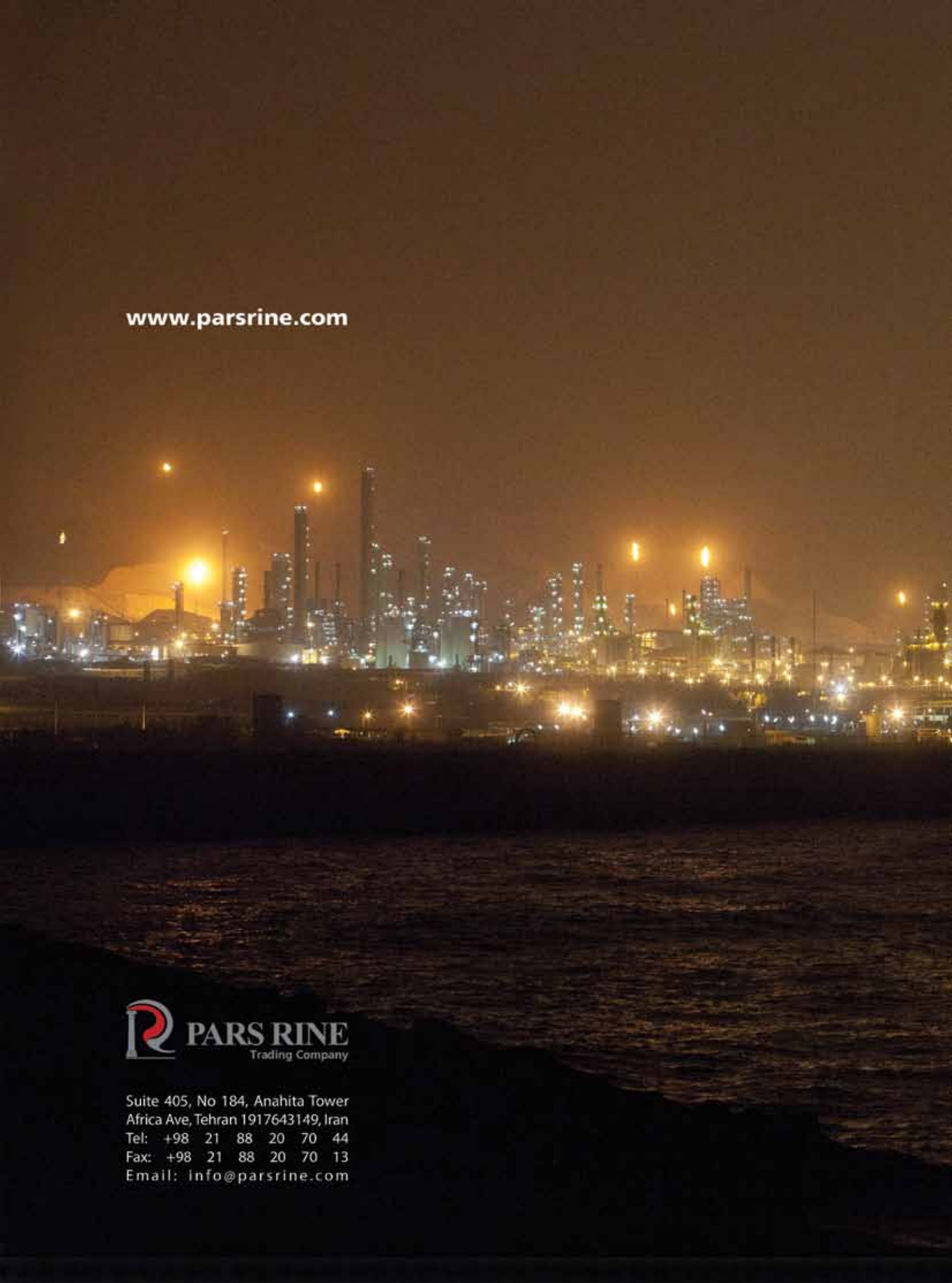
# ENERGY WORLD

200000 IRR-25 AED-7 USD No. 7-Spring 2014
Iranian Oil, Gas & Petrochemical Products Exporters Union

## French kettle will get warm with Iranian gas

. Iran and the future of European LPG market
. Would Iran be able to have a 10% share in gas global market?
. Persian gas goes to Europe
. **Adam Sieminski:** Could the U.S. become a net oil exporter
. **Mohammed bin Saleh Al-Sada:** Qatar's petrochemical output to 23 million tones per year by 2020



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# Northern Corridor Company

N. C. C.



Northern Corridor Company (NCC) with registered number 255858 presently is active in international trading and transiting of OIL PRODUCTS to Middle East such as Gas Oil, Gasoline, Fuel oil, Naphtha, LPG, LAB, HAB, RAFFINATE, N.PARAFFIN, Heavy End, Light End, Urea 46% and Bitumen 60/70 &85/100 and etc.

I would like to take this opportunity to introduce our company which is active in field of chemical and petrochemical products especially in Importing, Exporting of Polymer products to Middle East, China, India, Turkey and CIS countries. The main focusing target markets are China, India and Turkey and in our long term plan we are expanding our business to Europe and South Africa.

**Sister's companies:**

1-GOLDEN OPPORTUNITY INT'L CO,LTD ( BVI)
2-OCEAN INTERNATIONAL PETROCHEMICAL CO,LTD ( DOMINICA)
3-TRINITY PETROLEUM CO ( S.A)(Liechtenstein )
4-PETWELL COMPANY ( ERBIL)
5-ENTISOL (Pty) Ltd. ( South Africa)

**Scope of Work:**

1- Active in international trading and transiting of OIL PRODUCTS from CIS Countries especially Turkmenistan to Afghanistan, by vessel, Truck as well as wagon rail (RTC) method.
2-Supplying Gas oil from CIS Countries and transiting through the Middle East.
3-Purchasing Naphtha and Condensate from North of Kurdistan / Iraq to deliver Petrochemical Company in region.
4-Supplying and transporting of oil products from Iran andexport to Persian Gulf Countries.

**Approved Prospective project in future program:**

1-Selling Gasoline and Gas oil to Iraq ,purchasing Naphtha produced from Kurdistan/ Iraq Refinery , transporting and delivering to Petrochemical Company in region.
2-Purchasing Oil Products from South of Iraq, loading and transporting to European Countries especially Italy and Switzerland.
3-Marketing and studding of exporting LPG for European End User as well as Pakistan, India, Turkey.
4-Investing and supplying facilities in order to build refinery in Kurdistan / Iraq to remove Sulphur (de Sulphurization) from Oil Products such as Gas oil and Naphtha.
5-Purchasing Oil Products from Arabian Countries in the Persian Gulf to African Countries destination especially south Africa.
6-Our sister company, Ocean International Petrochemical Co concentrating on exporting of Polymer products produced by Petrochemical units in Iran such asPVC, HDPE, LDPE,CAUSTIC SODA & UREA 46%
7-Planning to get some percentage of market segmentation in Turkey, China, Pakistan and India .

**Objective:**

The main objectives of NCC are as below:
Making the efficient Economical relationships and presenting extensive satisfactory services and mutual consent in relation with business counterparts such as a legal person/ company active in international trade of petroleum products in region .


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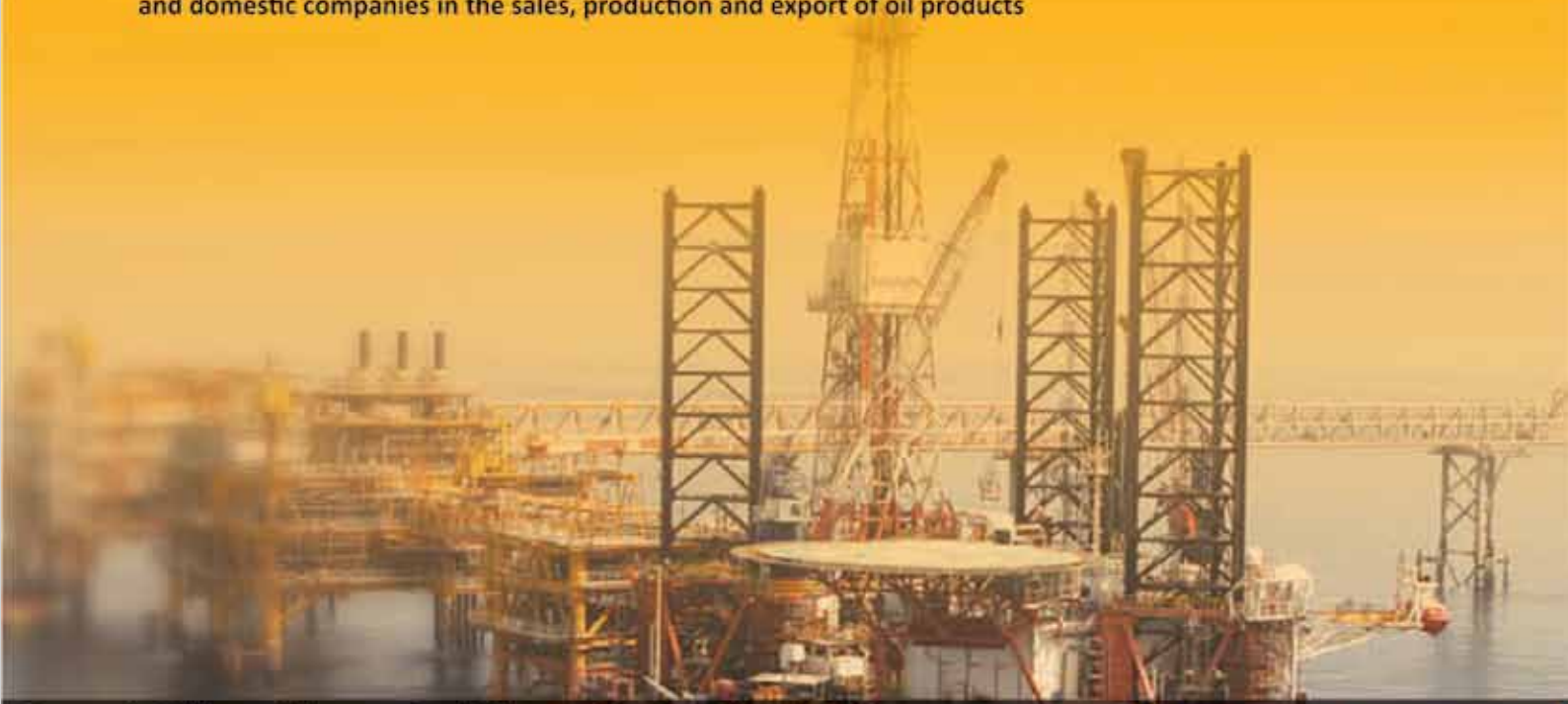
# History of Polymer Pars Hormozan Company

# پلیمر پارس هرمزان

شماره ثبت : ۴۳۲۸۰۱

Chemical Condensate Refining and Distribution Company ( Polymer Pars Hormozan ) Has started working in the late of 2007 , in the field of establishment of private refineries and investment in manufacturing petroleum products, and import and export of oil derivatives . This company has started working with an investment over 100.000.000(Rials) , with the registration number : 432801.Over the past three years has increased thecapital up to 30.000.000.000 (Rials).in the late of 2010 was successful in obtaining credit. The company's manufacturing unit has opened in the second semester of 2012.The company's major investments have been successful in various sectors in 2009s.The company has exported approximately 5,000 tons of organic solvent to Afghanistan and approximately 5500 tons of base oil to Turkey, India , the United Arabic Emirates ,Vietnam ,Azerbaijan and since 2013 , 23,000 tons of organic solvent and 4000 tons of Heat oil from April to November ,Approximately 35,000 tons of organic solvent to Afghanistan. Polymer Pars Hormozan Company has high potential in the field of marketing , import and export of goods from different countries. We have a significant amount of oil products from Turkmenistan, Uzbekistan and the United Arabic Emirates and Iraq entered to Iran on a temporary basis and then recycled and processed into another materials and exported to different countries.This company is ready to cooperate with various foreign and domestic companies in the sales, production and export of oil products

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Polymer Pars Hormozan

# Farayand Shimi Co.

- Farayand shimi zangan a professional and dynamic firm,in manufacturing and supplying comprehensive range of industrial oils and other Hydrocarbon Material , has establised in 2004 in Zanjan , Iran.
- Product range of farayand shimi zangan includes base oil, Industrial oil, transformer oil, liquid paraffin and petroleum jelly and Hydrocarbon Material. Our product confirm to quality standards and are exported to India, east, afriqa….
- The factory is located in zanjan province (North West of Iran) an area of 20000 square meters.
- The factory was equipped with Distillation unit, clay treatment and finishing unit for base oil production also we have utility unit to power and water.
- Farayand shimi zangan have several certificate such as Iran standard and ISO 9001: 2000 and ISO 14001 and QM Germany.
- Our success has been due to the consistent team work of our intimate colleagues together with our shared value system of commitment to excellence high respects towards customers and the spirit of innovation,which has brought close relations with our customers,dealers and stake holders.

List of products: **Base Oil SN-100** **Base Oil SN-150** **Base Oil SN-500**

**Distillated fuel** **Several Tinder** **Several heavy and light hydrocarbon**


Contact and web site

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**Address:**
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**Tel:**00982412383273-8 00982188757267
**Fax:**00982412383272 00982188757268

GSK

Gohar Safa Karkas

www.gskoil.com

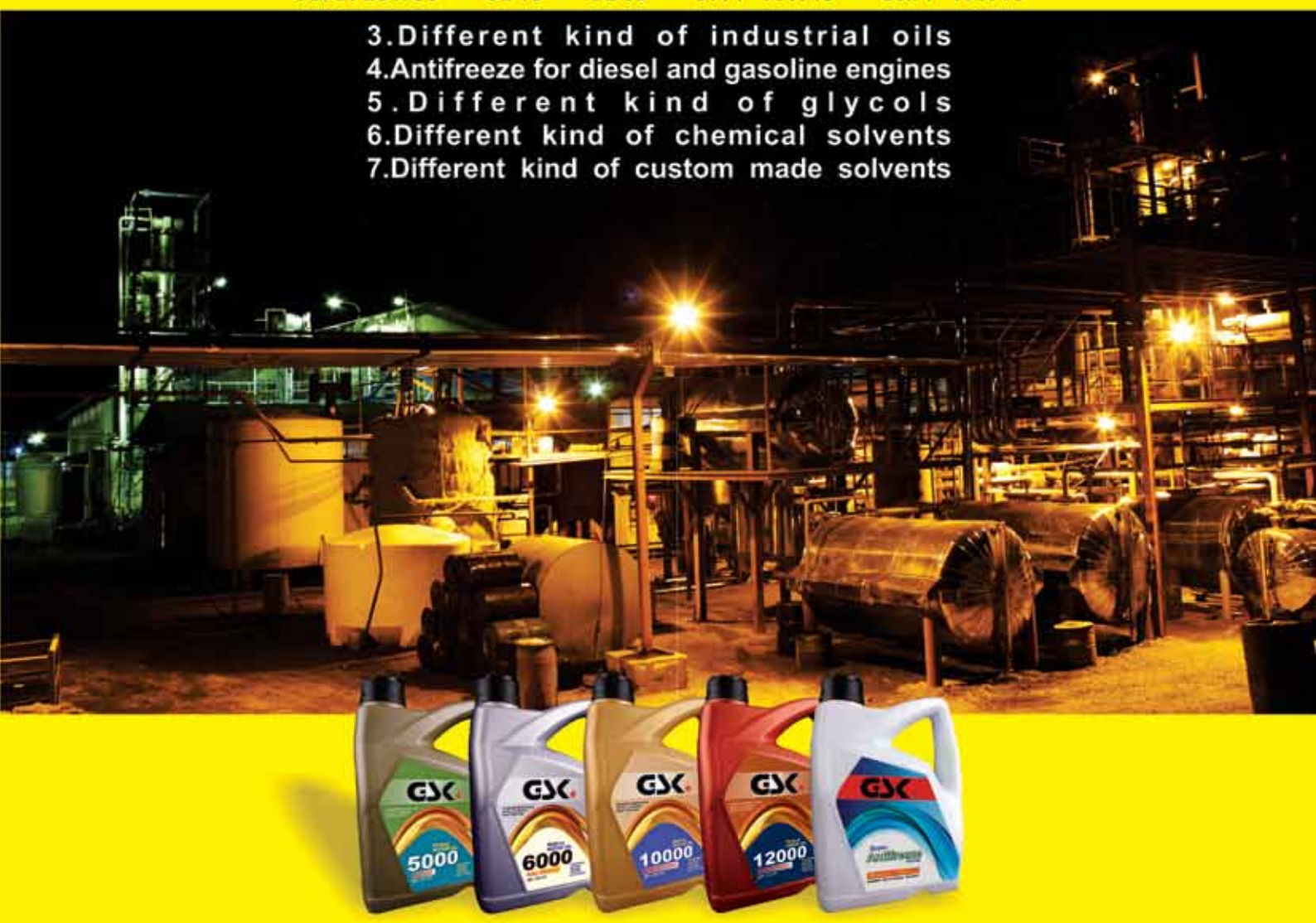
**The company's products**

## 1.Base oil SN150 - SN500

**2. Different kind of oil for deisel and gasoline engines:**

**SC/CC40 – SC/CC50 – SE/CC20W50 – SG/CC20W50 – SJ/CF15W40**
**SL/CF20W50 – CD40 – CD50 – CF/4 15W40 – CH/4 15W40**

3.Different kind of industrial oils
4.Antifreeze for diesel and gasoline engines
5.Different kind of glycols
6.Different kind of chemical solvents
7.Different kind of custom made solvents

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# Nakhle Barani Pardis Co. (NBP Co.)

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web site: www.nbpco.com e-mail: nbp@nbpco.com

P.S.S.Co.

# Petro Setareh Saba Company

This company has been established since year 2000 in Tehran province , Islamic Republic of Iran and recorded for the purpose of Commercial Operations ( Import and Export ) in the scope of Oil Industry , Gas and Petrochemical Products in World Tradea Also producing the Engine Oils for all kinds of Machinery operating the conversion services, packing and container are the other kind of activities done by this company . The company's management of that time started the civil operation and completion of the unit in year 2000 in Special Economical Zone of Salafchegan which located in Qom


Factory Address

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Russia Invaded Crimea and These US Energy Companies Made a Killing


5 Biggest Risks Faced By Oil And Gas Companies

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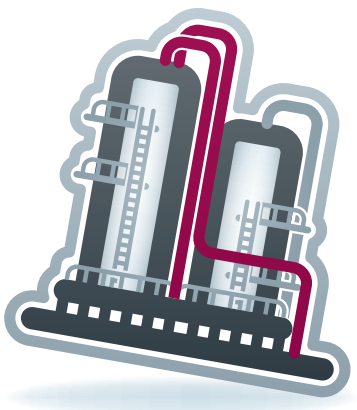



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Printed by: Dehkadeh Publishing
Address: No 4, Damavand Mall, Bakhshi Far St,Damavand St , Iran.
Telephone : +98-21-77548470
Print: 5000 copies

Qatar's petrochemical output to 23 million tones per year by 2020

Private sector capacity to take part in the country's economy increasingly grows

# Oil and Geneva Agreement

**Seyyed Hamid Hoseini ***

Surely the most important event for Iran in 2013 was the Geneva Interim Agreement which causes to stop intensifying sanctions against Iran. Also some sanctions got suspended and huge international companies start to steer the direction of their commercial negotiation to Iranian market.

Undoubtedly reaching a comprehensive agreement between Iran and 5+1 countries has a difficult but possible path. The Ukraine recent events and the independence of EU to Russia for gas is a good motivation for European countries to stop their independency to Russia by creation new connection with Iran. So we can be hopeful that Iran and the West reach a win-win agreement in the near future. Upon this opinion the first chance to cooperate and invest for international companies in Iran is the oil and gas industry. The meetings between Iranian petroleum ministry officials and huge international companies like Total, Royal Dutch Shell, Eni, Gazprom, and Statoil are the clear signs of foreign companies' tendency to cooperate in Iran oil industry. They are trying to suspend more previously imposed sanctions on Iran oil sector to make their presence possible. In another side the US companies are new severe competitors for European companies and they are ready to do the same in Iran after the sanction is removed.

Upon the technicians' analyze, the oil sector needs four strategic and important factors: investment, technical knowledge, equipment and market.

For reemergence as the second great power in OPEC and changing to a powerful actor in oil and gas sector, we have to increase our production from 2.7 to 5 million barrels per day and the capacity of refinement from 1.7 to 2.5 million barrel. Meanwhile

the production capacity of refinery products should increase to 120 tones. And South Pars should increase gas production from 600 to 1200 million cubic meters per day to supply interior needs, export to neighbor countries like Iraq, Oman, Pakistan and turkey and start to export to Europe.

We need at least 500 billion dollars to launch the above projects which should be covered by finance, buyback or common investment. So Iran needs to foreign investment and international companies need to Iran oil and gas industry to apply their technical knowledge, equipment and manpower for obtaining benefits for their countries. So both sides need each other.

As a country which has the largest source of oil and gas in the world, Iran needs market to supply its energy but sanctions have strongly restricted this market to five countries. We are hopeful to present in European energy market again in this new situation.

This kind of relation is mutual and both sides need each other and their cooperation has benefit for both nations.

*** Editor – in – Chief**

# Iran and the future of European LPG market

**Siamak Teymurpour ***

The world moves towards new technologies. Oil and gas industries are not an exception to this progress and keep in pace with modern technologies. Large industries like gas, using these new technologies, became able to speed up the procedure of distribution of products to consumption market and make it less expensive. LPG is a product that could rapidly make its special way in global markets, and also countries, like Islamic Republic of Iran, that possess world's richest gas reserves quickly joined the company of governments which use such technologies in order to develop their export markets. Currently, discussions are running about making new markets for Iran's gas and one of these destinations is expected to be France. Iran's gas is going to France without a pipeline? This is a question many ask doubtfully. In Davos economic summit, Hassan Rohani, the president of Iran, invited foreign investors and large oil-gas companies to enter Iran's market. This market has various features. From enormous underground reserves to communication ways for specialists and infrastructures that are ready to enter global markets. Meanwhile, it must not be overlooked that after eight months since the suspension of LPG export in the summer of 2013, now with Iran entering global markets LPG export is reinitiated to destinations in Thailand and South Korea. This export will continue energetically but it also needs up-to-date technology and thus foreign companies can significantly help Iranian companies sharing their technological knowledge with them. Lower-hand industry of Hydrocarbon products family is among those fields that the arrangement of its players demands attention. The more this arrangement moves towards privatization and attraction of large capitals and creation of tycoons, the more it can make its dynamic processes faster. Considering the experience of countries like Mexico, we can be hopeful that the path that leads to the opening of the gates of world modern technologies would end in both qualitative and quantitative improvements in hydrocarbon products, especially LPG.

