 22)	10
Slovak Republic	10	10 (4)	5 (5)
Slovenia (23)	10	10	10
South Africa	0	0	0
Serbia (23)	10	10	10
Seychelles	0	0	5
Sweden	5 (6)	10 (4)	0
Syria	0 (6)	10 (2)	10
Tadzhikistan (17)	0	0	0
Thailand	10	15 (18)	5 (19)
Ukraine (17)	0	0	0
United Kingdom	15 (12)	10	0 (1)
United States	5 (7)	10 (8)	0

1. A rate of 5% on film and TV royalties.
2. 0% if paid to a government or for export guarantee.
3. 0% on literary, dramatic, musical, or artistic work. E6
4. 0% if paid to the government of the other state.
5. This rate applies for patents, trademarks, designs or models, plans, secret formulas, or processes, or any industrial, commercial, or scientific equipment, or for information concerning industrial, commercial, or scientific experience.
6. A rate of 15% if received by a company controlling less than 25% of the voting power.
7. A rate of 15% if received by a person controlling less than 10% of the voting power.
8. 0% if paid to a government, bank, or financial institution.
9. The treaty provides for WHT on dividends but Greece does not impose any withholding tax in accordance with its own legislation.
10. A rate of 5% on film royalties.
11. A rate of 5% if received by a person controlling less than 50% of the voting power.
12. This rate applies to individual shareholders regardless of their percentage of shareholding. Companies controlling less than 10% of the voting shares are also entitled to this rate.
13. A rate of 10% for payments of a technical, managerial, or consulting nature.
14. A rate of 10% if a dividend is paid by a company in which the beneficial owner has invested less than EUR 100,000.
15. If investment is less than EUR 200,000, dividends are subject to 15% WHT which is reduced to 10% if the recipient company controls 25% or more of the paying company.
16. No WHT for interest on deposits with banking institutions.
17. Armenia, Kyrgyzstan, Tajikistan, and Ukraine apply the USSR/Cyprus treaty.
18. A rate of 10% on interest received by a financial institution or when it relates to sale on credit of any industrial, commercial, or scientific equipment or of merchandise.
19. This rate applies for any copyright of literary, dramatic, musical, artistic, or scientific work. A 10% rate applies for industrial, commercial, or scientific equipment. A 15% rate applies for patents, trademarks, designs or models, plans, secret formulas, or processes.
20. This rate applies to companies holding directly at least 25% of the share capital of the company paying the dividend. In all other cases the WHT is 10%.
21. This rate does not apply if the payment is made to a Cyprus international business entity by a resident of Bulgaria owning directly or indirectly at least 25% of the share capital of the Cyprus entity.
22. A rate of 7% if paid to a bank or financial institution.
23. Slovenia, Serbia, and Montenegro apply the Yugoslavia/Cyprus treaty.
24. This rate applies if received by a company (excluding partnerships) that holds directly 25% of the shares. A rate of 10% applies in all other cases.
25. Applies to any consideration for the use of, or the right to use, any copyright of literary, artistic or scientific work (including cinematograph films and films, tapes or discs for radio or television broadcasting), computer software, any patent, trademark, design or model, plan, secret formula or process, or for information concerning industrial, commercial, or scientific experience.
26. This rate applies if received by a company (excluding partnership) which holds directly at least 10% of the shares for an uninterrupted period of no less than one year. 5% applies in all other cases.
27. 10% for patent, trademark, design or model, plan, secret formula or process, computer software or industrial, commercial, or scientific equipment, or for information concerning industrial, commercial, or scientific experience.





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