According to reports, global LPG markets have had constant demand but variant supply during 2013. In 2012 LPG price in Asian market faced fluctuations due to supply shortage, but in 2013-2014 thanks to the return of Iran to the market and also Canada and US LPG supply the price of the product remained constant and even reduced at some point. As the foreign companies bring their capital to Iran's lower-hand industries, including LPG, Iran could hope, besides Eastern Asia, for bright horizons in European markets. According to statistics from 2012, 37% of South Korea's imported LPG was supplied by Iran. This amount has reduced in 2013 due to sanctions but we have to expect a significant raise in their LPG import from Iran in 2014. This would be an easy and profitable market for Iran. This way Iran's gas can make French kettle warm and Iranian giant ships can bring LPG to European harbors. Having in mind the suspension of the first part of sanctions regarding LPG industry including insurance, would result in the improvement of Iran's sea transportation. In 2012 Iran's LPG export amounted to nearly 275000 to 325000 tons monthly –nearly 4 million tons per years- such that Iran was supplying its liquid gas to global market in six large ships. But now everything is changing. 2014 could be considered as a turn to Iran. Iran's LPG industries require modern technology and presence in new markets that could decide the future of this industry.

*** Phd Candidate in International Relation**

# Energy diplomacy and its role in Iran's foreign policy

**Seyed Behzad Akhlaghi***

The role of diplomacy in foreign policy has been evolved to be more specialized and case-dependent, and one of the most important cases which requires diplomacy is economy. In fact, governments have turned to diplomacy and foreign policy in economy under the influence of global political economy. In other words, world most powerful governments are extremely active in the field of economic diplomacy. Energy diplomacy has a special place above all, since from one side it is related to economy and from the other side to national security, interests and power. Therefore, carefully assessing current situation and global, local and international facts, energy diplomacy has a magnified importance for Iran and since it has a great influence on the interactions of domestic forces, it is the most important economic aspect of the country in international interactions. Thus energy diplomacy, having importance for Islamic Republic of Iran to maintain security and its interests, also strengthen the country's political and economic forces in the global system of political economy.However, inadequacy and incompetence in economic orientations of Islamic Republic foreign policy have caused negligence in scientific and academic literature for the relation between energy and foreign policy, even though there are works about political economics of energy in the country.The main question that has to be asked in current situation is "what prevents Islamic Republic of Iran from achieving a paradigm for energy diplomacy?" in response, one comes up with the assumption that the country's general budget's dependence on the revenues coming from exporting (raw) oil has caused the neglect for proper economic and political planning in foreign policy and so achieving a model for energy diplomacy.

Using their national energy and economic capacities in their foreign policy, countries have adopted a new strategy for economic growth and development and maintaining their national interests and security in the framework of energy diplomacy. So for Iran, as a country abounded with oil and gas reserves inside its national borders and on its margins, energy diplomacy is a tool for maximizing the achievements coming from the global system of political economy. This is while the economic view has often been less important than political considerations in Iran's foreign policy. As a result, the commercial view is prevailing in the energy issues which shows the lack of a long-term and strategic approach to energy issues in foreign aspects (energy diplomacy), and this means that for Iran, as a regional and international player, to make a change in its general situation it is required to adopt long-term strategies especially in foreign policy.

In the era of the globalization of economy and security, the logical consequence of Iran's current state of affairs, resulting from inconsistency and lack of a clear economic behavioral logic, is a chaos in the analysis of the country's behavioral model, to the extent that the country is actually left without an economic plan and energy diplomacy. Besides, in the domestic approaches energy has been seen as tool for securing financial needs. Thus lack of strategic planning and short-term decision-making along with, and intensified by, the effect of urgent financial needs has decreased the efficacy of current practice. This is clearly observable in daily considerations of OPEC meetings, lack of a well-devised plan for choosing partners and contractors, failure in making an Iranian to be selected as OPEC secretary general, and above all in the constant change in the country's oil and foreign policy.

Therefore, seeking high prices and increasing the revenue of production, while relying on oil as the sole product to offer, could not make room for energy diplomacy, because energy diplomacy is defined by the strive for developing energy and industrial production capacities and ultimately overall development of a country. So in general, resulting from both mentioned positions (i.e. lack of strategic planning and dependence of country's general budget on oil revenues), energy profits have been used for commonplace issues and country's economic growth and progress has been based upon this practice. The perspective prevailing among decision-makers is that capital is the solution for all problems in energy section, while this approach holds no solution for problems caused by inaccessibility to new technologies and new management knowledge for large projects, and by difficulties in the procedure of facilitating interaction with world most important powers and companies, in preparing market, marketing and competence. On the contrary, financial need and the reliance of country's budget on oil revenues indicates one of those enterprises in which success comes solely from using system's capacities, revising current practice and application of energy diplomacy.

***Chief Clerk**

# French kettle will get warm with Iranian gas

After 0 more than a year since 28 European Union countries sanctioned Iran's gas, France is the first country, after Geneva agreements, to suspend gas sanction and officially become South Pars sour gas and other gas products' purchaser.

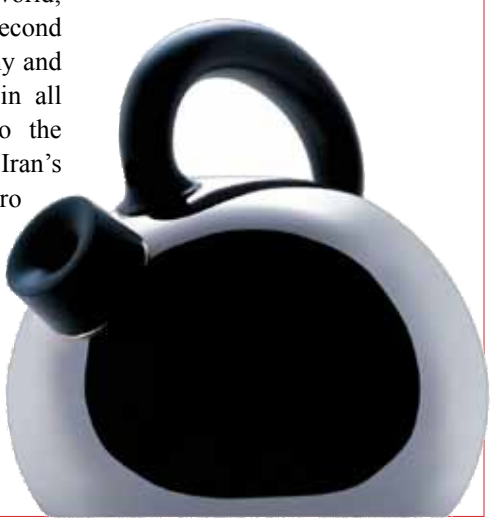
After more than a year since Iran's natural gas and other gas products export sanctioned by European Union countries, France is the first to officially suspend Iran's gas sanction. Publishing a report, in this respect, Iran's National Gas Export Company announced: a new round of gas negotiations over natural gas export has been started with French companies representatives. In this statement it is emphasized that: meetings and discussions about development strategies and gas collaborations including gas export has been taken place in the joint meeting between the CEO and officials of Iran's National Gas Export Company and representatives of the French companies.

Besides French companies, Iran's National Gas Export Company has met with officials from Azerbaijan Republic, Oman, and Pakistan about natural gas export situation.

The new round of negotiations between Iran's National Oil Company and France Total Company, and between Iran's National Gas Export Company and France's GDF Suez Company has taken place in Tehran.

Among French companies coming to Tehran, besides Total Company the name of France GDF Suez Company catches the eye, a company which is the largest natural gas distributor among all European Union countries.

The report published in France GDF Suez Company's website indicates that up to now this company has obtained 344 development and discovery permissions in upper hand oil and gas industry in 16 countries all around the world; this company is also the second largest LNG import company and the largest gas distributor in all European countries.Prior to the approval of the sanction of Iran's gas, Norway Statoil Hydro Company, due to participation in development plan for South Pars phases 6 to 8 and to buy-back contracts, was importing several thousand tones of liquid gas and some gas cuts from Iran on a daily basis. But with the adoption of new sanctions, this oil company will face severe losses if it is not allowed to import Iran's liquid gas, therefore some negotiations has been started concerning the exclusion of this Norwegian company from Iran's new gas sanctions. ■



**Would Iran be able to have a 10% share in gas global market?**

# Persian gas goes to Europe

Agreements in Geneva brought about certain changes in global energy's current state that could cause significant impacts on the key players in energy market, not only in Middle East but this time in European market as well. As one of the largest owners of world's gas reserves, Iran has always showed interest in playing a role in Europe's energy market, but this time, due to agreements known as "preliminary agreements", Iran's gas has attracted European clients' attention. It must not be overlooked that Russia, as one of Iran's main political and economical allies, considers Tehran's presence in European gas market as a serious threat to itself.

But Iranians have put serious planning to enter European markets in their agenda, to the extent that the director of international affairs in Iranian national gas company, explaining Iran's most important gas policies after Geneva agreements, mentioned the opening of new gas negotiations with European Union countries like Greece, and said: Iran is ready to restart gas negotiations with India.

Although Iran, having more than 33 trillions square cube of gas reserves, is known as the world's second largest owner of gas reserves but its share in global gas market does not even reach one percent.

Currently, the negative balance of gas production and consumption, delays in launching new phases of South Pars project, international sanctions, and Iran's sole LNG production project being in European Union and US sanction list are the most important problems that Iran is facing in order to return back to global gas market.

Azizollah Ramazani, director of international affairs in Iran's national gas company, said, explaining Iran's most important new gas policies after Geneva agreements: as of now Iran does not have the excess capacity to export natural gas, and it is expected that making new phases of South Pars operational provide an excess capacity to produce and export gas for us.Emphasizing that Iran's macro policy is to achieve a 10% share in global gas market, this board member of Iran's national gas company stated: for this reason we have started negotiations with various Asian and European countries in order to increase our gas export. He mentioned the application of energy diplomacy, regional and transregional marketing, integration of activities and negotiations aiming gas trade, as new policies for exporting Iran's natural gas.

**Iran's route for exporting gas to India**

Regarding the most recent gas export status to India, Ramazani said that as for the moment there are two routes in our agenda for exporting natural gas to this country: exporting gas through Pakistan and construction of offshore pipeline t hrough Indian Ocean are our two options. Mentioning that Iran is ready to restart the negotiations with India to sell gas to this country, he said gas export to India depends on this country's earnestness and determination.

**The opening of negotiations with Greece**

Greece is no doubt the entering gate of Iran's gas to Europe and thus for the moment intense negotiations are being held between two countries. Greece has always been an earnest and reliable partner for Iran's energy export; this can be clearly seen in Oil industry since according to statistics published by Global Trade Atlantis, in 2008 Iran's export rate to Greece was 110 thousand barrels a day.

Meanwhile European gas market, due to the traditional belief about Russia, seems a promising place for Iran. Therefore Ramazani mentioned Europe as one of Iran's goal markets for exporting natural gas and added: and thus several routes have been defined in order to export gas to European countries.The director of international affairs in Iran's national gas company mentioned signing of a gas export contract with Switzerland and the opening of negotiations with Greece and added: Turkey is also one of Iran's routes for exporting gas to Europe. Mentioning that European countries have put the diversification of gas supply routes in their agenda, he said: therefore Iran could be one of the largest gas suppliers for European countries.It must not be overlooked that LNG and Iran's inability to be reliably present in this market could be one of the weak spots of Tehran in entering global gas market; but this issue has been placed among main priorities of Islamic Republic's macro policies.

Making Friendship with Bears

# Iran and Russia seeking energy agreements in Caspian Sea

Oil and gas reserves of Caspian Sea are among the issues of great importance in the legal regime of this sea. Since long time ago Russians were Iran's sole neighbor around this sea but suddenly in 1991, with the emergence of a renaissance, Caspian neighborhood changed to four countries, five priorities and five different tastes. Meanwhile, as mentioned before, the energy reserves of the largest lake of the world have a vital importance for its small neighbors including The Republic of Azerbaijan; these small republics, which are the remains of the USSR period and have little development on political grounds, are striving to serve the interests of great powers exploiting the finite reserves of this lake in short-terms. Concerning Iran and Russia's roles in directing energy changes in Caspian Sea it must not be overlooked that just as the two countries, having conflicting interests, continue their political cooperation, they emphasize the issues of ownership and technologies of neighboring countries in the case exploiting energy reserves of the Caspian Sea.

Meanwhile, Russian ambassador in Iran, mentioning the opening of negotiations between National Oil Company of Iran and Lukoil of Russia on terms of new oil and gas collaborations, asked for more cooperation on the side of both Iran and Russia in performing gas and oil discovery and development plans in Caspian Sea: Lukoil is waiting for Oil Ministry's offers in order to returning back to Iran. At the same time that the opening of negotiations and Iran's new diplomacy to bring world's oil and gas giants back to Iran are taking place, Russia's largest oil company declared that they are ready to return to Iran's oil industry.

Levan Jagaryan, the ambassador of The Russian Federation in Tehran, is among people who are trying to strengthen energy and economic ties between Moscow and Iran. In an interesting remark about the cooperation between Iran and Russia in the field of energy, he said: Lukoil has announced that they are ready to return to Iranian projects of oil and gas industry.

Lukoil, a Russian oil company, is now waiting for Iran's Oil Ministry comments and offers in order to return back to Iran; therefore it is possible to interpret Lukoil's offers as a step in the way of Iranian-Russian energy cooperation. It must not be overlooked that in the near future a joint economic commission will be held between Iran and Russia and the central issue of this joint economic commission is the mutual collaborations between two countries in the field of gas and oil industry.

Recently Vagit Alekperov, the president of Lukoil which is one of the largest oil companies of Russia, stating that it is expected that his company starts its activities in Iran with the gradual suspension of international sanctions against Iran, said: we are ready to return back to Iran's oil and gas industry. The history of collaborations between National Oil Company of Iran and Lukoil Company of Russia goes back to signing a discovery and development contract in Anaran block in western Iran before the augmentation of international sanctions.

Lukoil, with the participation of National Oil Company of Iran and Statoil Hydro Company of Norway, has discovered one of the largest oil fields of Iran consisting of Azar and Changuleh in the west of Iran, but the collaboration for the development of these two oil fields in western borders of Iran stopped due to adoption of new sanctions.

After Geneva agreements, world largest international oil and gas companies announced their willingness to return back to Iran's oil industry, and among them Russian oil companies showed more eagerness in taking part in Iran's gas and oil industry than other world's oil and gas giants. Lukoil is the second largest oil company in Russia and with respect to possession of proven oil and gas reserves is the second largest oil company in the world next to American ExxonMobil.

Lukoil has a vast present in oil and gas projects in over 40 countries all around the world including Iran; in 2008 this Russian company has produced around 19.3 billion barrels of oil which amounts to 1.3% of the whole world's proven oil reserves.

Recently, the Russian company Zarobjnaft also announced its willingness to participate in the development project of an Iranian gas field near Asaluyeh.

This fall Zarobjnaft offered a bid to National Oil Company of Iran and asked for participation in the development of the recently discovered gas field of Khayam, however there are still no agreements on the terms of how to develop this gas field and it is expected that in the near future Zarobjnaft officially open its office in Tehran.

# Two Russian companies are ready to return back to Iran

World of Energy: news is being heard about Lukoil, the energy giant of Russia, presence in Iran's market. This is while other European companies one after another are showing their willingness for investment in Iran and entering this country's energy market. Meanwhile the news concerning Lukoil presence in Iran has made Chinese investors worry since it is probable that as Iran's petrochemical industry did not renovate its contracts with some of Chinese groups, these Chinese investors would also have to pack their things up in the near future and leave the country with long flights back to China. At the moment in oil industry, as it is shown in statistics, Chinese companies are buying approximately 543 thousand barrels of oil each day from Iran, and this could be drastically affected by the presence of other foreign investors and sharing of the market between more various clients which would certainly change Iran's trading market and investment terms. To cast light on this issue we interviewed Ahmad Kazemzadeh:

**Political and economic relationships of Iran and Russia have always been full of ups and downs such that even after the collapse of USSR and strengthening of the ties between Moscow and Tehran their relationship faced many challenges due to Iran's colder relations with the west. Having the joint commission on bilateral cooperation which is focused on energy issues in mind, what effects would the presence of Russians in Iran's energy market have on diversification of investors in Iran?**

As you mentioned it is expected that Iran and Russia discuss issues concerning energy markets' changes, especially in oil, gas and lower hand industries, in the joint commission on bilateral cooperation. Iran has always welcomed foreign investors in its energy market and this could lead to more growth and development on the side of domestic investors. As before, Iranian investors, in cooperation and participation with their foreign partner in great projects, have learned from their experiences, now there is an opportunity for them to have a mutual interaction with their Russian friends. We have to keep in mind that with this diversity and enthusiasm that exist towards Iran's energy market, the presence of different players could improve the situation for the host of these investments.

**As of now, how many Russian companies have announced their willingness to enter Iran's energy market, and what are the terms of their cooperation?**

According to my sources two major Russian companies are

at the gates of Iran's oil and gas industries.

**Did Americans too show willingness to enter to this market?**

Three American companies will take steps towards negotiations in the second quarter of 2014, and the Russian companies that have announced their willingness at the moment are Lukoil and Zaberjnaft.

**These companies' investments in Iran's market would be in what fields and to what amounts?**

As the Croatian company INA, the Russian company Lukoil and other Norwegian, French and even English companies have been active in Iran's market in the past, depending on their expertise and Iran's needs these companies will take part in different sections including discovery, upper hand sections and in certain cases in lower hand sections.

**At the moment many issues have been came up concerning Lukoil company, on what filed this company would be active in Iran?**

Lukoil is like Iran's other oil partners. We must not forgot that this country has a history of participation in projects like Anaran in western Iran, and in that project besides discovery issues they had also plans for field development in their agenda.

**Is it possible to interpret these new changes as the entrance of foreign companies to oil investment?**

I don't like such expressions. Foreign companies including English, Norwegian, Croatian, and even Hungarian companies have been active in Iran beside the Chinese, Russian and French companies in the past. The change in western countries attitude towards Iran is a mutual event in which both parties have their roles.

# Iran Oil industry Dispose of Chinese Companies

While Iraq has started the exploitation of shared oilfields between them and Iran, Chinese companies are still delaying in fulfilling their promises and since the expected increase in oil production rate in these fields has not realized by this year February, the National Oil Company of Iran again gave an ultimatum to the Chinese contractors.

After nearly seven years since the assignment of the contracts of development projects in three massive shared oilfields between Iran and Iraq to Chinese companies, these Asian contractors have not still succeeded in completion of the first development phase in these oilfields; and however Iraq's exploitation in the shared field of South Azadegan has had a significant increase, Iran's production capacity in this field remained still at the rate of 50 thousand barrels per day which is due to the Chinese contractor inability to complete oil wells of this field.

Statistics show that from the total of 185 wells which ought to be constructed in the first development phase of this shared field, only seven have been drilled so far.

It must not be overlooked that as of now only five rigs are active in South Azadegan field, and this is while according to the contract China CNPCI Compnay must have installed 25 drilling rigs in this shared oilfield.

Currently, it is assessed that the progress rate of the first development phase of this shared oilfield between Iran and Iraq is 7%, which means oil produc-

tion rate in this field still remained as 50 thousand barrels a day.

The first early oil exploitation in the development of South Azadegan shared oilfield goes back to the period of the 9th government, when with the participation of National Iranian Drilling Company and National Iranian South Oil Company the capacity for the production of 50 thousand barrels a day has been built.

However, Iraq as a partaker, along with Iran, in exploitation of this shared field, has started oil production in Majnun field (the shared part of South Azadegan) from this year's early September with the rate of 175 thousand barrels per day.

Bagdad has predicted that due to the operational progress of Majnun shared oilfield's development project, the country's oil production in the field would increase to 400 thousand barrels per day in the near future.

Chinese companies killing time in the second shared oilfield with Iraq

Chinese companies' delays and time-killings are not limited to development project of South Azadegan field and China Sinopec Company has caused many serious delays in the development project of Yadavaran shared oilfield as well.

Currently 25 thousand barrels per day are being produced in Yadavaran shared field; however the production rate is expected to reach 180 thousand barrels and 300 thousand barrels per day respectively in the next phases.

After several weeks since Iran's ultimatum to the Chinese contractor, Sinopec Company published a report explaining the latest situation of Yadavaran oilfield's development project and mentioned the 86% development rate in the upper hand and lower hand sectors of this oil project and stated: this progress indicates the actual progress rate complies with the project implementation schedule.

Meanwhile in the joint session between Iran's National Oil Company and China Sinopec officials both parties agreed that a year from now the operational activities in the first phase of Yadavaran oilfiel's development project would be completed according to the schedule, and if this happens Iran's oil production in this shared field will reach 85 thousand barrels per day.

According to China Sinopec officials, with the realization of a 50 thousand barrels increase in Yadavaran's oil production, besides the compensation for occurred delays, a possibility of earning 150 million dollars per month would be provided.

Chinese promises in Yadavaran shared field's development project have not been fulfilled and this is while the drilling operation for 55 wells in this field has been completed.

North Azadegan also faced Chinese delay

After seven years since the contract for North Azadegan development projected has been signed, it is not still possible to exploit oil from this share oilfield with Iraq.

The first phase of this field was planned for 75 thousand barrels per day, but both parties have had negotiations on a before time production amounting to 20 to 30 thousand barrels per day.

In this development project 58 wells were planned to be drilled out of which 44 have been drilled at the moment. According to the previous government plans before time production was expected to be started by February 2014, but considering the current drilling progress in the field any oil exploitation from this shared field would happen in the coming year.

Oil industry begins to dispose of Chinese companies

As National Oil Company of Iran began negotiations with world oil and gas giants, the possibility for Iran's oil and gas industries to dispose of Chinese companies has been strengthened.

Meanwhile presidents and officials of some of world's largest oil and gas companies, including Italy's ENI, Russia's Lukoil, France's Total, have recently shown their willingness to return back to Iran's oil industries, the possibility of which is dependent on the suspension of sanctions against Iran.

Iranian oil officials, also, have reported the return of some of these oil and gas giants to Iran in the near future: companies like Shell and British Petroleum from England, Malaysia's Petronas, Repsol of Spain and several other world large oil and gas companies will return back to Iran and cooperation with these companies will be resumed.

# IPS companies participate in The 18th International Arab Oil and Gas Exhibition

In an interview with the reporter of World of Energy, the Director of Public Relations of Iranian Oil, Gas & Petrochemical Products Exporters Association said:

Iranian Oil, Gas & Petrochemical Products Exporters Association along with some of the member companies active in the field of bitumen, paraffin, industrial oils and petrochemical products production and export made presence in this year's exhibition, in which we saw also the active presence of Iranian private sector companies in Islamic Republic's pavilion.

Mohsen Taremian, mentioning the visit UAE Energy Minister gave to the Association's booth, added that the presence of such a powerful private organization in Iran has attracted the Minister and many other foreign countries to consider making mutual collaborations and developing commercial objectives with the Association. The very first presence of the Association and its members in foreign exhibitions has had an international reflection and also leaded to the satisfaction of member companies in negotiations and agreements with their clients. It is noteworthy to mention that the department of public relations of the association along with Metaco undertook the responsibility for the Islamic Republic of Iran's pavilion.

Among the member companies that participated in the exhibition were Jey Oil, Parsa Fanavari Adib, Gohar Safa Karkas, Kish Spanta, Shimi Taqtiran.


New Iran oil contracts seek to lure foreign investors

# Iran needs $150 billion of investment in its energy sector of next five years

Iran said Sunday it plans to introduce a new generation of oil contracts by June that promise to be more attractive to foreign investors as the country seeks to significantly boost production should international sanctions hobbling its vital energy industry be lifted. The new terms being developed signal the OPEC member's eagerness to attract outside expertise and capital, and are a response to oil and gas companies' frustration with earlier terms that they felt offered little upside reward. Mahdi Hosseini, head of the contract revision committee in Iran's Petroleum Ministry, told reporters that the new terms are being designed for a post-sanction era and aimed to better align Tehran's needs with the interests of international investors. He said officials were seeking a "win-win" setup that would better balance companies' risks with rewards. Iran currently allows foreign oil companies to operate under what are known as "buybacks," which Hosseini acknowledged have drawn complaints about cost from oil companies.

Under that system, the contractor pays to develop a given oil field in exchange for a pre-agreed rate of return over a certain period of time. The contractor transfers operation of the field to Iran once work is done and typically does not have a long-term stake in the fields.

**New contracts won't transfer ownership**

Iran began revising the contract terms in October. Hosseini said the new model being developed aims to ensure long term co-operation with outside investors and that the committee has consulted international companies on the new version of the contract.Iran needs some $150 billion in investment for its energy sector over the next five years, he said.Tehran has not provided details on the exact shape of the new contracts that could be offered, but they stop short of transferring ownership of the fields themselves, Hosseini said. The government is banned from giving such concessions under Iran's constitution.

Further details will be presented at a conference later this month, though the proposed changes must still be approved by the Cabinet and other decision-making bodies.

Oil companies aren't enthusiastic about buybacks because they offer no upside if prices rise or if the companies exceed their production targets, according to analysts Cliff Kupchan and Greg Priddy at the U.S.-based consulting firm Eurasia Group."Even if sanctions were lifted, buybacks would remain a significant deterrent to development of the energy sector," they wrote recently.

**Current system has 'no incentive' for companies**

Buybacks are also unattractive to oil majors that prefer to lock in long-term agreements where they can book the reserves in the fields they develop or at least operate them for terms stretching for a decade or more."The oil companies feel they add most value in the operating phase" rather than in the drilling and set-up of wells, said Robin Mills, head of consulting at Manaar Energy Consulting & Project Management in Dubai. They prefer contracts that reward them with incentives for hitting certain targets, he said."Under the Iranian system, you have no incentive to go even one barrel over what you've promised. Which means you're trying to follow a very conservative develop plan," he said. Mills added that the way buybacks were typically structured also gave companies little protection against cost overruns, meaning that any unexpected snags came out of their pockets.

**"It's all downside and no upside," he said.**

Hosseini said parliament has already approved the use of what are known as production sharing agreements, or PSAs, for deep-water projects and oil and gas fields shared with neighbouring countries.

Under PSAs, foreign investors are allowed to use money from oil produced from the projects to recover their costs, and then share the rest of the income from the field with the government.

**Oil exports equal 50 per cent of budget**

Western sanctions put in place in 2012 over Iran's disputed nuclear program have choked oil exports to around 1 million barrels per day.Iran has vowed to raise production to 4 million barrels per day within six months of sanctions being lifted, up from about 2.7 million barrels now.

The country relies on oil exports for roughly 80 per cent of its foreign revenue and some 50 per cent of its annual budget.The West suspects Iran's nuclear program has a military dimension. Iran denies the charge, saying its nuclear activities have peaceful purposes like power generation and medical treatment.

Iran in November signed a deal with world powers agreed to stop some controversial nuclear activities in exchange for limited relief from sanctions targeting sectors including its oil exports.

Negotiations on a final deal are to begin this month.

# The Year Before the Year of LNG?

**John Graykowski**

A year in which US shipyards announced contracts for over twenty new ocean going vessels (with options for several more) is noteworthy, especially given the recent difficult times experienced by the shipbuilding industry. What makes this fact even more significant is that LNG as a propulsion fuel is a central feature in each of these vessels, either as the intended fuel source upon delivery or at some point in the future.

So does this mean that the US maritime industry in America has reached the LNG tipping point, where a tidal wave of even more marine projects will be announced in the coming year? My short answer would be a heavily qualified, but nonetheless definite: "maybe."

A distinction has developed between ships that will be "LNG-ready" as opposed to those that are "LNG-capable," the difference being those vessels that will use LNG upon delivery and those that can be converted to operate on LNG at some later date. While certain design modifications are incorporated into these ordered vessels, such as foundations for LNG fuel tanks and dual fuel main engines, they will operate on conventional diesel fuels when they are delivered. The reasons for taking a half step to LNG rather than making the plunge are several, among them the additional cost of the entire fuel gas system, including the fuel tanks. However I suspect the greatest reason is uncertainty related to LNG supplies in the ports where these vessels will call. This is particularly the case with the product tankers that have been ordered that, unlike the LNG-powered container vessels do not operate in a classic point-to-point liner service. Their deployment is largely dictated by cargo availabilities throughout the United States and thus, until LNG is more widely available, the owners will likely hold back on a full commitment to LNG.

If one is looking for positive signs on the infrastructure front, they are there. The Port Fourchon terminal project on the Gulf of Mexico in Southern Louisiana is being developed by Harvey Gulf Marine to serve its fleet of LNG-powered offshore service vessels. It will be the first operational LNG bunkering facility in the United States and is expected to be operational next year. Clean Energy has announced its intent to construct facilities dedicated to the marine industry in Jacksonville. Tote, Inc. issued a request for proposal (RFP) to potential LNG suppliers to provide LNG for their vessel operations based in Tacoma, Washington and Jacksonville, Florida. Each announcement of new LNG-powered ships results in a deluge of phone calls from potential LNG suppliers seeking meetings and making proposals to vessel owners. So again, there is clear movement, growing interest and some tangible progress; but it is slow and these projects still face regulatory challenges and uncertainty that may result in delays and higher costs.

Given the delivery schedules of the Tote, Inc. ships, in late 2015 and early 2016, and the Crowley vessels in 2017, it seems that the window for putting bunker infrastructure in place—completing land acquisition, clearing Federal and local permit requirements, and facility construction—is growing very tight. This raises the possibility of ships being delivered and no LNG being available, which will greatly increase operating costs due to the requirements to use ultra-low sulphur diesel (ULSD) to meet Emission Control Area (ECA) regulations.

So, to offer a slightly more elaborate answer to the tipping point question, the US is closer today than a year ago but one cannot conclude that the LNG revolution has begun. Of the limited number of Jones Act liner operators, three have already announced projects – Matson being the third – and another has announced intentions to convert existing vessels to LNG. The product tanker market has been effectively replaced over the last ten years so there are limits to the expansion there. I think the greatest opportunities for achieving critical mass in a marine fuel transformation can be found when and if several large harbour services or tug and barge companies either convert existing tugs to LNG or CNG or acquire new tonnage or the top-tier international liner companies announce new construction programs with LNG-fuelled vessels. Either – and certainly both – of these developments would be a critical next step to accelerate widespread LNG deployment.

Marine vessels represent the potential for a large concentrated market for LNG/CNG, and a port that has both ocean going and harbour vessels that need LNG for fuel would surely provide sufficient basis for investments in LNG marine terminal infrastructure for bunkering.

While there is still a way to go until we all agree that the breakthrough has occurred we are seeing some decisions and investments that are the necessary predicate to making LNG a common transportation fuel throughout the country.

***John Graykowski is a Principal of Maritime Industry Consultants specializing in maritime and transportation policy. He is an attorney with experience in staff positions in the House of Representatives and the Senate, and as Senior VP and General Counsel of Aker Philadelphia Shipyard, Inc.**

# 10 Questions on Natural Gas You Need Answered

Sarah Battaglia

Sarah Battaglia has been one of the in-house Copywriters and the Social Media Specialist for Energy Curtailment Specialists since 2011. Born and raised in Buffalo, NY, Sarah holds a Bachelors degree in Business Management and Marketing from the State University of New York at Buffalo.

Being involved in the energy industry, I receive loads of questions regarding natural gas. It's a hot commodity right now so I understand that people want answers. Below you will find ten questions that have been boggling some minds lately.

**Which countries are the largest producers of natural gas?**

Russia, the United States, Iran, and Canada are among the top natural gas producing countries in the world. The largest consuming nations include the United States, Iran, Russia, and China.

**Is it possible to run out of natural gas,similar to how the earth has a limited supply of oil?**

It's impossible to determine exactly how much natural gas is left in the ground until it's extracted, but the Energy Information Administration (EIA) estimates that 2,203 trillion cubic feet (Tcf) can still be recovered in the United States. If U.S. consumption remains at its current rate of 24 Tcf per year, this supply will be enough to last for roughly 92 years. But the U.S. is not the only country producing and consuming natural gas. In 2011, an estimated 6,707 Tcf of natural gas remained in the global reserve. This number continues to fluctuate, but considering that it takes thousands of years to create natural gas, and we continue to extract it at a much faster rate, eventually running out of this resource is a possibility.

**Natural gas is a fossil fuel, so why is it better to burn that other fossil fuels like coal and oil?**

Burning natural gas does result in some nitrogen oxides as well as carbon dioxide, but in much lower quantities (nearly half!) compared to when coal or oil is burned. This is due to the fact that natural gas is less chemically complex than other fossil fuels.

**What is liquefield natual gas?**

LNG is simply natural gas that has been converted into a liquid. When cooled to -260°F, natural gas converts to a liquid form, shrinking its volume and making it easier to store and transport. The process involves removing the heavy hydrocarbons, which results in almost pure methane. The clear, odorless liquid that remains is non-corrosive and non-toxic.

**What's the difference between natural gas and shale gas?**
Shale gas is simply natural gas that is found in shale formations, or fine-grained sedimentary rocks deep within the earth's surface. Obtaining shale gas used to be uneconomical, but with advancements in technology over the past decade, this has become a more popular and cost-effective resource.

**There has been a lot of uproar in the news lately about obtaining shale gas. is hydraulic fracturing safe?**
Though protestors have been arguing that hydraulic fracturing is bringing harm to the surrounding environment, causing earth tremors, and producing dangerous drinking water, government officials have been ensuring that if hydraulic fracturing is approached in the correct manner, it can be done safely and with minimal environmental impact.

**How many people in the U.S use natural gas? And How do i find a supplier in my area?**
The U.S. Energy Information Administration reported 5,355,613 commercial customers and 66,624,457 residential customers in 2012. The safest way to find a reliable natural gas supplier with an exemplary reputation is to work with your local energy consultant. They will usually have great relationships with the top suppliers, and will be able to obtain the lowest rates for your business.

**Is Natural gas expensive?**
According to Chesapeake Energy, the ratio between the price of a barrel of oil and the price of one thousand cubic feet of natural gas (Mcf) is 6:1. The energy contained in six Mcfs of natural gas would be equivalent to approximately one barrel of oil. So between the two sources of energy, natural gas is much cheaper.

**What causes the price of natural gas to fluctuate?**
The price of natural gas typically depends on supply and demand. Since there are so few alternatives for heating and electricity generation, the price may change dramatically if supply or demand varies quickly during periods of peak demand. Factors that could affect supply and demand include weather conditions, petroleum prices, natural gas production, and storage levels. Working with an energy advisor can often help businesses find the lowest rates.

**When is the best time to purchase natual gas?**
If your business is in a state with a deregulated natural gas market, consider looking into supply pricing now. If you are under contract, you can still lock in today's prices for the future.

I hope this helps to clear some things up, but if you still have questions floating around in your mind, feel free to ask! Leave your questions in the comments section below and I'll do my best to provide you with the most accurate information.

# Has shale gas really reduced US carbon emissions?

**Robert Wilson***

The diffusion of fracking has allowed the United States to significantly reduce its carbon emissions and to undergo a renaissance in manufacturing. Or so goes the conventional narrative of shale gas's many promoters. This narrative however faces multiple problems, and faces obvious criticisms of hype and exaggeration.

Vaclav Smil has extensively argued that the "renaissance" in American manufacturing is not worthy of the term. As Smil remarks: "In the past 12 years, America lost 7 million manufacturing jobs, and it got 400,000 back. Would you call that a renaissance? Definitely not. A renaissance is a glorious flowering beyond the previous state. The US will never regain those millions of manufacturing jobs. Never. Never."

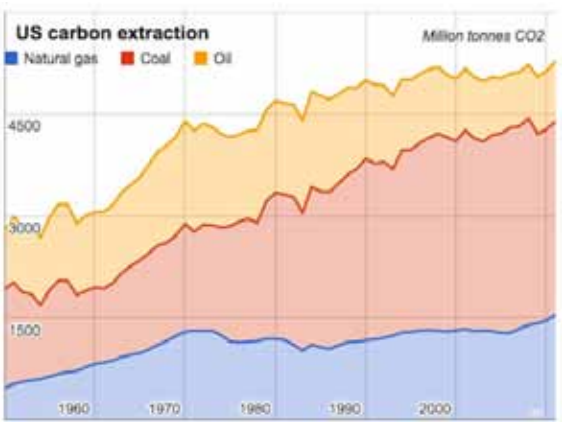
That fracking has resulted in a decline in America's "on the books" emissions is something its proponents and opponents can agree on. Yet, a deconstruction of these emissions cuts in light of the rather obvious globalised nature of carbon emissions shows that these emissions cuts may in large part be illusory. In fact they may be as much as 50% lower than thought.

**Carbon consumption versus carbon production**

Here is the great contradiction in the Obama administration's apparent climate policy. America is to reduce its carbon emissions while simultaneously increasing its carbon extraction. Today US carbon emissions are at their lowest levels in almost two decades, yet the amount of carbon it extracted from the ground, in the form of oil, coal and natural gas, is now higher than ever. The peculiarities of international climate negotiations mean that what really matters, at least to negotiators, is the stuff that you burn in your country. Therefore the graph below is largely irrelevant to America's official carbon emissions. As I will explain later this is rather misguided.

Deconstructing the decline in US coal consumption

American coal consumption reached its historic peak in 2007, and has been in decline ever since. This decline is likely to be inexorable. New EPA rules will essentially rule out new coal power plants from being built, and the resulting reduction in coal consumption is unlikely to be offset by increases in coal consumption in America's manufacturing sector. This transition, away from coal and towards gas fired electricity generation, is one of the key reasons American carbon emissions are down about 12% from 2005 levels. However this move away from coal is not being reflected elsewhere. Consider the United Kingdom. In 2012 it saw a 30% increase in the use of coal to generate electricity. This had three main causes: low carbon prices, more expensive natural gas, and cheaper coal. And the final cause is related directly to the diffusion of fracking in America. Reduction in internal demand for American coal has led to an increase in exports and a decline in international coal prices. This




is reflected in the relative reductions in US coal consumption and production:

US annual coal consumption declined from 1,128 to 889 million short tons between 2007 and 2012, a fall of 238 million short tons or 22%. In contrast, annual US coal production fell from 1,147 to 1,016 million short tons in this period, a fall of 130 million short tons or 11%. This suggests that almost half of US coal consumption that has been displaced by natural gas has been exported. Lower certainly than some commentators have claimed, but not low enough to be easily dismissed.

Coal exports can be split into two categories: those that just replace coal that would be consumed elsewhere, therefore not increasing emissions; and those that result in more coal consumption in other countries. The increase in coal consumption in Europe (where coal is replacing gas) suggests that a significant amount of increased US coal exports, perhaps the majority, are of the latter category. The obvious conclusion is that the emissions reductions from US shale gas are over-stated if you focus purely on Amer-

ica's territorial emissions.

Fracking's emissions cuts: accounting for coal exports

So, how much has fracking really reduced US emissions? To answer this question I will de-construct a recent statement from a pro-shale gas report by the Breakthrough Institute: "It is not the case that reduced US coal consumption has been offset by increased exports of US coal. From 2008 to 2012, annual coal consumption for US electric power declined, on average, by 50 million tons. Over the same four years, annual exports increased by only 14.5 million tons on average." 14.5 million tons is certainly lower than 50 million tons, however this statement is overly dismissive of the coal export problem. We can see this by comparing the emissions saved by the reduction in coal use, and those from increased coal exports.

[A brief digression. Why is fracking reducing US emissions? Coal and natural gas power plants rarely run at maximum capacity. Their utilization rate, normally referred to as their load factor, is a result of the respective running costs. The decline in natural gas prices has resulted in gas power plants running more often, and coal plants less often. Gas power plants emit approximately half as much carbon dioxide per unit of electricity, therefore emissions have declined.]

**Below is a graph of US coal exports since 2007.**

Like most modernised countries the vast majority of US coal use is in the electricity sector (93% in 2012), and the trend in consumption in the electricity sector since 2007 looks like this:

We immediately face a base-lining problem. Between 2008 and 2012 coal consumption declined by 217 million short tons. If we use 2007 as our baseline the decline is 222 million short tons. However if we use 2008 as a baseline the increase in annual coal exports is 44 million short tones over this period, whereas using 2007 gives us a change of 67 million short tons.

The combustion of 1 short ton of coal results in the emissions of 2.86 short tons of carbon dioxide. Therefore, using 2007 as a baseline the increase in annual exported carbon dioxide in the form of coal is 173 million metric tonnes of carbon dioxide (3.2% of annual US carbon dioxide emissions), and 114 million metric tonnes of carbon dioxide (2.1% of annual US carbon dioxide emissions) if we use 2008 as our baseline. Gas power plants have carbon dioxide emissions per unit of electricity of 44-60% of those of coal plants. Therefore if we use 2007 as our baseline approximately 50% of the reduction in US emissions due to coal-gas switching is being offset by exports. The figure is 35% if we use 2008 as our baseline.

This calculation however rests on some uncertain assumptions. It assumes that all of the reduction in coal use were caused by increases in production from natural gas power plants. However, US electricity production declined 2.5% between 2007 and 2012, while wind power increased from 0.8% to 3.3% of electricity generation. Any attribution of reduction in carbon emissions due to fracking has an element of uncertainity attached to it. However this uncertainty is not enough to distract from the key conclusion that a significant amount of these emissions cuts are offset by exported emissions.

**Concluding remarks**

Experience has taught me that energy debates too often resolve themselves into vacuous pro/anti arguments therefore I will conclude by making some obligatory, but obvious statements. The above conclusions are in no way "anti-fracking." These problems are faced by renewables and nuclear energy in equal measure. No, the problem is not fracking, but an unwillingness to fully address carbon exports. That some fossil fuel cuts are partly illusory is obvious, if rarely stated. Think about Britain, which has successfully reduced its emissions, but offset almost all of these reductions by exporting them to countries such as China. And think again about whether one country using less coal, oil, or natural gas will have an obvious impact on carbon emissions. As Mike Berners Lee and Duncan Clarke argue in The Burning Question, you using less coal will result in that same coal being cheaper for someone else, who may then be inclined to use more of it.

So, the Obama administration appears to have a stance where the US should simultaneously increase carbon production, while decreasing carbon consumption. When viewed as serious climate policy this is complete mumbo jumbo. If we are to be serious about climate change then it is time we also be serious about carbon accounting.

*** Robert Wilson is a PhD Student in Mathematical Ecology at the University of Strathclyde.His secondary interests are in energy and sustainability, and writes on these issues at The Energy Collective.**

# Russia's LNG future looking brighter as projects gain pace

Years of unrealised ambition to become a major player in global LNG production appear to be coming to an end for Russia. The past twelve months – and especially recent weeks – have seen a number of developments which strongly indicate that Russia could be a major LNG producer by the end of the decade, though Gazprom's involvement will be less than the company would like. Playing a crucial role will be President Vladimir Putin's decision, towards the end of last year, to liberalise LNG exports – though only under very specific circumstances, for now.

The most dramatic development was the news, a week before Christmas, that the shareholders in Yamal LNG – Novatek, Russia's largest independent gas producer, and the French energy major Total – had reached final investment decision (FID) on the 16.5 mtpa, $27 billion dollar project (pictured above). Initially, Novatek had an 80% stake in the project while Total had 20%; they have just been joined by China National Petroleum Corporation (CNPC), which has taken a 20% stake from Novatek.

Also significant have been announcements by Gazprom that it has awarded the front-end engineering design (FEED) contact for its proposed liquefaction project at Vladivostok and a statement in early January that a third train is being actively pursued at Sakhalin Energy, Russia's only operational large-scale liquefaction project. The project partners there are Gazprom, Shell, Mitsui and Mitsubishi. Gazprom has also been making progress with a proposal to construct a project near Leningrad, though that is still in the early stages.

Yet another significant development in 2013, and another project not involving Gazprom, was the announcement by Rosneft and ExxonMobil that they intend to proceed with LNG development at Sakhalin 1.

If all these projects were to come to fruition, Russia's LNG production capacity would rise from 10 mtpa today to more than 55 mtpa – enough to put it in the top league of LNG producers, along with Australia, Qatar and the United States.

A blistering pace of development . . .

Of the many interesting aspects of the Yamal LNG project, two stand out as particularly fascinating: the ambitious timetable to bring the project on stream by 2017, and the new ships that are being developed to transport LNG year-round through Arctic waters.

There are precedents for large-scale LNG trains having been completed within three years, for example in Qatar, but never before has this been achieved in Arctic conditions. According to Novatek, work on commissioning the first of the three trains will begin in 2016 so that commercial operation can begin in 2017.

The project will also require development of the Tambeyskoye gas condensate field, construction of transport infrastructure, including a sea-port and an international airport at Sabetta, and up to 16 ice-class LNG carriers.

Adam Sieminski:

# Could the U.S. become a net oil exporter?

The Energy Information Agency (EIA) has predicted that natural gas production in the U.S. will continue to grow at an impressive pace. Right now output is close to 70 billion cubic feet a day and is expected to reach over 100 billion cubic feet per day by 2040. In an interview with Oilprice.com, EIA Administrator Adam Sieminski says the trend is likely to continue without hitting a geologic "peak", and along with this trend will come new marketing opportunities for America.

**The EIA has noted that after two years of declining production, U.S. coal output is expected to increase in 2014, forecast to rise almost 4%, as higher natural gas prices make coal more competitive for power generation. At the same time, there is concern about the EPA's proposed new carbon emissions standards for power plants, which would make it impossible for new coal-fired plants to be built without the implementation of carbon capture and sequestration technology, or "clean-coal" tech. Is this a feasible strategy in your opinion?**

Well, the facts as you laid them out are certainly what the EIA is looking at. Natural gas prices have gone up, so in 2013, we already saw some recovery in coal at electric utilities. As a consequence, energy-related carbon dioxide emissions actually climbed in 2013 and probably are going to do so again in 2014 for the reasons that you stated.

Longer term, even without changes by the Environmental Protection Agency, there'll be coal retirements, and the amount of coal being burned in the US will eventually come below the amount of electricity being generated by natural gas. So sometime after the year 2030, we will have more electricity in the US being produced from natural gas than from coal.

**What can we expect from U.S. onshore natural gas production over the next two years; over the next five years? And where will production increases offset declines?**

Well, the EIA has been pretty clear on this in our Annual Energy Outlook Reference case for 2014, which we published in mid-December. We reiterated what we said the previous year: natural gas production in the U.S. is going to continue to grow very strongly. We are close to 70 billion cubic feet a day of output now.

That number will be over 100 billion cubic feet a day by 2040. Shale gas will be easily 50% or more of production by 2040.

We also see increases in natural gas production from geologic formations that we don't consider to be shale gas. We think that there might also be some production, believe it or not, from Alaska, because the economics ultimately will favor construction of an LNG facility in Alaska that would allow production from the associated gas in the North Slope of Alaska.

Just in the last five years, we've seen natural gas production in the U.S. from shale go from about five billion cubic feet a day to nearly 30 billion cubic feet a day–a huge increase. A lot of that is coming from places like the Haynesville—and more recently the Marcellus in Pennsylvania and West Virginia. In our view, those production trends are going to continue without the likelihood of running into a plateau from a geologic standpoint.

**How do you see future extraction, development and commercialization of oil and gas resources in the Americas playing out over the next 5-10 years?**

Adam Sieminski: Well, the big new opportunities, I think — certainly in the U.S. and Canada — lie in the development of shale resources. There are oil and gas shale resources in places like Argentina, Mexico, Columbia, and elsewhere across the Americas. Whether or

not the very rapid development of shale resources in the U.S. can be duplicated in a lot of other countries—even in the Americas—remains to be seen. Certainly there has been some interesting progress in developing shale resources in Canada and Argentina.

I've been hearing from many people that they're quite hopeful there will be developments in shale in Colombia, and given the constitutional changes that have now been agreed in Mexico, that opens up an opportunity for Mexico to step into this area.

One of the things that is happening is the increase in oil production in the U.S. and the fact that we have very sophisticated refineries with very strong technology, while relatively low natural gas prices are allowing us to run our refineries at higher utilization rates and dispose of surplus products—by exporting petroleum products like gasoline and diesel fuel—into Latin America and Canada.In a sense, this creates a manufacturing opportunity for the U.S. to take a raw material, process it, and sell it abroad. It also fits in pretty well with the fact that a number of countries in Latin America have had difficulty in building and upgrading their own refineries. So it's opened up a marketing opportunity for the United States to take advantage of.

**In its latest report, the EIA notes that the Americas accounted for 20% of global natural gas trade, and while 80% of that was via pipeline, the rest was traded as LNG. How do you see this proportion changing over the next 5-10 years?**

Well, I suspect that we're going to see more of both. Our longer-term outlook shows U.S. pipeline exports of natural gas to Mexico going up, and we also see LNG exports from the United States increasing. We're not responsible for permitting. What we try to do is look at the economics. We run our national energy modeling system to basically say, "What would the economics do if you let them run?" And that shows we're likely to see increases in exports of both LNG and pipeline gas.

Interestingly, the model also says that there's plenty of production to do that and still allow demand in the U.S. to go up considerably. We're seeing demand increases in natural gas use by refineries; it's a big refinery fuel. And in the industrial sector, we see significant gains in natural gas consumption occurring in areas like bulk chemicals, food processing, and elsewhere. And then the biggest increases in natural gas may come from electric utilities, which will likely be using more natural gas relative to coal to provide electricity growth in the United States.

**Is the U.S. Department of Energy moving too quickly or too slowly to approve LNG exports to non-FTA countries?**

I think that the Department of Energy's Department of Fossil Energy, which is responsible for permits, is moving exactly the way it should under the law to make the kinds of findings necessary from a legal standpoint. I wouldn't characterize it as too fast or too slow. I would say that from what I can see, it's just right given the legal framework.

**When could we expect the U.S. to become a net gas exporter?**

Adam Sieminski: The EIA's forecast is that the U.S. will become a net exporter of natural gas before the end of this decade. We're already a net exporter of coal. In terms of electricity, most of our trade is with Canada, and that never really seems to have been much of an issue. The U.S. is also a net exporter of petroleum products, so we now export more gasoline and diesel fuel than we import. We import a lot of oil products, particularly into the East and West Coasts. But we are a big exporter, mostly from the Gulf Coast, with the increase in refinery utilization down there. The overall picture now is one in which the U.S. trade deficit is being reduced by growing oil and petroleum product exports.

The only big outstanding question is: could the U.S. potentially be a net exporter of crude oil? In the EIA's Reference case forecast, that doesn't seem likely. Despite the fact that our production is rising while demand is falling, we're still importing about five million barrels a day net of of crude oil and products. It doesn't seem likely that net imports are going to go to zero–at least not given the facts as we currently see them. It's possible, in a high petroleum resources case combined with a technology and policy-driven low demand case, but not probable.

One thing you want to keep in mind is what it would mean, exactly, if the U.S. were completely self-sufficient in energy. Some people like to use the phrase, "energy independence." We would still be part of a global trading system in energy, and particularly petroleum products and crude oil. And if oil prices go up globally, they're going to go up in the United States. If there's a geopolitical problem somewhere or a weather problem somewhere—anything—the U.S. would be impacted just as it has always been. The U.S. has a lot of interest in what's going on around the world, in the Middle East and elsewhere, regardless of whether it is independent or self-sufficient in fuels. Those political and economic interests will remain whether we become an exporter or not.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Mohammed bin Saleh Al-Sada:

# Qatar's petrochemical output to 23 million tones per year by 2020

Mohammed bin Saleh Al-Sada says the US shale revolution will not change Qatar's strategy of becoming an LNG superpower

**What future role does Qatar envisage in supplying gas long-term to the UK and what are the investment opportunities this will create?**

"The UK is an important customer of Qatar's LNG, and we expect it to remain as such, particularly in light of the large investment we have made in the LNG re-gasification terminal at South Hook near Milford Haven. This was Qatar's first participation in a foreign downstream terminal, and is viewed as one of the major contributors to the UK's energy diversity.

South Hook LNG Terminal, part of the Qatargas 2 integrated Value Chain, is one of the largest Liquefied Natural Gas re-gasification terminals in Europe. It plays a major role in strengthening the strategic partnership between the UK and Qatar, one of the most reliable energy suppliers. It provides the UK with a significant proportion of its natural gas requirements, and has the capacity to process 15.6 million tonnes of LNG annually, representing up to 20 per cent of the UK's natural gas demand.

A new Long-term deal was recently agreed to supply the UK with 3 million tonnes of Qatari LNG per year. This is seen as vital for the future energy security of the UK, contributing to energy diversity of supply in order to meet UK's energy requirements, and offering investment opportunities to both parties.

We are also evaluating a proposal to install a combined heat and power plant at South Hook in order to use the available heat from the re-gasification process to generate electricity for the grid."

Related Articles

**Qatar considers more UK energy investment**
**12 Jan 2014**

There is a great deal of concern in the UK over rising electricity and energy prices – do you think the country is paying a fair price for natural gas or is gas still cheap compared with other major fuel sources?

"As a power source, gas remains extremely attractive economically. It is efficient in generating power, and it is very clean compared to coal and oil. Price-wise it remains significantly cheaper than oil in the UK on a thermal basis."

**What kind of opportunities in the UK energy industry is Qatar interested in pursuing? Would you look at downstream ventures in terms of distribution/marketing?**

Al-Sada: "Qatar is certainly interested in various investment opportunities in the UK, particularly in the LNG and petrochemical businesses. Our international equity participation is looked after by Qatar Petroleum International (QPI), which is Qatar Petroleum's main vehicle for international activities, and which is entrusted with making strategic commercial investments in the energy sector worldwide. The company aims to acquire assets through exploration & production projects and engage in strategic partnerships and business investments worldwide in the fields of petrochemicals, gas, power, refineries and LNG receiving stations.

QPI is always interested in the wholesale selling and transportation of LNG to the UK, and that is Qatar's strength as a major LNG producer.

The distribution and marketing of downstream products is currently the responsibility of Qatar Chemical and Petrochemical Marketing and Distribution Company (Muntajat), which holds exclusive rights to purchase, market, distribute and sell Qatar's production of chemical and petrochemical

regulated products to the global market."

How has the development of shale gas in the US changed Qatar's long-term strategy in terms of gas?

"On the long term, our strategy remains essentially unchanged, thanks to our flexibility and our ability to respond to changes in the global gas market.

When we embarked on the massive expansion of our LNG business some 20 years ago, a key objective was to ensure we could respond to changes in the global gas market. This was essential, in order for us to mitigate the risk exposure of hub-based LNG prices such as in the US. This is something no one else was willing to do at that time. We deliberately set out to have the flexibility to vary the geographic balance of our sales.

Therefore, we do not consider the US shale gas revolution to be a game changer but rather a validation of Qatar's strategy. Global gas demand has been growing consistently and we have had the flexibility to re-plan our LNG marketing to meet growing demand in Asia and elsewhere.

Qatar's role as an undisputed leader in the global energy market is set to remain for years to come."

**What are the current plans concerning the next round of development of the North Field and what part could British companies hope to play?**

Al-Sada: "We have achieved our initial strategy with respect to our North Field, which include achieving our target of 77 million tonnes of LNG export capability, and supplying all the needs of local power and industrial consumers. The commissioning of the Barzan gas project, starting in 2014, will enable us to meet growing local demand for at least the next 20 years.

Currently, the major objective for the North Field is to conduct a comprehensive evaluation of all the reservoir, well data and models in order to develop the optimum strategy for the long-term future of the field.

But even though the North Field will be at plateau production, we still expect to spend around $3 billion of capital expenditure over the next 5 years, excluding Barzan, and we hope that British companies will want to compete for the contracts to deliver these projects."

**Could a natural gas version of OPEC work as a mechanism to provide stability to global gas markets?**

Al-Sada: "A gas version of OPEC would not work.

This is because the industry structures for gas markets and oil markets are very different in terms of supply commitment, costs, liquidity, and competing fuels.

We currently have the Gas Exporting Countries Forum, which is a gathering of producers working together to advance the gas industry, and to promote the use of gas and the development of resources.

The Forum has no provisions or intentions to influence or interfere in gas markets, including production volumes and prices."

**What structure do you advocate in terms of gas pricing – should this be somehow linked to oil?**

"The international natural gas trade is geographically divided between three regional markets: the US, Europe (which is supplied mainly by pipelines), and Asia (which is supplied by LNG).

These regional markets determine natural gas prices differently, depending on the sources of supply, geographical and political factors, and the level of market liquidity and maturity.

The discussion about the relationship between the prices of natural gas and oil is not new, however it has intensified over the last few years as the ratio of oil to natural gas prices in certain markets reached high levels and distorted the overall market stability.

As for LNG pricing mechanisms, Qatar has always supported the view that long term contracts based on oil indexation are a more predictable and reliable mechanism for all concerned in the industry. What the industry needs is a stable and fair price to justify the level of investment needed to meet future demand for natural gas. In our view, it is the investments we make today that will determine the resources to be available in the market tomorrow."

**How much of a concern is the security of LNG supply routes out of the Gulf via the Strait of Hormuz? Are there contingencies in place if it were shut off for any reason?**

I believe that no single party has an interest in closing the Straits of Hormuz, through which 17 million barrels of crude oil is shipped every day.

Throughout several decades of geo-political turmoil and three Gulf wars, never was this strategic waterway ever closed.

Any conflict that would hinder the free flow of energy supplies does not concern us in this region alone, but would concern the entire world, which fully understands the ramifications of any action affecting the straits.

The government of the State of Qatar maintains a policy of seeking peaceful resolution to differences and conflicts in this region and on the global level. This, among other things, will mitigate any risks or dangers posed to international trade routes, particularly energy supplies."

**What are the opportunities for oil in Qatar – will you be opening up new acreage?**

"Qatar has been and remains a relatively small producer of crude oil, compared to its neighbors. During the 1970s, Qatar's oil production peaked at around 500,000 bpd. As fields aged, production started to decline until it reached around 300,000 bpd in 1987. In the early 1990's, a number of production sharing agreements were signed with various international oil companies which resulted in Qatar's total crude oil production to exceed 800,000 bpd in 2006, before it settled in 2008 at its current level of 700,000 bpd.

The results of exploration activities were initially disappointing and some exploration blocks were relinquished for lack of potential. However, during the last few years, a number of new exploration and production sharing agreements were signed to explore for both oil and gas. QP is currently evaluating the possibility of opening up new areas for further exploration.

Although Qatar's petroleum production has grown steadily for many years, its oil fields are maturing. We look to offset further declines by the use of Improved and Enhanced Oil Recovery Techniques, which are currently being used in several fields.

A major strategy rethink took place on the fields under Qatar Petroleum's direct operation. Major reservoir and field-wide studies have been initiated to re-assess the reserves, and the long term production prospects for each field. Re-development will be pursued in light of the outcome of the studies."

**Qatar has been an innovator in terms of LNG and most recently GTL – will we see more in terms of making strategic investments in terms of how you monetize the gas downstream?**

"Qatar Petroleum has embarked on an ambitious plan to further develop Qatar's downstream sector, consolidating its position as a major player in the industry. Our long term hydrocarbon development strategy is opening new opportunities for further downstream development, which includes raising Qatar's petrochemical output to 23 million tones per year by 2020.

We are investing in mega-expansion schemes that are designed to add further value to our natural hydrocarbon wealth. Such projects include Al-Karaana Petrochemical Project, a QP-Shell joint venture. This world-scale steam cracker will mainly produce mono-ethylene glycol, LAO and OXO alcohol, and is projected to start in 2018.

Another project to mention is AL-Sejeel, a JV between QP and QAPCO, which will use ethane, butane and GTL naphtha as feedstock to produce Ethylene (1.5 million tonnes per year), High Density Polyethylene (1 million tonnes per year), Linear Low Density Polyethylene (550 thousand tonnes per year), and Poly Propylene (540 thousand tonnes per year).

Qatar's downstream development includes the Gasoline and Aromatics project (with a capacity of 1 million tonnes per year of Paraxylene, 500,000 tonnes per year of Benzene, and 60,000 barrels per day of gasoline); the Linear Alkyl Benzene (LAB) Project (with a capacity of 100,000 metric tons per year of LAB); and the Butadiene Synthetic Rubber plant (with an approximate capacity of 170,000 tonnes per year of butadiene and rubber derivatives).

The Laffan Condensate Refinery Project Phase 2 (LR2) is one of the important downstream projects in Qatar. The new condensate refinery is similar to the existing LR1 refinery, and has a processing capacity of 146,000 barrels per day. The additional product capacity will feed other downstream projects, in addition to increasing the quantity of refined products like diesel and jet fuel for the local consumption as well as for exports."

# China's Natural Gas Paradigm Shift

**Tim Daiss and Michael Economides**

China practically dominates the energy news of the day. The long-term effects will be far wider than the stories now fixating the American public.

In 2013 the big news coming out of China's Oil Patch was Beijing's startling, if not long overdue, corruption allegations against one of its state-owned oil majors, CNPC, with corresponding executive resignations, and potential fall-out for more of the same.

Now, however, attention has shifted to natural gas amid Beijing's goal of diversifying the country's energy mix further away from coal-fired power plants to gas fired plants, in hopes of reducing record levels of air pollution, health problems and mounting public discontent. State media are covering this energy paradigm shift and the exploration for, and supply and demand of gas and the companies that will harness it, bringing the commodity to China's polluted-by-coal masses.

Novatek, Russia's second largest natural gas producer, signed an accord that will allow it to supply liquefied natural gas (LNG) to CNPC for a 15-year period. Novatek will sell at least 3 million mt of LNG a year to CNPC on delivered ex-ship terms, with the price indexed to the Japanese Crude Cocktail.

While this marks the continued thawing of energy relations between the two countries that existed for decades, it just as importantly confirms Beijing's commitment to increase natural gas-fired capacity for power generation, increasing from 26.4 gigawatts (GW) in 2010 to a goal of 56 GW by the end of 2015.

Along with this uptick in all things gas in China, there are some explicit winners. Some that will benefit will not only be those suffering the ill-effects from air pollution attributed to coal-fired power plants (especially in Beijing), but the country's economy as well.

In october 2013 China's Global Times reported on a white paper released two days earlier in China by General Electric (GE) that stated the country will lead global gas demand, while gas usage will save the nation around 5 trillion yuan ($820 billion) in environmental costs by 2025.

On the corporate side a company that is posed to come out on top is Hong-Kong listed China Gas Holdings, China's leading piped natural gas operator and distributor. Last week China Gas said that the government's policy to cut coal use will benefit them as more cities take up the task of cleaning up their air.

Eric Leung, China Gas deputy managing director and chief financial officer, said his company expects to start earning revenue from the policy change from 2016 and for sales to jump as much as five-fold from wider gas usage to replace coal.

Leung also said during a media interview on October 17 that gas deliveries might reach 40 billion cubic meters by 2020 from an estimated 8 billion cubic meters this year. Growing sales will gradually push dividend payouts toward 30% from 23% for the year ended March 31, he said.

However, Leung added that China Gas is not making a profit on half of its 195 city networks because the projects were either new and had not yet reached their break-even point or because they had yet to begin operations. He said he expects the number of profitable city projects to rise to 150 by 2015.

The company executive also said that China Gas plans to extend its mainland network of compact natural gas (CNG) and LNG refueling stations to 600 by 2015, an increase from 165 currently located across 38 cities. He said that these stations have the widest profit margin, approximately 35%, of all of China Gas's products.

China Gas will also start LNG bunkering next year, according to an October 21 report by Sino Ship News. Liang Yongchang, China Gas vice president, said the company is currently updating facilities at some port terminals and will provide LNG bunkering service on the Yangtze River from next year.

"There are lots of vessels which will be converted to LNG power, so there is a big potential in the LNG bunkering market," Liang said. He added that China Gas will first sign cooperation deals with shipping companies and set up bunkering terminals according to these shipping routes.

In tandem with its development, China Gas announced in September that it had been included for the first time on the Forbes "Asia's Fab 50 Companies" list for 2013, which ranks the best large-scale companies in the region.

China Gas has a $5.1 billion market-cap and five-year average sales growth of 53%, operating income growth of 56%, and earnings per share (EPS) growth of 24%.

To date, China Gas owns a total of 205 natural gas projects, including exclusive piped gas develop-

ment rights in 195 cities and regions, nine natural gas pipeline transmission projects, one natural gas exploration project, as well as the license to import and export LNG and other fuel products in China as well as 44 liquefied petroleum gas (LPG) distribution projects.

However, China still has numerous hurdles to overcome as it develops its natural gas sector, including high costs of developing gas-fired power plants, according to Zhang Guobao, former chairman of the country's National Development and Reform Commission (NDRC). The Global Times said that Zhang made his remarks at the forum announcing the release of GE's white paper.

"On the one hand, the power generation enterprises found it difficult to make profits due to high natural gas cost and lower prices fixed by the NDRC; on the other hand, the government is hesitant to raise power prices in consideration of the pressures of inflation," he said.

Another problem is what Reuters called on Wednesday "disappointing [gas] production growth coupled with insufficient pipeline and storage capacity." Likewise, Zhou Dadi, a NDRC Energy Institute senior research fellow said at the forum that a lack of comprehensive nationwide gas pipe network and financing mechanism are the other challenges for the development of natural gas in China.

In the near term, China will likely have a natural gas shortage as winter kicks in. On Friday the NDRC said the gap between supply and demand throughout the winter and into next spring could be significant, and the situation could get worse in case of continued bad weather.

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# Japan to Quit Energy Reliance on Qatari LNG

Japan's impending decision to quit the usage of the costly liquefied natural gas (LNG) from Qatar will cause a severe downturn in global demand, which will result in massive reduction in price and provide Pakistan the best opportunity to negotiate the best affordable deal with the Qatari authorities, says a monthly journal of Argus, Global LNG.

Japan became the main importer of LNG in the world as it currently imports 4.193 trillion per annum.

The country known as the Land of the Rising Sun started importing LNG to cater to its energy needs after the Fukushima nuclear disaster in March 2001.

In the wake of the ballooning fuel cost because of costly import of LNG from Qatar at around $16 to $17 per MMBTU after abandoning the nuclear energy, Japan has decided to reverse its energy policy and decided to use the nuclear power again to run the wheels of its export-oriented economy but after ensuring safety measures, according to the journal.

The post-Fukushima shutdown of nuclear reactors has added fuel costs of $35 billion for the year 2013-14, ending March 31, with utilities forced to maintain their increased use of replacement thermal fuels such as LNG, oil and coal to make up for the lost nuclear output, it said.

Arshad H Abbasi, an energy expert, currently associated with a local-think tank, SDPI, said the landed cost of LNG from Qatar to Japan hovers around $16 to $17 per MMBTU, given that the distance by sea between Qatar and Japan is over 6,000km. However, in an interview published earlier in The News, Board of Investment Chair-

man Dr Miftah Ismail said that Pakistan may import LNG at a cost of $17 per MMBTU, keeping in view prevalent market prices.

Abbasi said that the distance between Qatar and Karachi Port is not more than 400km and so, the price of LNG should not go beyond $10 per MMBTU.

He referred to the Indian LNG deal with Qatar, saying that the LNG price stands at $10 $12 per MMBTU, and in the current financial year, the LNG price for India did not exceed the figure of $11 per MMBTU.

Abbasi said that the Karachi Port is nearer to the Qatar Port than India's, so the CIF (Cost Insurance Freight) should be less, adding that there are reports that powerful politicians in the government want to import liquefied natural gas at $17 $18 per MMBTU in Pakistan for the next 15 years so that they can earn commission between $6 and $7 per MMBTU.

Courtney Weaver



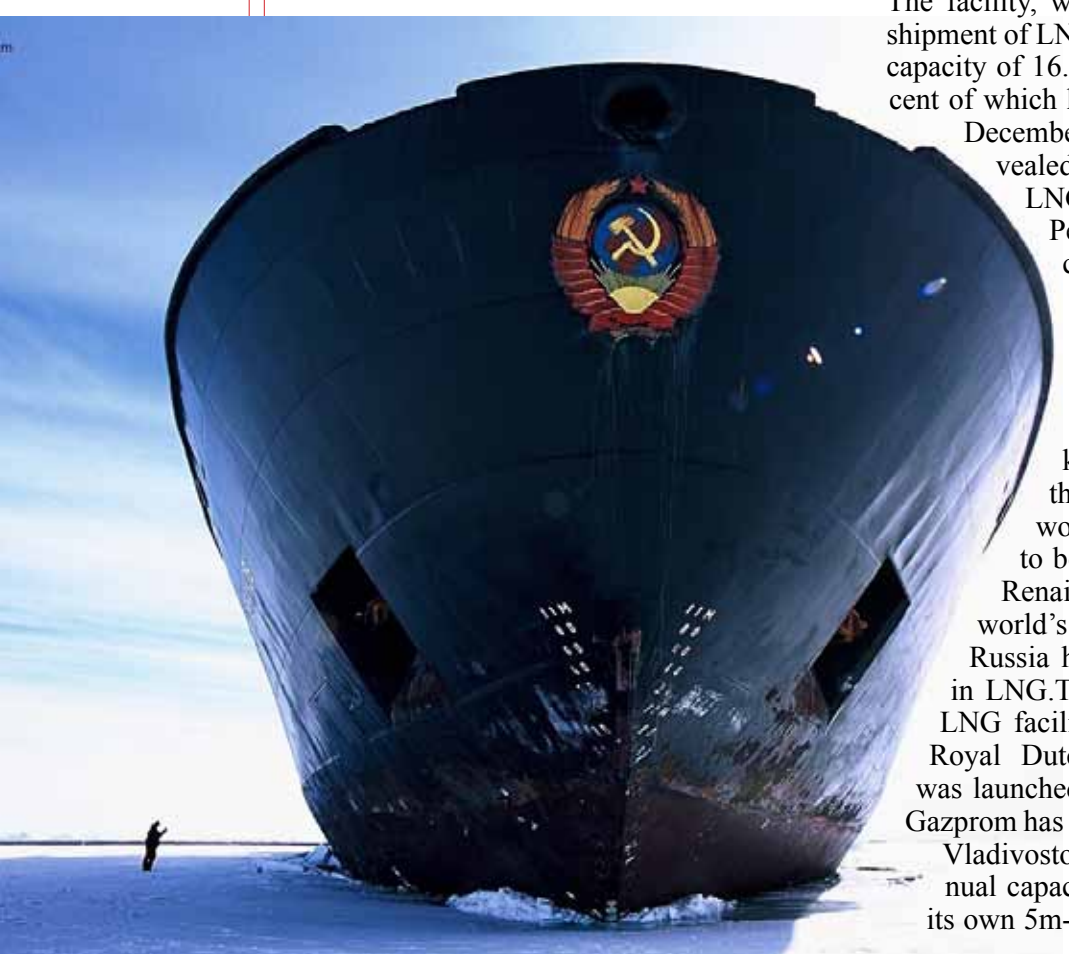
# Novatek's bet on LNG challenges Gazprom's dominance

Deep in the desolate tundra of Russia's Yamal peninsula, Vyacheslav Shaverin is showing off the oil and gasfields that turned Novatek into Russia's largest independent gas producer.

"In 1994 when Novatek started working here, the work wasn't very technically advanced, there was practically no infrastructure," the manager of the company's fields in Tarko-Sale says. "These days we have high-tech, imported equipment. We are pumping 1m cubic metres of a gas a day," he adds.

Over the past 19 years, Novatek has transformed itself from an oil-and-gas upstart to a formidable competitor to state giant Gazprom thanks to greater efficiency, higher returns and one powerful shareholder.

Now comes the next phase of its development.



Near the end of 2013, Vladimir Putin signed into law new amendments to break-up Gazprom's gas export monopoly and allow Novatek and oil giant Rosneft to push forward with their existing liquefied natural gas projects and start selling LNG abroad.

Since 2007, Novatek has been constructing its first LNG facility on the northeastern corner of the Yamal Peninsula, together with France's Total, which holds a 20 per cent stake in the project, and now China's CNPC, which acquired its own 20 per cent stake last month.

The $27bn project includes more than 200 wells, gas treatment facilities and a liquefaction plant, as well as more than a dozen state of the art icebreaker tankers that the company says will be able to navigate the ice year-round.

The facility, which is due to deliver its first shipment of LNG by 2017, will have an annual capacity of 16.5m tonnes a year, up to 70 per cent of which has already been contracted. In December, government documents revealed Novatek had plans for a second LNG facility on the nearby Gydan Penninsula that will double the company's total LNG production between 2020 and 2025.

Novatek's expansion comes amid a wider drive by the Kremlin to double Russia's share of the global LNG market to 10 per cent by 2020. By that year, up to 15 per cent of the world's gas consumption is likely to be in the form of LNG, predicts Renaissance Capital.Long one of the world's largest hydrocarbon producers, Russia has nevertheless lagged behind in LNG.Today, the country has just one LNG facility in operation: Gazprom and Royal Dutch Shell's Sakhalin-2, which was launched in the far east in 2009. Now, Gazprom has plans for a second LNG plant in Vladivostok, with up to 15m tonnes of annual capacity, while Rosneft is preparing its own 5m-tonne-capacity plant on Sakha-

lin. However, both projects will not be ready until 2018.

"Ten years ago Gazprom didn't really support LNG. They were largely focused on building new pipelines," says Vladimir Milov, Russia's deputy energy minister in the early 2000s who is now a member of the anti-government opposition. "Now Russia is lagging behind other natural gas producers who are focusing on LNG", such as Qatar.

By contrast, Novatek has expressed a clearer interest in LNG early on, investing in the Yamal-LNG project even before it was clear the government would definitely liberalise the market, much in the way it helped to develop Russia's wet gas market.

"In Russia gas and oil had always been two separate businesses. You either produced oil or gas and if there was a liquid component you would just get rid of it," says Ildar Davletshin, an oil and gas analyst at Renaissance Capital. "Novatek was really a pioneer in Russia because it saw the value in wet gas."

Over the past six years, Novatek's annual production of natural gas has doubled. The company is now responsible for 10 per cent of Russia's natural gas output and 19 per cent of natural gas deliveries to the domestic market, a feat given Gazprom's inherent advantages.Analysts say Novatek managed to increase its domestic market share and win out from clients from Gazprom thanks to being more efficient and less bureaucratic. Novatek's ownership structure, they add, did not hurt either.

In 2008, it was revealed that Gennady Timchenko, the tycoon who has longstanding links to President Vladimir Putin, was one of Novatek's main shareholders, with his stake disclosed at slightly more than 23 per cent in 2009. While at one point Novatek might have risked being the target of a hostile takeover, the company's management found "a smart solution" in the form of Mr Timchenko, says Mr Milov. "They found this political protection umbrella that saved their independence and also allowed them to emerge as a powerful competitor."

Novatek and Mr Timchenko have repeatedly denied that the company has benefited from Mr Timchenko's links to Mr Putin.

In an interview with Russian daily Kommersant in October, Mr Timchenko attributed the government's decision to liberalise the gas market to the simple question of Russia's survival in the global LNG market.

"Neither Rosneft nor Gazprom can be competitors of our project yet. We will be up and running much earlier than they will. We will already be in the market when they are only just entering it," Mr Timchenko said describing the two state groups' projects which won't be launched until 2018.

"And we are really running the risk of losing the competition with Australia, Qatar and the US, among others. Novatek is a Russian company too, so what difference does it make who supplies LNG?"

While Novatek has managed to gain ground against Gazprom, it has recently found itself up in closer competition with state-owned Rosneft, which has made a new push to diversify from oil to gas, since Igor Sechin, the former first deputy prime minister and an ally of Mr Putin, returned to the company in 2012.

Shortly after Mr Sechin's return, Rosneft won a multibillion-dollar contract to supply gas to Russia's state power company Inter RAO, beating out Novatek which had supplied Inter RAO's previous contract.

Rosneft's entrance into the LNG market will only turn up the rivalry between the sector's three main players, predicts Mr Milov. "Now you have three centres of influence all connected to people in power."

While Rosneft recently came head-to-head with Novatek and Gazprom during a fight last year over control of SeverEnergia, a gas producer in Russia's far north, both sides have been keen to play down the rivalry.

"I have not heard anything about a war," Mr Timchenko told Kommersant in October. Two months later, Novatek announced it had reached a deal to buy Rosneft out of SeverEnergia through an asset swap.

# Egypt scrambling to meet summer energy needs

Egypt will need to import an additional $1 billion worth of petroleum products and secure significant natural gas supplies as it scrambles to meet energy needs for the summer, Oil Minister Sherif Ismail has told .

One government after another has struggled to cope with energy crunches, and Ismail said this coming season would be no exception.

Failure to find a solution could frustrate Egyptians, who rioted in the past over long lines at gas pumps just before the army toppled Islamist President Mohamed Mursi.

Political turmoil since a popular uprising ousted autocrat Hosni Mubarak in 2011 has paralysed decision making. Disarray in the energy sector will take time to fix, even after a new government replaces the army-backed interim administration.

"Of course there are needs," said Ismail, adding that efforts to import badly needed natural gas may not succeed. "The intention is to (make available) liquefied natural gas (LNG) and (to get) LNG facilities in operation before the summer ...It is our prime concern and intention to solve this problem if not for this year by 100 percent then at least for the years yet to come."

Egypt in October 2013 tendered for a floating terminal needed to import LNG. An official said at the time that the government wanted the terminal in place by April, before temperatures rise and consumption spikes.

The tender has not yet been awarded, and experts say that time has run out for a terminal to be delivered and installed before the summer.

Ismail said the alternatives to importing LNG include shifting to using more expensive fuel oil and encouraging Egyptians to conserve energy during peak hours.

These steps may not suffice. Analysts say about 75 percent of electricity production in Egypt is dependent on gas, not fuel oil.

Saudi Arabia, Kuwait and the United Arab Emirates extended an economic lifeline to Egypt after the army ousted Mursi after mass protests against his rule.

Deeply mistrustful of Mursi's Muslim Brotherhood movement, these Gulf Arab states pledged billions of dollars to the army-backed government, including petroleum products.

Egypt has said it has received $4 billion in fuel products from Gulf nations since Mursi's ouster. Ismail said Egypt would require more imports for the summer.

"The first estimate...is that we will need to import petroleum products of around $250 million per month during the four summer months," Ismail said in an interview.

Not all Gulf countries were generous with the government after Mursi's ouster. Qatar, which backed the Brotherhood, sent Egypt LNG shipments last summer but negotiations for further supplies stalled over political tensions.

The growing population of 85 million has kept energy demand steadily rising so that it now outstrips the production of oil and gas from fields in the Western Desert, Nile Delta and offshore.

Compounding the problems, the government fell into heavy debt to foreign energy firms which Egypt needs to help it exploit gas reserves that could enable the country to end power cuts and bolster export income.

Instead, surging demand has caused Egypt to divert high levels of gas produced by foreign companies such as BG Group and promised to them for export.

Ismail said that "the gap between production and consumption" is caused mainly by the fact that Egypt has not developed its available reserves.

**SUBSIDY BURDEN**

Egypt's energy troubles weigh heavily on the economy. Talk of cutting fuel subsidies costing $15 billion a year has produced limited results.

Successive governments have feared that raising energy prices could trigger unrest in a country where street protests have helped remove two presidents in three years.

Ismail, an engineer who held senior posts at several state-run energy firms before his appointment as minister last July, says the interim government will take the first steps in a reform programme that would see subsidies cut by 25 to 30 percent in five to six years.

A smart card system for fuel purchases by drivers launched during Mursi's year in office should be operational within three months, he said. The government hopes the initiative will allow it to analyse fuel consumption data before enacting reforms.

Ismail acknowledged that subsidy spending in 2014 could exceed the targeted 140 billion Egyptian pounds ($20.11 billion), saying that industrial needs may increase in the second half of the financial year which ends in June.

"The subsidy issue is crucial," he said, adding that increasing energy consumption and the government's target of seven percent economic growth requires subsidy reform and efforts to diversify the energy mix.

"Ninety-five percent of energy consumed depends on crude oil and natural gas. The current energy mix doesn't really work for Egypt, it is not secured, it is not economical, and it is not sustainable," he said.

For now, Egypt is aiming to increase its natural gas output even as the companies that produce it warn that political and economic turmoil will lower their output.

Ismail said that Egypt aims to increase its natural gas output by 1,800 million cubic feet this year, up by 35 percent from the current production level of 5,100 million cubic feet.

Turkey – Iraq - Kurdistan:

# Oil triangle

**Nikita Alentyev**

One of the seemingly regional conflicts of market interest which has a tangible international impact factor is the Turkey – Kurdistan – Iraq oil triangle. The yearend saw tensions growing on the issues with an alleged deal between Ankara and the government of Iraqi Kurdistan on oil supplies. Iraq promised to take measures to punish the two parties of a supposed tacit collusion, as well as blacklist any companies dealing with oil piped to Turkey from Iraq's autonomous northern region without permission from Baghdad. Mrs Olgu Okumus, Director of Strategy at LEO advisors and an Energy analyst, and also a lecturer at the Paris SciencePo, shared his expert opinion about the situation around Turkey, Iraq and Kurdistan with the Voice of Russia.

Mrs Olgu Okumus explains why Iraq's threat may have been ostentatious, when in fact the country cannot afford to risk the relations with Ankara:

'For Baghdad Turkey is the first import destination, so slowing down the economic relation with Turkey or even blocking the economic relationship with Turkey would seriously jeopardize the Iraqi economy. There's also a second point, both countries are under the Iraqi perspective of exporting its gas. If there's a risk, if there's a blockage in Ankara – Baghdad relations, exporting its gas is going to become very difficult for Iraq.'

Following this logic an Iraqi Parliament Speaker Osama al-Nujaifi visited Turkey on February 5th to underline the importance of reaching a joint decision by the federal government in Baghdad and the Iraqi Kurdistan Regional Government on the controversial issue of planned pipe oil exports to Turkey. Al-Nujaifi aimed to normalize bilateral relations between the two neighbors. Mrs. Okumus takes a look at the Turkish side of the talks:

'From Turkey's side, Iraq is an important export destination for many sectors of the economy. For construction and for the export of all the different goods this has become an important export destination. And the second point is that Turkey is still dependent on oil that it imports from Iraq and expects to import natural gas in the nearest future. So both sides have planned reasons to normalize relations.'

The agreements on the issue of oil are as yet at their first stages. Peaceful resolution is the only way to go in a situation where a loss is overwhelming for all the sides involved. Mrs. Olgu Okumus outlines the time frame for a prospective agreement:

'Both sides need to resolve the problem as soon as they can. For Turkey it's before the election, so before the end of 2014 because Turkey needs to show that it has normalized the relations with its neighbors and it has neared the energy something. That could be the only time frame I can give.'

The Kurdistan Alliance in the Iraqi Parliament confirmed that progress had been made in the talks between the federal government and KRG regarding the export of oil. In the end, the 'triangle' analogy may have little to do with oil disappearing.

The economics of shale oil:

# Saudi America

The benefits of shale oil are bigger than many Americans realise. Policy has yet to catch up

Dennis Litghgow is an oil man, but sees himself as a manufacturer. His factory is a vast expanse of brushland in west Texas. His assembly line is hundreds of brightly painted oil pumps spaced out like a city grid, interspersed with identical clusters of tanks for storage and separation. Through the windscreen of his truck he points out two massive drilling rigs on the horizon and a third about to be erected. Less than 90 days after they punch through the earth, oil will start to flow.

What if they're dry? "We don't drill dry holes here," says Mr Lithgow, an executive for Pioneer Natural Resources, a Texan oil firm. In the conventional oil business, the riskiest thing is finding the stuff. The "tight oil" business, by contrast, is about deposits people have known about for decades but previously could not extract economically.

Pioneer's ranch sits at the centre of the Permian Basin, a prehistoric sea that, along with Eagle Ford in south Texas and North Dakota's Bakken, are the biggest sources of tight oil, a broad category for the dense rocks, such as shale, that usually sit beneath the reservoirs that contain conventional oil. Since 2008 tight-oil production in America has soared from 600,000 to 3.5m barrels per day (see chart 1). Thanks to tight oil and natural gas from shale, fossil fuels are contributing ever more to economic growth: 0.3 points last year alone, according to J.P. Morgan, and 0.1 to 0.2 a year to the end of 2020, according to the Peterson Institute, a think-tank. Upscale furniture stores and luxury-car dealerships have sprung up in Midland since the boom began. Mr Lithgow has truck drivers who earn $80,000 a year. Local oil-service firms have been known to hire fast-food workers on the spot. In all, the unconventional-energy boom will create up to 1.7m new jobs by 2020, predicts McKinsey, a consultancy.

And that is only part of the story. Another benefit of tight oil is that it is much more responsive to world prices. Some economists think this could turn America into a swing producer, helping to moderate the booms and busts of the global market.

Pioneer is rapidly boosting production. But Scott Sheffield, the company's boss, worries that in a few years he will run out of customers; America has prohibited the export of crude oil since the 1970s. At $100 a barrel, the price of West Texas Intermediate (the most popular benchmark for American oil) is comfortably above the break-even cost of tight oil. But the prospect of a glut has futures pricing it at $20 less in 2018. "There will be a lot less oil-drilling when you take $20 out of everybody's margin," says Mr Sheffield.

Until the early 1970s, America was the world's largest oil producer and the Texas Railroad Commission stabilised world prices by dictating how much the state's producers could pump. When Arab states slapped an oil embargo on Israel's Western allies after the six-day war in 1967, Texas cushioned the blow by allowing a massive production boost.

But rising consumption and declining production eroded the state's spare capacity, and in March 1972 Texas called for flat-out production. "This is a damn historic occasion and a sad occasion," the Texas Railroad Commission's chairman declared. When Arab producers imposed another embargo the next year, prices rocketed. America had lost the role of world price arbiter to OPEC, a cartel dominated by despotic regimes. American politicians tried desperately to curb consumption (for example, by lowering speed limits) and to conserve supplies (by banning crude-oil exports in 1975).

American production declined steadily from a peak of 9.6m barrels a day in 1970 to under 5m in 2008. About then, independent producers began adapting the new technologies of hydraulic fracturing ("frack-

ing") and horizontal drilling, first used to tap shale gas, to oil. Total American production has since risen to 7.4m barrels a day, and the Energy Information Administration, a federal monitor, reckons it will return to its 1970 record by 2019. The International Energy Agency is more bullish; it reckons that by 2020 America will have displaced Saudi Arabia as the world's biggest producer, pumping 11.6m barrels a day.

Besides directly creating new jobs and income, the fossil-fuels boom could help growth by reducing America's vulnerability to oil-price swings, in two ways. First, as production rises and imports shrink, more of the cash that leaves consumers' pockets when the oil price rises will return to American rather than foreign producers. David Woo of Bank of America/Merrill Lynch notes that America's petroleum deficit has narrowed to 1.7% of GDP while Europe's has widened to nearly 4%, which seems to have made both the dollar and the economy less sensitive to oil prices.

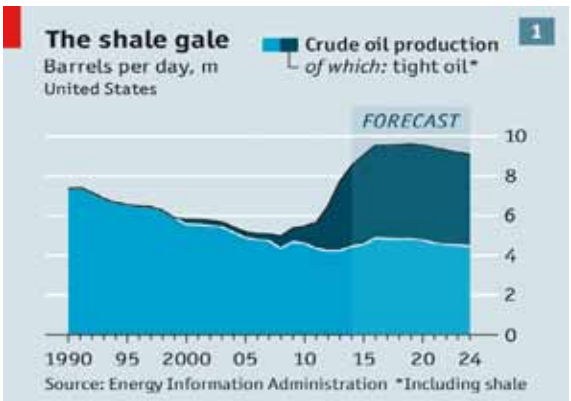
The second channel lies in the economics of shale. Oil flows relatively easily through the porous rocks that make up a conventional reservoir, so a conventional well can tap a large area. As a result, the volume of oil pumped each day declines slowly, on average at 6% per year. By contrast, oil flows much more sluggishly through impermeable tight rock. A well will tap a much smaller area and production declines quite rapidly, typically by 30% a year for the first few years (see chart 2). Maintaining a field's production levels means constant drilling. The International Energy Agency reckons maintaining production at 1m barrels per day in the Bakken requires 2,500 new wells a year; a large conventional field in southern Iraq needs just 60.

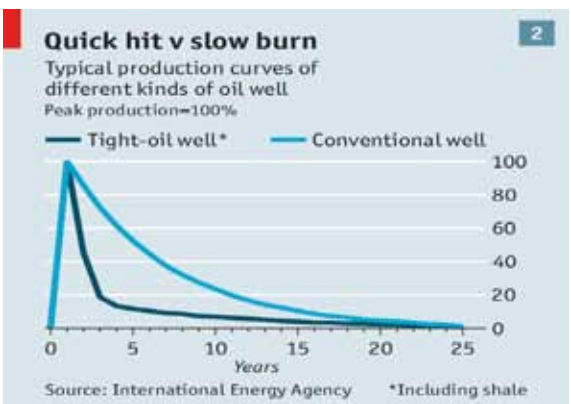
This all means that when oil prices rise, producers can quickly drill more holes and ramp up supply. When prices fall, they simply stop drilling, and production soon declines. In early 2009, after prices collapsed with the global financial crisis, Pioneer shut down all its drilling in the Permian Basin. Within six months, output in the affected areas dropped by 13%.

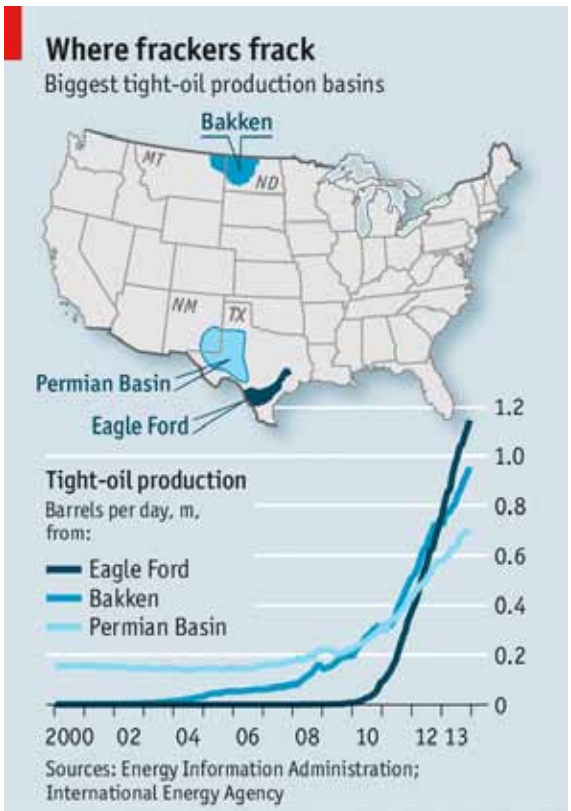
Bob McNally of Rapidan Group, an industry consultant, predicts that America could be "force-marched" back to the stabilising role it played in the 1960s, this time responding to the market's invisible hand rather than government diktat. Will that work in practice? It may already have done so. Since 2008, the Peterson Institute notes, turmoil in Sudan, sanctions on Iran and declining North Sea output have taken a lot of oil off the market. Without America, which accounted for half of the growth in global output over that period, Persian Gulf producers might not have been able to make up for the loss. Prices could have risen sharply, hurting consumers everywhere. Yet they did not.

Oil firms try not to over-react to short-term price fluctuations, of course. Capital, equipment and labour all cost money, so they try to ramp up production only in response to what they think will be long-term shifts in the oil price.

The ban on crude-oil exports hurts producers and makes it harder for America to become a swing sup-




plier. Light, sweet (ie, low-sulphur) West Texas Intermediate already trades at a discount of $8 to Brent, its global peer. That is due mostly to transport and storage bottlenecks in America, but increasingly the export ban makes a difference. In recent decades American refiners have reconfigured themselves to handle the heavier, sour oil imported from Mexico, Venezuela and Canada's tar sands, leaving them with less capacity for refining tight oil, which is light and sweet.

The oil price at which shale producers break even ranges from $60 in the Bakken to $80 in Eagle Ford, reckons Michael Cohen of Barclays, a bank. If exports yielded an extra $1 to $1.30 a barrel, he estimates that might raise total output by as much as 200,000 barrels per day.

If the ban were lifted, crude-oil exports could start more or less straight away. The necessary pipes and tankers are mostly there already. But the political debate is only in its infancy. By law the president can allow exports he considers in the national interest. Barack Obama has yet to express a view on the ban. Legislators from non-oil-producing states are wary. "For me the litmus test is how middle-class families will be affected," says Ron Wyden, the Democratic chairman of the Senate energy and natural resources committee.

The main beneficiaries of the ban are the refiners. They buy light, sweet American crude for less than the global price, turn it into petrol and then sell that at the global price. Exports of refined petroleum products are not banned, and have, unsurprisingly, soared. Defenders of the ban (including, naturally, some refiners) claim that if America exported more oil, Saudi Arabia would reduce its own output. Prices to American consumers would not fall, they say, and might even rise. Historical evidence says otherwise, however. When Congress allowed Alaska to export crude oil in 1995, its west-coast customers did not pay any more for petrol, diesel or jet fuel.

Oil producers would obviously benefit from lifting the ban. So might other Americans, in less obvious ways. A global oil market that fully included America would be more stable, more diversified and less dependent on OPEC or Russia. The geopolitical dividends could be hefty. As Pioneer's Mr Sheffield notes, "It's hard to believe we're asking the Japanese to stop taking Iranian crude, but we won't ship them any crude ourselves."

# Yamal LNG control systems contract won by Yokogawa

Japanese industrial automation and control systems giant Yokogawa Electric Corporation has won the contract to supply integrated control and safety systems (ICSS) for the Yamal LNG project. The company – which supplied control, monitoring and safety systems for Sakhalin Energy, Russia's only operational LNG project to date – believes the contract will be its largest-ever order for a natural gas project in Russia.

Yamal LNG, one of Russia's largest resource projects, is being undertaken by JSC Yamal LNG, jointly owned by Novatek (60%), Russia's largest independent oil and gas company, the French energy major Total (20%) and China National Petroleum Corporation (CNPC – 20%).

Final investment decision for the $27 billion, three-train, 16.5 mtpa project – located in north-west Siberia, above the Arctic Circle, in the Yamal-Nenets Autonomous District – was announced in December. According to Yokogawa, the three liquefaction trains are due to be commissioned in 2016, 2017, and 2018.

The ICSS contact was awarded by Yamgaz, a consortium of Technip and JGC Corporation, the engineering contractors responsible for constructing the plant. It will be fulfilled by one of Yokogawa's many subsidiaries, Yokogawa Europe Solutions.

Yokogawa will supply: integrated production control systems; safety instrumented systems; plant information management systems; integrated device management packages for the monitoring and diagnosis of plant equipment; analytical systems; analyser shelters, and operator training systems. It will be responsible for delivery, engineering, installation, commissioning, and operator training.

**Big supplier to the energy industry**

Yokogawa has an impressive track record of delivering and engineering automation and control systems for the energy industry in general and the LNG industry in particular."Our systems," says the company, "are in use at 47 gas liquefaction plants and 42 LNG receiving terminals around the world, and are used by or are on order for a total of 54 LNG carriers. Based on this strong track record, we welcome this major role in the Yamal LNG project, look forward to getting started with it, and plan to use this as a springboard to expanding our share of Russia's LNG-related market."

**Russian LNG opportunities**

There certainly seems to be a lot of LNG opportunity opening up in Russia. All well as the Yamal LNG FID, recent months have seen a number of other significant developments.

Gazprom has awarded the front-end engineering design (FEED) contact for its proposed liquefaction project at Vladivostok and said in early January that a third train is being actively pursued at Sakhalin Energy. The company has also been making progress with a proposal to construct a project near Leningrad, though that is still in the early stages.

Yet another significant development in 2013 was the announcement by Rosneft and ExxonMobil that they intend to proceed with LNG development at Sakhalin 1.

If all these projects were to come to fruition, Russia's LNG production capacity would rise from 10 mtpa today to more than 55 mtpa – enough to put it in the top league of LNG producers, along with Australia, Qatar and the United States.

Yokogawa has had a foothold in the Russian market since 1993, when it opened a representative office in Moscow. In 1997 it established a subsidiary there. It went on to win the automation and control systems contract for Sakhalin Energy, a 10 mtpa liquefaction plant that came on stream in 2009. For that project the company delivered control, monitoring, safety, and other systems for two offshore platforms, the onshore production facilities, and pipelines.

**Global network**

Founded in 1915, the US$4 billion company has a global network of 88 companies in 55 countries. Its biggest business segment is industrial automation and control (IA), but the company also has a substantial test and measurement equipment business segment and various other businesses.

"The IA segment plays a vital role in a wide range of industries including oil, chemicals, natural gas, power, iron and steel, pulp and paper, pharmaceuticals, and food," says the company.

Mohsen Taremian:

# 15% increase in participation in the 19th exhibition – compared to the 18th period

As like in the past years, Iranian Oil, Gas & Petrochemical Products Exporters Association will be present in this year's exhibition along with some other companies that are interested in participation and in exhibiting their latest capabilities in production and export of oil products.

The presence of The Association's member companies in 18th exhibition has a 10% growth compared to the 17th exhibition, and now we see a 15% increase in participation in the 19th exhibition –compared to the 18th period- which indicates the companies has welcomed the new atmosphere created in the country, and I hope that, given the proper participation conditions for private sector provided by the government, their capacity for taking part in the country's economy increasingly grows.

This year, nearly 50 of the largest refinery and petrochemical companies of the country, which are all members of the Association, will be present in the 2000 square meters space of the hall No.6, as the oil private sector part, to exhibit their capabilities in oil production and export, with the aim of facilitating export development in the field.

However, there have been many problems for hold-

# Private sector capacity to take part in the country's economy increasingly grows

After passing many ups and downs in its hundred and a few years of history and facing many hard times, the country's oil industry is still keeping on developing and now, with the enlivening breeze of the government of prudence and hope, aims for expanding international cooperation and sustainable development and supporting private sector.

The Department of Public Relations of the Ministry of Petroleum of Islamic Republic of Iran, in accordance with the government's policies for expanding international relations and also its emphasis on strengthening domestic production capacities, is holding up the 19th International Oil, Gas, Refining and Petrochemical Exhibition, which is one of the largest and most credited exhibitions in the world. This exhibition which is planned with the aim of creating an appropriate atmosphere for the presence of both Iranian and foreign companies for them to exchange technical and professional knowledge and for the country to exhibit domestic production capacities and capabilities of country's producers, will be held up in Tehran International Permanent Fairground in the first half of May 2014. It is expected that world well known oil and gas companies be present in this

exhibition, and this would be a proper opportunity for commercial negotiations considering the attraction of foreign investments, signing business contracts for goods, service and technology exchange, and also the development of goal markets and merchandising domestic products.

The active presence of Iranian companies, including contractors, producers of oil, petrochemical and chemical products, manufacturers of equipments and parts, consulting engineers, service companies, educational centers, …, in the 19th International Oil, Gas, Refining and Petrochemical Exhibition would demonstrate the progress and independence of Iran's

ing the exhibition in the past years that has not been resolved even in the current exhibition. Among them, one of the major issues is the way of organizing the exhibition. As you know all international exhibitions are being held by private sector and professional companies active in the field, but in Iran unfortunately this has not been accepted as of yet. The other issue is holding the exhibition under the general subject of oil, gas and petrochemical products. One of the main factors that lead an exhibition to success is its being specialized. Now in a country like Iran in which many companies are active in all areas of oil industry, bringing together companies from all three areas of oil, gas and petrochemical product, each of which includes a vast variety of subjects, in a single exhibition will cause many limitations and constraints among which problems with proper space distribution among applicant companies that would lead to their dissatisfaction is just one issue to be named.

I hope that the government officials, particularly those in Oil Ministry, take appropriate considerations with this respect, and to see the exhibition being held more excellently in the future.

Director of Public Relations Iranian Oil, Gas & Petrochemical Products Exporters Association

oil industry and would exhibit local innovations in line with the expansion of collaborations and economic and technological exchange in the region and the world.

Also, on the sidelines of the 19th International Oil, Gas, Refining and Petrochemical Exhibition professional conferences would be planed and held up by both the state sector and private sector.

Meanwhile the president of 19th International Oil, Gas, Refining and Petrochemical Exhibition said to World of Energy that the secretariat of the exhibition has started to work in order to invite domestic and foreign energy companies to cooperate.

Akbar Nematallahi added: the 19th exhibition, following the policies of the government of prudence and hope, is seeking more effective interaction with Iranian and international companies and to persuade them to be actively present in International Oil Exhibition of Tehran.

The director of Public Relations of the Ministry of Petroleum of Iran named fundraising, strengthening the domestic production capacity and elevating country's technical and engineering potentials in order to increase production, as some of the aims of International Oil, Gas, Refining and Petrochemical Exhibition.

The president of 19th International Oil, Gas, Refining and Petrochemical Exhibition, mentioning that holding up the exhibitions in February in the past sometimes caused difficulties due to inconvenient weather, said: taking these considerations into account, we postponed the exhibition this year and it will be held up from 6th to 9th May 2014.

International Oil, Gas, Refining and Petrochemical Exhibition of Tehran is one of the most credited and most important economic and industrial events in the world and it is expected that, regarding recent political changes after the negotiations between Iran and western powers and the willingness of oil and gas companies to invest and work in Iran, this year's exhibition receive more reception and international participation in comparison with past years.

# Russian oil major wants to take bunker market into its hands

**Elena Snitko ***

It's hard to imagine but still possible - a president of a vertically integrated oil company (VIOC) officially asks the Prime Minister of the Russian Federation (RF) to limit competition and have three players left in the market.

Rosneft President Igor Sechin has addressed RF Prime Minister Dmitry Medvedev with a proposal to put implementation of the programme on bunkering market development into the hands of ship fuel producers with a priority provided to companies with long-term contracts. According to the letter dated September 23, 2013 (IAA PortNews has obtained a copy of it), the volume of Russia's bunkering market is estimated at 8-9 million tonnes per year with subdivisions of vertically integrated oil companies (VIOC) accounting for 70% of sales.

Among such companies Sechin mentioned RN-Bunker, Lukoil-Bunker and Gazpromneft Marine Bunker. He also said that apart form VIOC subdivisions, the Russian bunkering market is represented by a pool of independent players which "purchase fuel from mini-plants, so called 'teapot refineries' producing low-quality products".

"Later these dumped products are sold through shadow and offshore schemes, leading to considerable shortfall of taxes in the budget," Sechin writes.

According to Sechin, state fiscal agencies have no possibility to execute proper control of bunker fuel sales. The resolution of Dmitry Medvedev orders RF Transport Minister Maksim Sokolov and head of the Federal Customs Service Andrei Belyaninov to elaborate notes on the development of port infrastructure and the bunkering market.

By the way, Mr. Sechin makes several essential errors in his letter. The second largest player in the market is Gazpromneft Marine Bunker and the share of independent participants in Russia's bunkering market is not as modest as he writes. There is also another interesting fact: large volumes of fuel sold by independent market players are acquired from vertically integrated oil companies, so the oil product quality is as high as that of oil products sold by subsidiaries of oil companies.

For example, in the first half of the year in the St. Petersburg bunkering market, 21 companies supplied bunker fuel. According to PortNews IAA data, sales in the first half of the year amounted to 974,820 tonnes. Of the total volume, direct sales of the subsidiaries of oil companies accounted for exactly 50%.

Needless to say, that the remaining volumes fell to the independent players. By the way, an independent player in the St. Petersburg bunker market can be a company with its own fleet, sometimes their number exceeds by several times the fleet of the oil company subsidiaries. And it may have been operating in the market for more than 10 years and have a well established logistics and technological scheme.

*** Elena Snitko has since 2004 been the owner, head and lead analyst of PortNews Media Group, Russia's largest industry-focused holding comprising four media outlets. Information & Analytical Agency (IAA) PortNews is the only Russian media to cover the bunkering market for almost 10 years. With its accumulated data, the Agency's analysts can perform in-depth market studies and development forecasts.**

# The future of Oil is sunny

Solar thermal EOR is gaining traction in the Middle East, allowing companies to harness the power of the sun to produce oil, instead of burning precious gas and oil, but what is it exactly, and what are the benefits?

Enhanced oil recovery (EOR) is hitting its stride as many countries globally, as well as in the Middle East, are looking to enhanced oil recovery (EOR) methods to squeeze the very last drop of oil out of their wells.

"Proven EOR technologies are being adapted in new, smart ways. Technologies are constantly evolving from research to commercial applications, making EOR projects more economical," explains Omer Gurpinar, technical director of enhanced oil recovery from Schlumberger.

Solar thermal EOR is changing the face of enhanced oil recovery, bringing with it benefits such as a reduction in the amount of oil or gas that is utilised to extract oil, and harnessing the power of the sun to do so.

the moment primary production in most of the world is in decline and demand is increasing so there is a shortfall. That shortfall will be filled in by new production and about half of that production will be heavy oil and about half of that will be thermal recovery, so solar is a very big market," states Rod MacGregor, president & CEO at GlassPoint Solar.

In a nutshell, solar EOR uses solar arrays to concentrate the sun's energy to heat water and generate steam. The steam is then injected into an oil reservoir to reduce the viscosity of thin, heavy crude, then allowing it to flow to the surface.

"EOR using steam is using 23% of some countries gas production, injecting steam is well proven, but the challenge is that it uses massive amounts of energy. In the Middle East, gas is a scarce commodity; outside Qatar and Iran there is no natural gas and most of these countries have a gas shortage, which is where solar comes in. In summer every square inch of ground gets one kilowatt of energy and we can harness that," explains Daniel Palmer, VP of Sales at GlassPoint Solar.

Steam produced by solar is identical to steam produced by gas or oil. Solar thermal EOR produces the same pressure, temperature and steam quality.

"Companies can't tell if it is solar steam or gas steam, and that was the point, to make it compatible with the existing infrastructure, the same electricity, the same infrastructure, water and produces the same output," explains MacGregor.

More oil is produced in the long term out of each well when using solar, as compared to using oil or gas, making it an attractive proposition for the Middle East region, according to Glasspoint.

When the well is first drilled and steam is injected into it, nothing much happens for the first few years as the rock underground has to heat up; a very long process. Once the rock heats up and oil starts to flow out of those producer wells, oil flow increases, reaches a plateau for a few years, and then it starts to decline.

During the decline period gas is still being burned to inject steam into the wells, but the amount of oil coming out of the well is decreasing to a level where it no longer makes economic sense to burn oil or gas to produce oil. The well is then shut down.

"In a solar situation you pay for all your solar system upfront when you buy the equipment, because sunshine is free. Late in the life of the field when the company is not getting much oil out of the ground, solar is not costing anything.

There are some maintenance costs, but there are no fuel costs, so you just keep producing," states MacGregor.

During the lifecycle of an oilfield the ultimate recovery fraction is higher when the company uses solar; ie the company will produce more oil over the lifetime of the field using solar thermal than oil or gas.

A good way of calculating the savings of solar thermal EOR methods, as compared to thermal EOR methods using oil or gas, is to calculate the gas break-even price or GBE. This involves calculating the average price of gas over the field's lifetime per million btu, when compared to the initial cost of solar set up spread out over the same field's lifetime.

"In the Middle East region, the calculation for solar EOR usually comes to between $5 and $7 per million btu, if you compare that to fuel costs, which are at $12 to $18 per million btu. You are looking at half the price for solar," explains Glasspoint's MacGregor.

To effectively use solar EOR heavy oil must be in production, the field must be in an area with good sunshine, and fuel supply must be consistent. For example,

Matt Badiali:

# Russia Invaded Crimea and These US Energy Companies Made a Killing

Matt Badiali is the editor of the S&A Resource Report, a monthly investment advisory that focuses on natural resources, including silver, uranium, copper, natural gas, oil, water and gold. He is a regular contributor to Growth Stock Wire, a free pre-market briefing on the day's most profitable trading opportunities. Badiali has experience as a hydrologist, geologist and consultant to the oil industry. He holds a Master's degree in geology from Florida Atlantic University.

**In a recent Daily Resource Update, you wrote a piece called, "Here's How Russia's Invasion of Crimea Could Benefit Some U.S. Oil Companies," and it wasn't the oil producing companies I assumed from the headline. Tell us, what companies could benefit.**

The companies that can refine crude oil here in the U.S., put it on ships and send it abroad are the ones benefitting from the spread between Brent crude and cheap domestic West Texas Intermediate prices. I was actually surprised with the results of this research, too. Giant companies like Exxon Mobil Corp. (XOM:NYSE) and Chevron Corp. (CVX:NYSE) had record years for their refining arms.

Refining is a terrible business. It's notorious for single-digit profit margins. The price of oil fluctuates globally, but the price the refiners can sell it for in the U.S. is limited by consumers. Back in 2008, when the price of oil hit $140/barrel ($140/bbl), the price of gasoline increased, but it certainly didn't go up in the same magnitude as the price of oil.

Since exporting raw crude from the U.S. is illegal, refined product is leaving the country at record levels. The Energy Information Administration (EIA) has tracked export data since the early 1980s. We are orders of magnitude higher today in export volume than we have ever been. It's going to Mexico, it's going to Canada, it's going to South America, it's going to Asia. We're putting it on ships in Houston and sending it everywhere. These refiners are making a ton of money.

**Also, didn't the U.S., for the first time in a long time, sell crude oil from the strategic reserve as a way to punish Russia?**

That was a warning shot. Russia's economy is based on energy sales. It sells natural gas and oil to Europe and it is starting to develop a bigger sales arm to China. If you can undercut Russia's oil price with higher-quality crude oil, then it really hurts Russia economically. That's what broke the U.S.S.R. in 1991. Back then it took Saudi Arabian involvement. This recent strategic reserve sale increased the supply on the market, thereby lowering the price, which threatened Russia and made refiners at home even more profitable.

**Do the actions in Ukraine have an impact on European oil and gas companies?**

There is a fear premium built into Brent crude, and producers like the Italian oil company, Eni S.p.A. (E:NYSE) will benefit from that. However, Europe›s refineries, which are paying the significantly higher price of Brent, are losing their profit margins. That is why companies like BP Plc (BP:NYSE; BP:LSE),Royal Dutch Shell Plc (RDS.A:NYSE; RDS.B:NYSE) and Total S.A. (TOT:NYSE) are shedding European refineries.

Total is in big trouble with a couple of refineries in France. Repsol-YPF S.A. (REPYY:OTCPK), the big Spanish oil company, has invested billions of dollars in retrofitting older refineries and it›s making about $1/bbl. It will take a long time to pay off that investment at that rate. So it›s kind of a mixed bag right now.

**What is your estimate for the price of natural gas for the rest of 2014?**

I've seen some pretty smart people putting their estimates around $4–4.25/Mcf for the average for this year, maybe a little higher because of that $6 hit we took early. But I suspect that you're going to see prices fall substantially into the summer.

Natural gas and coal are competitors because of electricity. Energy breaks down to fuel energy—which is usually oil—and power plant fuel, the stuff that powers our electrical grid—that means coal and natural gas. When natural gas was really cheap, around $2/Mcf, many power plants switched to natural gas.

The new Environmental Protection Agency (EPA) pollution controls on coal plants also sped up decommissioning of old coal power plants. That decrease in demand drove the coal price down. Then when natural gas prices rose again,

# In East Asia, Saudi Arabia Sees Economic, Political Opportunities

Saudi Arabia and China signed four agreements to expand bilateral cooperation and investment. In an email interview, Naser al-Tamimi, a Middle East analyst with a focus on Middle East-Asia relations, explained the recent trajectory of Saudi Arabia's relationship with China and with East Asia more broadly.

**What has been the recent trajectory of Saudi-China relations, and what are the key areas of cooperation?**

Energy and trade are at the heart of the growing links between Saudi Arabia and China. The bilateral relationship centers mostly on crude oil, petrochemical industries, refining, China's cheap consumer goods and the involvement of Chinese companies in developing the kingdom's infrastructure and its economy in general.

Saudi Arabia has been China's top partner in the Middle East and North Africa for 12 consecutive years since 2002. China is the second-largest destination in Asia, after Japan, for Saudi Arabia's exports. China is also the largest supplier of goods and services to the kingdom, while Saudi Arabia is the largest single oil supplier to China. As a result, two-way trade between Saudi Arabia and China has over the past two decades increased roughly 57-fold, from $1.28 billion in 1990 to about $73 billion in 2013, according to official Chinese data.

**What are Saudi Arabia's policy priorities in relation with East Asia more broadly?**

Beyond being a major market for crude oil, Asian countries also offer important economic advantages to Saudi Arabia's downstream and petrochemicals sectors. In addition to being the largest supplier of oil to Japan, China, South Korea and India, Saudi Arabia is also building new refineries and participating in oil processing and storage projects in Asia, with the aim of strengthening economic and political ties with Asia's economic giants. These partnerships are a key to Saudi efforts to secure market outlets in the major consumer countries and protect the kingdom's future share of the oil market in the region.

There are also other strategic and political factors that are pushing Saudi Arabia to develop closer relations with Asia and in particular China. First, if the kingdom decided to pursue nuclear weapons, Pakistan and China would be vital to its ambitions. Second, from Saudi Arabia's perspective, Asian countries, China and India in particular, could be regarded as a valuable source of political support as Riyadh continues on a path of selective economic liberalization while also seeking to deflect Western pressure in the area of political reform.

**What are the potential areas for expanded cooperation between Saudi Arabia and East Asia?**

Al-Tamimi: A critical factor in East Asian-Saudi relations is the kingdom's own economic outlook. Saudi Arabia has identified energy efficiency as a key national priority. There is a growing push within the kingdom to develop and apply clean energy technologies and to reduce dependence on oil consumption. There are significant opportunities for Asian companies in sectors such as nuclear energy and renewable energy in Saudi Arabia. Additionally, companies from China and South Korea could start to penetrate the Gulf Cooperation Council military hardware market in the medium and long term.

if a country has abundant cheap gas, it probably wouldn't use solar. Heavy oil production, abundant sunshine and consistent fuel supplies are three factors that are available in the Gulf region.

Another problem with solar thermal EOR is space; there is only so much sunlight that falls on a square metre of land and solar thermal EOR will always be constrained by the available surface area. This is where the efficiency of the solar thermal EOR system you choose comes in; how efficient it is at turning sunlight that falls on a single square metre into steam. "No matter how efficient your system is, we are still talking about large amounts of land. Most of the oilfields in the Middle East that are considering solar are in the middle of nowhere; they are in the desert with nothing around them for hundreds of miles so the space is there and you aren't disrupting any one," says MacGregor.

A big challenge for solar EOR is that while electricity can be moved a long distance, allowing the power company to put their solar power station in a clean and dust free area with little humidity, with an oilfield solar EOR system, steam cannot be pumped thousands of miles, so the solar system must be quite close to the oilfields.

Humid and dusty oilfields can put the brakes on solar thermal enhanced oil recovery. The problem that dust and humidity creates for solar is that dust sticks to the morning dew on the mirrors, then the sun bakes it on. If something is not done, the solar mirrors stop being mirrors and efficiency decreases.

"These solar systems regularly cover 1,000 acres. It's one of the things holding back deployment of solar in the region," says MacGregor.

Glasspoint has developed a self-washing enclosed solar thermal EOR system to combat the sand problem.

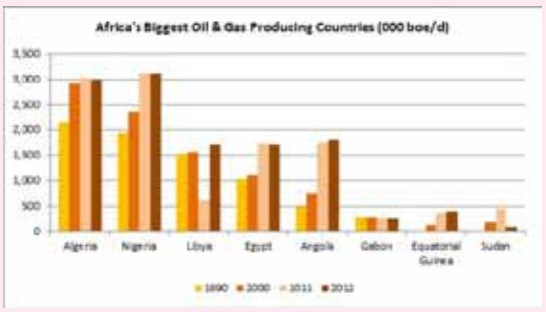
East Africa oil & gas outlook:

# Global export hub by 2020?

East Africa could become the world's next oil and gas export hub by 2020, according to a new report by Evaluate Energy. There are three countries with ambitions to make this a reality; Kenya, Mozambique and Tanzania. If even one of these countries achieves its goals, the impact on the global oil and gas industry would be very significant indeed.

The landscape of African oil and gas has changed very little in the last 20+ years. Historically, it has been the more economically developed Western and Northern countries that have produced the most oil and gas. Only Angola has stepped out of relative obscurity since 1990.

Angola has changed dramatically since 2000 and is the only country in the last 25 years to have increased production from under 500 bbl/d to rival the continents biggest 4 producing countries; Algeria, Nigeria, Libya and Egypt. Every other country in Africa produced 100,000 boe/d or less in 2012. African oil exports have therefore been restricted to coming from 4 of these 5 countries as well; Egypt is the only one of the big producers to import more oil than it exports. Angola is now the second largest oil exporter compared to its imports in the entire continent; Angola exports 1.7 million more barrels of oil than it imports each day. Angola also has a Liquefied Natural Gas (LNG) export terminal with




a capacity to export 5.2 million tonnes of LNG per year (mtpa) that became operational in June 2013. Angola has shown just how quickly things can change with major investment into a developing country with large natural resources.

Recent developments in the exploration and production industry in 3 East African countries - Kenya, Mozambique and Tanzania - have laid a possible foundation for one or maybe some of these countries to follow in Angola's footsteps on the path to exporting oil and gas on a major scale. This would end a 20+ year period of relative status-quo – Angola notwithstanding – on the continent. All 3 of these countries should be the main attraction of any new African investment before the end of the decade because of these export ambitions, which could represent a major opportunity for all E&P companies involved in the region, no matter their size.

# East and west – Russia marks gas export milestones

Russia's natural gas industry has over the past two weeks reached a series of significant milestones in its ambitions to ramp up its exports – not just to its traditional markets in Europe but also to tempting new markets in Asia Pacific.The milestones include the start of construction of the Bulgarian section of the South Stream pipeline and first production from the Kirinskoye field offshore Sakhalin Island. Gazprom has also been promoting its proposed Vladivostok LNG project, saying it is willing to make a stake of up to 49% available to other investors. Still awaited by some observers is the conclusion of a landmark deal for pipeline exports to China, which Gazprom has insisted should be concluded before the end of this year

Construction of the Bulgarian section of South Stream began on 31st October with the welding of the first pipeline section in a ceremony held at the Rasovo compressor station.The pipeline will allow the direct export of Russian gas to Bulgaria, bypassing the transit countries involved in other export routes. It runs under the Black Sea, as does the existing Blue Stream pipeline to Turkey – another project that Gazprom undertook because of frustration at the problems that can arise in dealing with transit countries.

**Strict construction schedule**

Following what Gazprom's chairman Alexey Miller described as a "strict schedule", construction is due to begin in Serbia before the year-end and then in Hungary. Consumers in Bulgaria are due to receive first gas through the pipeline in December 2015. Miller also said that Bulgarian consumers could expect cheaper gas because it will follow a direct export route – presumably because transit fees do not have to be paid.

The 900 km offshore section of the South Stream gas pipeline will run under the Black Sea from the Russkaya compressor station on the Russian coast to the Bulgarian coast. Maximum depth will be more than 2 km and the design capacity is 63 Bcm/year. The onshore section in Europe will be 1,455 km long. Construction in Bulgaria will consist of a 540 km linear section of the pipeline as well as 366 km of loop lines and three compressor stations.

**Kirinskoye start-up**

A week earlier, on the eastern side of Russia, Gazprom took a major step forward with its Sakhalin 3 project with a high-level ceremony to mark first gas production and transmission system testing at the subsea production facility in the Kirinskoye field. The command to launch gas production was given by Russia's President, Vladimir Putin (pictured above). Significantly Kirinskoye is the first installation of a subsea production facility in Russia.

"For the first time in the Russian gas industry a subsea production facility was constructed to develop a field in the Russian continental shelf," said Miller. "The experience gained by Gazprom at the Kirinskoye field will be used for developing other Russian offshore fields."

The key element of the system, installed at a depth of 90 meters, comprises several high-pressure pipelines fixed to a base. The manifold gathers the produced gas, which is then conveyed via a subsea pipeline to an Onshore Processing Facility (OPF). After treatment, the gas is transferred via a 139 km gas pipeline to the main compressor station of the Sakhalin-Khabarovsk-Vladivostok gas transmission system – a key element of Russia's plans to develop LNG production at Vladivostok and pipeline gas exports to China.

**Fuelling the dragon**

In 2009 Gazprom and CNPC signed a framework agreement on the major terms and conditions for 68 Bcm/year of pipeline gas supply via two routes: one coming

into China from the west and the other from the east. The eastern route currently looks easier to realise than the western route, because the latter would require construction of a long and costly dedicated pipeline, which will only go ahead if sales agreements are signed. The eastern route will mostly use infrastructure that Gazprom is already working on constructing or which has recently been completed.

It is for this project that Gazprom and China National Petroleum Corporation (CNPC) recently signed an agreement setting out the major terms and conditions of pipeline gas supply that they described as "legally-binding".

A crucial factor in an agreement being reached soon is that Gazprom is making substantial progress in developing the production centres and pipeline infrastructure that would be needed in eastern Russia to make exports to China via the proposed eastern route a reality. The Kirinskoye field is a key part of this.Gazprom is also working on developing two major new production centres in Yakutia and Irkutsk. Gas from these fields will be transported eastwards by a proposed 4,000 kilometre pipeline system called the "Power of Siberia".Russia's priorities for all this gas are to supply domestic consumers in the east, then to supply the 15 mtpa LNG project at Vladivostok, and thirdly to supply China. If Gazprom's current aspirations are met, the LNG plant could be completed by 2017 and gas exported by pipeline into eastern China from 2018.

**What about Japan?**

It is important also not to forget that Russia and Japan have long been discussing the possibility of a gas pipeline between the two countries. However, the current status of this proposal remains a matter of speculation.


## UAE, Oman and Iraq lead Middle East oil and gas transactions in 2013

The combined number of oil and gas transactions in the UAE, Oman and Iraq represented approximately 60 per cent of the total number of upstream transactions in the Middle East region last year, according to Ernst & Young's (EY) Global Oil & Gas Transactions report, which was released yesterday. Overall, the actual number of transactions in the region fell by 40 per cent, from 44 in 2012 to 26 in 2013, whereas the overall transaction value increased from $2.7 billion in 2012 to $3.1 billion in 2013.Relative to overall oil and gas transaction activity, the upstream sector dominated both in terms of number and overall transaction value in 2013. Relative to the total global upstream transaction value, the Middle East region's upstream transaction value witnessed an upward trend, increasing from 0.8 per cent in 2011 to 1.5 per cent in 2012 and 1.8 per cent, in 2013. In the downstream sector, there were five transactions, of which two were in the petrochemicals sector. This is a similar level of activity that the region has seen in previous years. Within the Middle East region's refinery sector, there are a number of potential Greenfield and Brownfield (upgrading and expansion) projects that could drive some transaction activity going forward. "There has been a recent announcement that Occidental Petroleum is looking to sell a minority stake in its Middle East oil and gas business. If this sale is to proceed, then it would represent a substantial transaction in the context of the Middle Eastern market," says David Baker, EY's Mena Oil and Gas transaction advisory services leader. Oilfield services transactions, however, remain low in the region, with only five transactions completed in 2013, of which three were located in the UAE. However, this is an increase from the number of transactions completed in 2011 and 2012, which were two and three, respectively. One significant potential transaction in the region is that NPS Energy has recently put itself back up for sale after a prior sales process fell through. Remaining consistent with the past two years, no midstream transactions were completed in 2013.

# The American Myth of Cheap Oil and Gas

In recent years, U.S. business and political leaders have giddily talked of a "Saudi America" gurgling with domestic oil and gas. It's true that the U.S. now has access to abundant supplies of cheap domestic gas capable of transforming the U.S. economy. Too bad these same leaders are about to give away a vast chunk of North America's hydrocarbon production -- and all the strategic advantages that go with it.

We're already seeing the effects. On July 19, U.S. drivers lost their price edge as West Texas Intermediate oil soared to $109 a barrel, almost equaling the cost of Brent crude in Europe, which only months before had sold at a $20 premium. What happened? Oil traders reversed two small pipelines so that instead of carrying U.S. crude from Gulf Coast oil fields to the huge trading hub in Cushing, Oklahoma, it was diverted to export docks, from which it traveled to Europe and Latin America. With that, traders set the stage for gasoline prices to rise to $4 a gallon or more.

The exporting of oil and liquefied natural gas is part of the biggest story hidden in plain sight: how the U.S. is squandering the strategic advantages of cheap fuel and competitive manufacturing in favor of an energy-export policy that has no larger economic, political, environmental or moral rationale.

**Competitive Edge**

How did this happen? Increased production of domestic oil and natural gas has largely been enabled by the newfound ability to fracture tight shale, a process that was not economically feasible in the past. Meanwhile, growing supplies of renewable energy, more efficient automobile and truck engines, and a new generation of Americans that is less enraptured by the automobile than previous ones are all helping to suppress demand.

U.S. oil production bottomed out at 5.5 million barrels a day in 2011; it's now up to 7.5 million and expected to reach 9 million by 2020. Natural gas production has soared to 67 billion cubic feet a day from 50 billion a day in 2005. With consumption flat, the law of supply and demand is working.

A few months ago, crude oil in the Midwest, where most production takes place, averaged $95 a barrel -- $17 a barrel lower than the price set by the Organization of Petroleum Exporting Countries. The U.S. price advantage on natural gas is even bigger. In Tokyo, OPEC LNG costs $16. Russian pipeline gas in the U.K. costs $10. In the U.S., the benchmark Henry Hub price is about $3.75 per million British thermal units -- and has been as cheap as $2.20.

The benefits of cheap gas flow throughout the economy. In the past three years, 95 major manufacturing capital investments, worth $90 billion in new spending, have been announced. Natural gas supplies 85 percent of the feedstock for the U.S. chemical industry. Due to cheap energy, Alcoa Inc. (AA)'s alumina refinery in Port Comfort, Texas, went from being one of the company's most marginal facilities, in danger of being closed, to one of the most competitive in the world. Expanding the export market for U.S. natural gas will undermine this new competitive edge. If enough domestic supply can be sold overseas, prices in the U.S., observing the law of supply and demand, will rebound. Yet that same law doesn't apply internationally; new U.S. supplies of crude and natural gas on the global market don't necessarily reduce global prices. Why? OPEC, led by Saudi Arabia, can manage supply to meet its price target. If supply grows too much, OPEC simply cuts production until the price rises.

**Keystone XL**

The combination of Canadian tar sands and light tight oil from the Bakken and Eagle Ford shale deposits in the U.S. has created what the oil industry calls a "glut" in the U.S. heartland. Enter the Keystone XL pipeline. Designed to rescue Canadian oil producers, the pipeline was marketed as a way to increase U.S. access to tar sands oil. In fact, it's a mechanism both to reduce that supply and raise its price by exporting it to foreign markets.

The oil industry wants to import, refine and export more Canadian bitumen. Yet at the same time, oil companies are shuttering refineries -- four on the East Coast since 2010 -- actions well suited to the creation of shortages and inflated prices. By linking U.S. prices to the global market, the companies hope to free-ride on OPEC price-fixing without running afoul of U.S. antitrust laws.

The "Saudi America" myth helps sell these policies because it implies that the U.S. is on the verge of ending its devastating reliance on oil imports -- $346 billion worth in 2012 -- and their attendant drain on the economy. That's simply not true. The U.S. currently consumes 19 million barrels of oil a day, of which 9 million are imported. The Energy Information Administration projects that consumption in 2020 will be about 20 million barrels a day, with U.S. daily production peaking at 13 million before declining. So at the peak of U.S. production, we will still be importing 7 million barrels of oil each day.

For the next decade, the annual import bill will remain about $300 billion. Given that enormous expense, why would the U.S. want to export oil? Similarly, why should we encourage Canadian exports through our infrastructure? Canada, busily exploiting its tar sands oil, is eager to secure a transit route through the U.S. to global markets, largely to avoid having to sell oil at lower prices in the U.S. You can't blame Canada for wanting to reap OPEC prices. But why should the U.S. facilitate that?

The drive to export natural gas is similar-

ly flawed. In approving four LNG export terminals, the U.S. Department of Energy said that LNG exports were unlikely to raise domestic gas prices meaningfully. This finding rests on an assumption that the U.S. has such vast reserves of shale gas that increased market demand will translate into greater production, not higher prices.

**Sweet Spots**

Is this true? The predominant view among gas geologists is that the U.S. can increase long-term gas production significantly. For example, with a domestic supply estimated at 2,400 trillion cubic feet, it's said that the U.S. has a "hundred-year supply" of gas. However, some industry analysts contend that, while there is indeed plenty of gas in U.S. shales, the amount that can be economically retrieved and produced at current prices is far smaller.

Shale wells deplete rapidly, with up to 95 percent of production front-loaded into the first three years. There is also uncertainty about the degree to which deposits such as the Barnett Shale in Texas contain "sweet spots" -- concentrated veins where production is relatively cheap surrounded by much larger areas where wells are less productive and profitable. The Energy Information Administration warns that its own projections of plentiful shale "are highly uncertain and will remain so until they are extensively tested with production wells."

So even without price pressure from exports, U.S. natural gas prices by 2020 may well double from their present range of $3 to $4, simply because of increased costs of production at present demand levels. At $8, the U.S.'s current competitive edge, which provides access to gas at one-third the price paid in Europe, almost vanishes. Exports would only make that situation worse.

Purdue University researchers Wallace E. Tyner and Kemal Sarica calculated that LNG exports of 6 billion cubic feet a day would increase domestic prices 16 percent by 2035 compared with a no-export policy. At 18 billion cubic feet a day, the price would rise by 47 percent.

With oil at $100 a barrel and natural gas at $3.50 per million cubic feet, 1 BTU of gas energy costs about one-fifth as much as a BTU derived from oil. Argentina, Pakistan, Iran and other nations fuel 15 million cars and trucks with natural gas. In the U.S., companies including Freightliner Trucks and AT&T Inc. are investing hundreds of millions in vehicles powered by natural gas -- compressed natural gas for local fleets, LNG for long hauls -- to reap annual fuel savings of up to $40,000 a vehicle. Hundreds of new natural gas fueling stations are being constructed along the interstate highway system.

**Absurd Policy**

Yet the move toward natural gas will be stopped in its tracks if U.S. gas prices are tied to volatile global markets. Indeed, if the U.S. exports its cheap, cleaner domestic gas, it will almost certainly have to import expensive, dirtier foreign oil to make up the difference. That's a bad deal -- and absurd public policy.

By itself, the new LNG terminal in Freeport, Texas, may channel only 3 percent of U.S. gas production into the export market, perhaps not enough to do serious damage. But there are now 19 other applicants for export terminals lined up behind Freeport, three already approved. If all were approved, they would have permission to export 39 percent of the U.S.'s current gas production. They represent a huge threat to a new American Dream -- one founded on a U.S. economy freed from imported oil and powered by domestic gas. And the U.S. government appears bizarrely inclined to accommodate that threat. ■

# 1.4 Trillion Barrels of Undeveloped Global Oil

Around the globe there are nearly 1.4 trillion barrels of oil equivalent (boe) reserves in conventional undeveloped oil and gas fields according to Wood Mackenzie's latest upstream outlook. This includes nearly 1.1 trillion boe of "technical reserves" – a term Wood Mackenzie uses for reserves for which there are no firm development plans in place.

"Over half of these discoveries which we classify as 'good technicals', are potentially economic under our current price assumptions. These have an indicative collective value of ca. US$760 billion" explains David Highton, Principal Analyst of Upstream Research at Wood Mackenzie.

According to Wood Mackenzie's outlook, there is vast potential value from good technical fields across the World*:

Middle East = US$185 billion
Latin America = US$149 billion
North America = US$132 billion
Africa = US$125 billion
Russia & Caspian = US$78 billion
Asia Pacific = US$67 billion
Europe = US$24 billion

The region with the most valuable portfolio of good technicals overall is the Middle East, followed closely by Latin America and North America. "The massive undeveloped resources of the Middle East (367 bnboe) lead the way," notes Highton. "These include the undeveloped volumes in the super-giant North/South Pars gas field which extends between Qatar and Iran in the Persian Gulf. Combining both countries' share, this is the largest single technical reserve in the world."

Wood Mackenzie notes that depending on their current strategies, international oil companies may focus on regions with high resource volumes or high unit values – there are few countries where these circumstances occur together, and generally that situation doesn't last for long. "Regions with the largest volumes of 'good technicals' are often those where access is difficult or impossible for international oil companies, such as parts of the Middle East, Russia or Latin America" says Highton.

There are also around 300 billion boe of undeveloped commercial reserves which should be brought onstream in the next ten years or so according to Wood Mackenzie's outlook.

Looking at hydrocarbon type, Wood Mackenzie notes that the undeveloped commercial reserves are weighted towards gas (60:40), while technical reserves comprise slightly more liquids (55:45). Significant regional variations exist however - Asia-Pacific is gas dominated (85 percent) due to the huge gas discoveries offshore Australia and elsewhere, while both North and Latin America are oil-dominated (each circa. 90 percent) due to their world-scale undeveloped Canadian and Venezuelan oil sands and heavy oil deposits.

According to Wood Mackenzie, commercialising the unfulfilled potential of undeveloped discoveries will not be easy. "There are a number of obstacles and complexities which continue to hamper efforts to tap into the US$760 billion prize" notes Highton. "These could be the lack of accessible markets or available infrastructure, political or environmental issues, operator constraints, or simply low resource volumes for the particular location."

Technical fields face a range of challenges but are a key component of many company portfolios and a key opportunity set for companies looking to expand. With sustained high oil and gas prices, advances in technology and stiff competition for quality opportunities, companies are looking to exploit the unfulfilled potential of these undeveloped resources.

Highton concludes, "Today, many obstacles are simply beyond the influence of any one company. It will require investment, technical expertise, patience and diligence, by companies of all sizes, to overcome the challenges". ■

# Why unrest in Libya has persistently disrupted oil production

Libya, located in North Africa, is a member of OPEC (the Organization of Petroleum Exporting Countries) and one of the world's major producers of oil. In stable times, the country produces 1.4 to 1.6 million barrels of crude oil per day (for context, world production is roughly 90 million barrels per day). Libya is also Europe's third largest crude supplier and has Africa's largest oil reserves. However, recent unrest has caused Libyan production to drop to less than 200,000 barrels per day.

Unrest in Libya has caused persistent disruptions to oil production

Libya was a site of intense conflict during the 2011 Arab Spring and civil war, which caused oil production to plummet to near 0. Surprisingly, oil production in 2012 rebounded to pre-conflict levels. But unrest in 2013 has intensified, with disagreements regarding pay and conditions escalating into other demands. News reports have noted that most of Libya's main export terminals closed down in early August, pipelines have been attacked, and production has halted in many fields across the country.

Through 1H13, Libya averaged ~1.3 million barrels of oil per day. However, reports in August showed production at less than 600,000 barrels per day. And the latest news has pegged production at less than 200,000 barrels per day. In total, this represents a more than 1 million-barrel-per-day loss to world oil production—or greater than 1%. Although on face, 1% may not seem like much, oil prices can be very sensitive to even small changes in supply. Disruptions reduce Libyan supply, but other countries have stepped in

With the drop-off of supply in Libya, other countries have stepped up oil production. According to OPEC, Saudi Arabia has increased its output to ~10.2 million barrels per day—up over 10% since the beginning of 2013 and the highest level since 1980. Meanwhile, output from the United States continues to grow and has recently reached levels of ~7.6 million barrels per day—up from ~7 million barrels per day at the beginning of 2013 and the highest level in 24 years. Plus, increasing production from Iraq has helped to replace some lost Libyan barrels. According to OPEC, Iraqi oil production is at 3.2 million barrels per day—up 235,000 barrels per day from the prior month.

**Some recovery over recent days**

According to the Libyan news agency Lana, Libya has just begun to resume production at its 140,000-barrel-per-day field at El Feel and its 300,000-barrel–per-day field at Sharara. This would significantly increase Libyan output and could put downward pressure on crude oil prices, which would be generally negative for energy companies without Libyan exposure but positive for companies with significant assets in Libya.

However, the outlook for Libya remains uncertain, with geopolitical instability at least for now a high threat to production from the region ■

# Qatar hard-pressed to repeat LNG feat

Qatar's moratorium on natural gas development in its massive North Field is expected to continue for some time, but the country will likely face headwinds when it looks to revive developments in the world's third natural gas basin.

Qatar has raked in huge revenues with admirable and diligent development of the natural gas field it shares with Iran, and it has emerged as the world's largest exporter of liquefied natural gas.

The country has grown at a blistering pace with an average annual growth rate of 12% during 2008 to 2012, as billions of investments in its natural gas started paying off handsomely.

However, gas extraction has now reached full capacity and is unlikely to increase significantly thanks to the moratorium.

The moratorium is in place until at least the end of 2014, while studies are carried out on the appropriate rate of sustainable extraction from the North Field.

"There may be some small increases to supply existing gas-fed projects, such as the Pearl GTL project," according to Qatar National Bank. "The next substantial increase will come from the Barzan gas project, which is expected to add about four million tons per year to production from 2015. The gas is to be used domestically to feed power stations and industrial projects."

Qatar's oil production is also in decline. The country has comparatively paltry reserves of just


over one billion barrels from its onshore and offshore fields. Qatar produced around 725,000 barrels per day last year compared to a peak of 845,000 bpd in 2007.

State-owned Qatar Petroleum is looking to invest USD 6.6 billion to raise crude oil production and has recruited major oil producers such as Exxon Mobil Corp. to develop its Dukhan field. Another project to double production at Bul Hanine field to 90,000 bpd is also under development.

US independent oil producer Occidental Inc. is also investing USD 3 billion in water injection to sustain production of around 100,000 bpd at the Iddi al-Shargi field North and South Domes.

"Production increments are likely to continue into the medium term as the benefits of investment and development programs are realized. We therefore expect crude oil production to gradually rise to an average of 800,000 bpd by 2017," QNB estimates.

**CHANGING GLOBAL LNG**

The global LNG sector is in the midst of rapid changes, with more than 50 countries looking to send natural gas to Asia.

Australia is set to beat Qatar as the world's largest LNG exporter by 2017 with a spate of new developments and a number of other heavyweights including Russia, United States, Canada, Angola, Tanzania, Mozambique and Papua New Guinea are expected to build new terminals to sate the world's rising natural gas demand.

Amid this backdrop, the normally-aggressive Qatar has been coy about its plans to develop its share of the North Field basin, noting that it does not want to exhaust its supply with overproduction.

"The ban's other priority was to preserve Doha's cordial relations with Tehran by avoiding overproduction of its side of the North Field, also known as the North Dome; Qatar and Iran share the same natural gas deposit which is the world's largest," said Leslie Palti-Guzman, analyst at Eurasia Group.

"While Qatar has monetized its gas, with the help of international companies, and has become the world's largest LNG exporter,

international sanctions have kept Iran's share of the field, South Pars, largely underexploited. The currently uncertain outcome of the diplomatic talks with Iran makes the extension of the moratorium a safe choice for now."

**CHANGING DYNAMICS**

Qatar Petroleum is also in the midst of a restructuring, which would give the corporation more authority and separate it from the energy minister.

"The timeline of this change, as with all critical changes in the country's leadership, remains tightly guarded among key members of the government. Saad Sharida Al-Kaabi, QP's director of oil and gas ventures, is rumored to become the company's next managing director," said Palti-Guzman in a note to clients.

"Should his appointment go through in 2014, it would signal that Qatar's moratorium is unlikely to be lifted in the same year - Al-Kaabi was after all the man who developed the ban and has a tough negotiating reputation among international energy companies."

As Qatar considers its internal structuring, other markets may start sewing up fresh Asian deals. In addition, most Asian countries such as China, Japan and South Korea are investing in Canadian

| QATAR GAS PRODUCTION | | |
|---|---|---|
| | Million Tons/ Year | % Change |
| 2012 | 115 | n/a |
| 2013E | 116 | 0.70% |
| 2014F | 121 | 5% |
| 2015F | 127 | 4.80% |
| 2016F | 142 | 11.90% |
| *Source: Qatar National Bank* | | |

| LNG Capacity: Qatar Vs Rest of World | | |
|---|---|---|
| | Million Tons Per Year | |
| | 2012 | 2020 |
| Algeria | 19.7 | 28.2 |
| Egypt | 12.8 | 12.8 |
| **Qatar** | **77.1** | **77.1** |
| Oman | 10.3 | 10.3 |
| UAE | 5.8 | 5.8 |
| Yemen | 6.7 | 6.7 |
| **Global** | **271.7** | **438.2** |
| ME as % of total | 49% | 32% |
| Qatar as % of total | 28% | 18% |
| *Source: Bernstein Research* | | |

and Australian LNG export projects to ensure long-term supply guarantees.As new LNG projects ramp up, Qatar also face pressures in the LNG spot markets, which it has dominated to date. The impact has already been felt as Qatar has adjusted its natural gas spot prices in recent months to ensure it maintains its market share.

Most crucially, the possible return of Iran to the market may also weaken Qatar's resolve to raise production from the North Field. While Qatar has maintained that it would support Iran's North Field development, Tehran would likely turn to international firms to develop its share of the resources.

Qatar has also lost market share in Egypt after a political fallout after the Muslim Brotherhood's regime was sacked by the Egyptian army.

"Meanwhile, less-than-optimal relations with the UAE may mean that plans to expand the Dolphin gas pipeline to reach 3.2 billion cubic feet per day of capacity - currently supplying over 25% of the UAE's overall gas needs - will be put on hold. Instead the UAE will look into other fuels and LNG imports in order to reduce its overarching reliance on Qatari gas as a result," said Eurasia Group in a note.

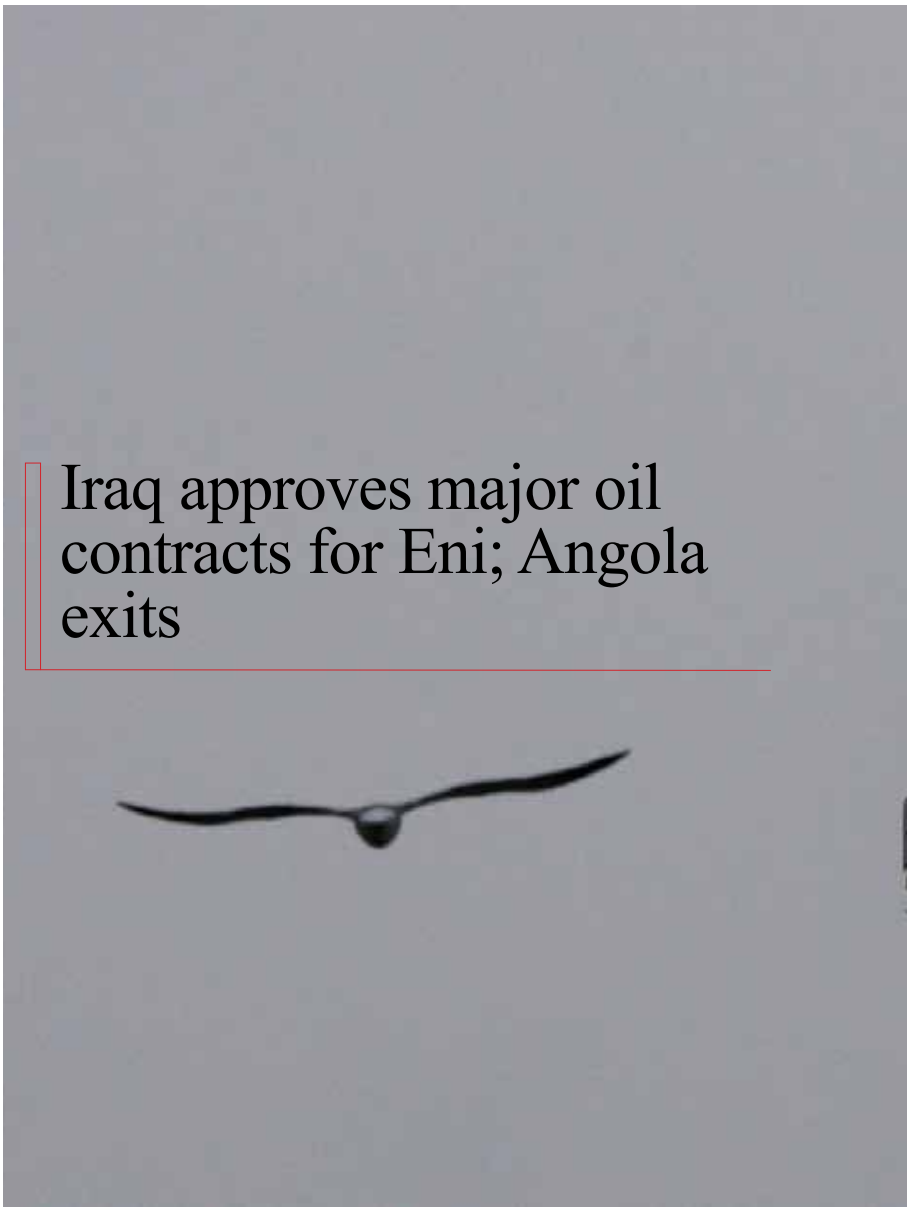
**INTERNATIONAL PUSH**

While Qatar's domestic natural gas ambitions are on ice, it has ramped up international investments.

Qatar Petroleum International recently bought a 23% stake in Parque das Conchas oilfield off Brazil from Royal Dutch Shell at a price tag of USD 1 billion. It also completed the acquisition of 15% of Total E&P's Congo unit for USD 1.6 billion. Last year Qatar also bought Canadian company Suncor Energy's stake in natural gas fields along with British partner Centrica for USD 981 million. Qatar already has plans to ship LNG via its Golden Pass Project from Texas.These developments will ensure that Qatar will remain a player in the LNG space, but would likely lose market share and dominance over the next few years.

The global LNG landscape is set to change dramatically by the end of the decade. But there are few signs to believe that Qatar can emulate its earlier feat of taking the natural gas world by storm once again.

# Iraq approves major oil contracts for Eni; Angola exits



Iraq has approved major contract items for Eni's giant oilfield project in its south, just hours after the Italian company threatened to pull out if red tape was not cut and Angola's Sonangol quit projects in the north due to security concerns.

Rising violence has not hit operations at the southern fields driving Iraq's oil expansion, but Western companies at work there say deteriorating security and the distraction of elections at the end of April may be slowing the contract approval process.

A senior Iraqi official said the circumstances affecting decision-making by Sonangol and Eni were not connected.

"Sonangol tried its best to stay, but this is a security issue - al-Qaeda-linked terrorists are active in this area. They have not done any work on the ground," he told Reuters.

Italy's Eni, on the other hand, was seeking swift approval for contracts to push the Zubair oilfield, now pumping about 320,000 barrels per day (bpd), towards a target of 850,000 bpd.

"We respect Eni and take their opinions seriously. We want them to stay in Iraq," the Iraqi official said. "We're doing our best to approve high-cost contracts as quickly as we can. If they are delayed, it affects productivity and profitability."

Two such contracts for degassing stations at Zubair, worth about $1 billion in total, received cabinet approval within minutes on Tuesday, he said. A third contract requires minor follow-up with Eni. High-value contract items of $500 million or more require the blessing of Iraq's cabinet.

Big Oil has been tapping the prized fields of Zubair, Rumaila - led by BP and West Qurna-1 - run by Exxon Mobil - since 2010 when companies signed a series of service contracts with Baghdad.

Red tape and poor infrastructure as well as increasing security concerns have frustrated their efforts ever since they started to drill.

The Iraqi official said Baghdad had inherited an elaborate process for approving contracts that needed to be shortened. But he said hold-ups had also occurred because, in some cases, the cost of the contracts appeared to be inflated.

**OIL OUTPUT GROWTH**

Iraq, already the second largest producer in OPEC, is gearing up for one of the biggest oil output jumps in its history with international companies further tapping major projects which have not been affected

by unrest.

Production last year ran at around 3 million bpd, flat on the previous year. But growth is now expected to return - led by increases in the south, while gains are also expected from autonomous Kurdistan.

Eni CEO Paolo Scaroni displayed his impatience with Iraq's bureaucracy earlier on Tuesday before the news broke of the contract approvals.

"If they do not sign the contracts in a couple of weeks we will go. We have waited six months," he said on the sidelines of a conference. "I am hopeful, we have no reason to believe they won't do it."

Eni is not alone in its concerns. BP has had to let around 100 contractors go after the Ministry of Oil failed to approve big contracts for its project at Rumaila, Iraq's biggest oilfield.

While Eni's CEO is threatening to quit the neighbouring Zubair project, industry sources say BP has no intention of leaving Iraq. Rumaila is now producing at its highest rate - between 1.4 million and 1.5 million bpd.

As for Sonanagol's departure, neither Iraqi officials nor Western industry executives were surprised.

Iraq's top energy official Hussain al-Shahristani said last month that spillover attacks from the civil war in Syria have hindered development of reserves in the western region and its Qayara and Najmah oilfields, operated by Sonangol.

Those security problems have now led Sonangol to exit.

Sonangol in 2009 won the right to operate the Qayara and Najmah oilfields in the Nineveh province in Iraq's northwest, where Sunni Islamist insurgents remain active.

CEO Francisco Lemos Jose Maria said the Sonangol has received requests from parties wanting to buy its stakes.

"There is always interest from those who like to expose themselves to risks," he said.

Violence in Iraq climbed to its highest level in five years in 2013, with nearly 9,000 people killed, most of them civilians, according to the United Nations.

# Brent down slightly, pares losses on weather demand

Brent crude oil traded lower on Monday, but pared losses sharply following a rise in heating oil prices as cold weather in the US Northeast drove up demand.

Oil futures remained broadly pressured by worries over emerging markets, weak factory data from China and expectations for lower demand as US refiners shift into maintenance season.

A fresh round of snowfall fell on the US Northeast on Monday after several inches were dumped on the Ohio Valley a day earlier, driving demand for US distillates, which include heating oil, higher.

"The heating oil found its way and led the way back up," said Jeff Grossman, president of BRG Brokerage in New York. "The Northeast is all heating oil and there is plenty being consumed right now."

Weakening equities and currencies in emerging market economies pressured global markets lower and weighed on oil prices.

US stock indexes pulled oil lower after data showed the factory sector in the world's largest economy expanded in January at its slowest pace in eight months.

Brent was trading down 9 cents at $106.31 a barrel by 12:59 p.m. EST (1759 GMT), having sunk to a near 3-month low of $105.40 earlier in the session. US oil fell 79 cents to $96.70 a barrel.

US ultra-low sulfur diesel (ULSD), known more commonly as heating oil, was up 1.09 cents to $3.0080 a gallon. It had previously risen about 2 cents to a session high of $3.0185.

Brent's premium to US crude oil contracted earlier in the session to $8.06, just above the low of $8.04 set on Oct. 18, as some analysts and traders expect data to show a large draw in supplies at Cushing, Oklahoma the delivery point for the US oil futures contract.

But weakening US oil prices widened the spread between the two benchmarks to more than $9 in early afternoon trading. Market players also turned their attention to refiners moving into maintenance that would curb demand for crude oil.

"I think the market is being turned on its head because we are going into peak refinery turnaround season," said Stephen Schork, editor of the Schork Report in Villanova, Pennsylvania. "Demand is drying up for crude."

US oil refiners are expected to take 800,000 barrels per day (bpd) of capacity offline in the week ending Feb. 7, down from 979,000 bpd the previous week, data from research company IIR showed on Monday.

**CHINA WEIGHS, MIDDLE EAST SUPPORTS:**

Analysts said macroeconomic demand issues in China, the world's second largest oil consumer, would continue to weigh on energy markets globally.

Data released over the weekend showed China's factory growth eased to a six-month low in January, according to the official Purchasing Managers' Index by the National Bureau of Statistics.

The potential impact of international political tensions on oil supplies is expected to keep a floor under prices.

The Libyan prime minister said on Monday he ordered troops to move toward oil exporting ports in the east that have been under rebel control for months.

In Iraq, the army intensified its shelling of Falluja in preparation for a ground assault to regain control of the city, which has been under the control of militants for a month.

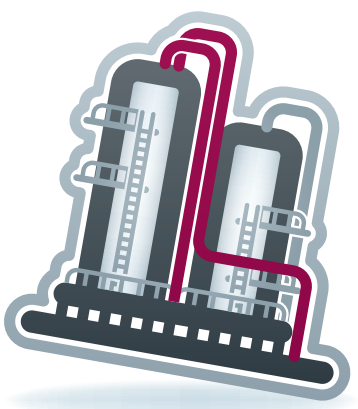
Syria, though not vital in terms of oil shipments, has continued to worry markets amid concerns that the crisis there could spill across the Middle East to engulf major exporters.

# Crude, NGLs and natural gas outlook

Natural gas production in the Lower 48 has surged 40% since 2005 – hitting record levels in recent months in spite of low prices and a drilling migration away from dry gas to liquids plays. Following a similar trajectory, natural gas liquids (NGLs) output from gas processing plants jumped 40% since 2009 as drilling for wet (high BTU) gas accelerated. Crude oil production from shale did not take off until the end of 2011 but since then has surged an astronomical 56 percent to 7.8 MMb/d. While this winter's harsh weather has placed a temporary slowdown on these skyrocketing production numbers, RBN fully expects the growth trend to continue - putting the US within sight of energy independence in the not too distant future. Along the way plenty of new opportunities for the industry will be tempered by market challenges. Today we preview RBN's latest Drill Down Report.

If there is any uncertainty remaining about how much energy markets have changed over the past nine years, the three graphs in Figure 1 below should put it to bed once and for all. Production statistics for US natural gas, natural gas liquids, and crude oil are all surging, in some cases into uncharted territory, in others back to levels last seen when President George H. W. Bush was President. Make no mistake about it. The US is at the doorstep of that long sought-after goal of energy independence – where the country can produce all the energy that it uses. That goal may still be a few years away, but it is in sight. And for the US consumer, that is a future so bright, you gotta wear shades.

The first graph on the left shows natural gas production in the Lower 48 since 2005. Production has increased about 18 Bcf/d over that period, or about 40%. That's a big increase, and it is even more impressive if you consider that the total worldwide market for natural gas exports or liquefied natural gas (LNG) is about 35 Bcf/d. So over the past few years, US natural gas has increased by the equivalent of half of the world LNG market.



**Summing up, the US "drill-bit hydrocarbon" revolution has successfully navigated a number of challenges in 2013 and early 2014 ranging from weather to regulations as well as between surplus and shortage. Looking forward US production is poised to continue growing towards energy independence although that path can be guaranteed not to be a smooth one**

The middle graph shows liquid petroleum gas (LPG) production – propane and butanes, the fastest growing members of the NGL family. Compared to natural gas, LPGs took a little longer to kick into high gear, but when they did the increase was similar to natural gas, up 40% over the period since 2009 to 1.3 MMb/d. That is equal to about half of the total imports of LPGs by the world's biggest importers in the combined Asia/Pacific and Indian Subcontinent regions.

And then there is crude oil. Between 2005 and 2010 while gas and NGL production was ramping up, crude seemed to be languishing – at least from the perspective of total U.S. statistics. But since 2011 crude production has shot up like a skyrocket - returning to levels last seen in March 1991. Crude production volumes are up 56% from about 5 Mb/d in 2009 to 7.8 Mb/d in late 2013.

These dramatic production increases in the past nine years have been characterized by triumphs of technology and

productivity. But there have also been growing pains as the midstream industry struggled to deliver the new hydrocarbon bounty to market. During 2013 and the first part of 2014 the shale revolution passed through important stages of maturity as new or repurposed infrastructure came online to extract NGLs from natural gas and to deliver those NGLs, together with new crude production, to fractionation, petrochemical and refining centers on the Gulf Coast. Along the way we have seen a plethora of investment in infrastructure involving wholesale re-plumbing of the gas and liquids distribution system and the advent of significant crude-by-rail shipments to by-pass pipeline congestion or deliver to markets with no pipeline service on the East and West Coast.

And as new supplies have arrived at processing and refining centers the next phase of the revolution has begun as refiners and fractionators now seek new markets for surging production of NGLs and refined products from their plants. At the same time billion dollar plants to liquefy natural gas for export are being constructed – in many case on the same sites earmarked for LNG imports less than 10 years ago.

Natural gas is the most mature sector of the shale industry and yet as Figure 2 below shows production is expected to continue growing at 3.4 Bcf/d for each of the next six years - an even faster pace than the 2.2 Bcf/d seen since 2005. So although production is down temporarily due to weather related freeze-offs and other short-term problems this winter it will quickly recover to record levels in 2014 with higher prices encouraging more producers to drill for gas.

Industry growing pains in the face of record natural gas production have been demonstrated by rapid storage depletion this winter. That challenge has been particularly evident in the Northeast where surging Marcellus/Utica production is not yet fully connected to demand centers and pockets of shortage have continued in areas like New England (see Please Come to Boston). Surging Marcellus production continues to impact traditional pipeline flows into the Northeast and many of those will be reversed – as far south as Florida (see Miami 2017). In the meantime the prospect of long term stable natural gas prices has prompted new demand for growing supplies in the form of natural gas power plants, industrial capacity or exports to Mexico and global LNG markets (see Golden Years – the Golden Age of US Natural Gas).

Production of 'wet' high BTU gas continues to drive significant increases in NGL output especially as new processing infrastructure comes online. Surplus supplies of NGLs are destined for export – most notably propane (see Sail Away). Surpluses of normal butane and natural gasoline will also move to export markets. Until new olefin crackers are built on the Gulf Coast and come online after 2017, significant volumes of surplus ethane will be rejected into natural gas although as we speculated in "The Gas is Hot Tonight" it could find its way into LNG exports. (If not exported, ethane rejection will continue even after 2017.)

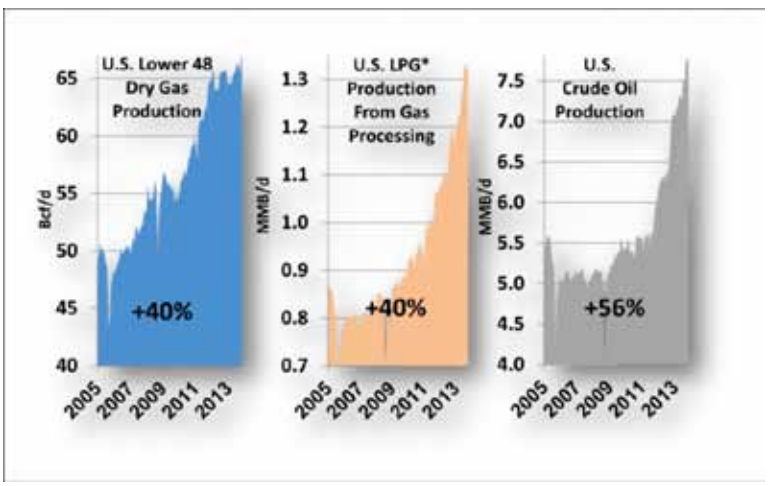

However the NGL market has witnessed shortage as well as surplus this winter as we described recently in "A Perfect Storm". The winter 2013- 2014 propane crisis will result in scrutiny of inventory, distribution and export practices by both industry and regulators.

US crude production will continue to increase, although at a slightly lower growth rate than seen over the past two years. RBN Energy expects US production to reach 10 MMb/d in

2019 – up 2.2 MMb/d from the end of 2013. Canadian production will add a further 1.3 MMb/d to North American supplies. The most significant development in the crude market during 2013 has been the unwinding of the congestion and inventory surplus in the Midwest. Formerly landlocked supplies from North Dakota have also found outlets on the East and West Coasts via the rapid build out of crude-by-rail infrastructure that has been well documented by RBN (see I've Been Working on the Railroad). A number of tragic rail accidents involving crude oil in the past year have focused industry attention on new regulations that will likely have an important impact going forward but will not prevent rail transport from becoming a permanent fixture in the market because of the flexibility it offers shippers.

As a result of new pipeline capacity and rail deliveries, a crude surplus is now building at the Gulf Coast – the biggest refining center in the US. That surplus is complicated by two factors in particular. The first is a mismatch between refinery configuration biased toward heavy crude processing and new supplies that are predominantly light crude. The second is a Federal ban on crude exports except to Canada. The refinery mismatch is putting downward pressure on prices for light sweet crude at the Gulf Coast that many refiners are not able to process without modifications to their configurations. The export regulations are not helping because they prevent excess supplies of light crude and condensate from finding a home in international markets. A related industry challenge that we have followed closely is that of processing very light crude condensate being produced in increasing volumes in shale basins such as the South Texas Eagle Ford. A number of new build condensate splitters are under construction and planned to process condensate supplies that are a poor fit for Gulf Coast refineries.In the absence of crude exports, regional refiners are processing the glut of domestic crude headed to the Gulf Coast into refined products for export. That's in large part because US domestic markets for refined products like gasoline and diesel are flat at best while demand for these products is growing in Latin America, Europe and Asia. Blessed with cheap natural gas fuel supplies and low price domestic crudes, Gulf Coast refiners have become the marginal refined product suppliers to the world and this trend will continue.

Summing up, the US "drill-bit hydrocarbon" revolution has successfully navigated a number of challenges in 2013 and early 2014 ranging from weather to regulations as well as between surplus and shortage. Looking forward US production is poised to continue growing towards energy independence although that path can be guaranteed not to be a smooth one. Along the way the central tenet of this revolution continues to ring true – namely that the natural gas, NGL and oil markets have become truly interdependent such that changes in will one impact the others. Navigating those changes requires understanding the fundamentals of all three.



# 5 Biggest Risks Faced By Oil And Gas Companies

Whenever an investor approaches a new industry, it is good to know what the risks are that a company in that sector must face to be successful. General risks apply to every stock, such as management risk, but there are also more concentrated risks that affect that specific industry. In this article, we'll look at the biggest risks that oil and gas companies face.

**Political Risk**

The primary way that politics can affect oil is in the regulatory sense, but it's not necessarily the only way. Typically, an oil and gas company is covered by a range of regulations that limit where, when and how extraction is done. This interpretation of laws and regulations can also differ from state to state. That said, political risk generally increases when oil and gas companies are working on deposits abroad.

Oil and gas companies tend to prefer countries with stable political systems and a history of granting and enforcing long-term leases. However, some companies simply go where the oil and gas is, even if a particular country doesn't quite match their preferences. Numerous issues may arise from this, including sudden nationalization and/or shifting political winds that change the regulatory environment. Depending on what country the oil is being extracted from, the deal a company starts with is not always the deal it ends up with, as the government may change its mind after the capital is invested, in order to take more profit for itself.

Political risk can be obvious, such as developing in countries with an unstable dictatorship and a history of sudden nationalization - or more subtle - as found in nations that adjust foreign ownership rules to guarantee that domestic corporations gain an interest. An important approach that a company takes in mitigating this risk is careful analysis and building sustainable relationships with its international oil and gas partners, if it hopes to remain in there for the long run.

**Geological Risk**

Many of the easy-to-get oil and gas is already tapped out, or in the process of being tapped out. Exploration has moved on to areas that involve drilling in less friendly environments - like on a platform in the middle of an undulating ocean. There is a wide variety of unconventional oil and gas extraction techniques that have helped squeeze out resources in areas where it would have otherwise been impossible.

Geological risk refers to both the difficulty of extraction and the possibility that the accessible reserves in any deposit will be smaller than estimated. Oil and gas geologists work hard to minimize geological risk by testing frequently, so it is rare that estimates are way off. In

fact, they use the terms "proven," "probable" and "possible" before reserve estimates, to express their level of confidence in the findings.

Price Risk

Beyond the geological risk, the price of oil and gas is the primary factor in deciding whether a reserve is economically feasible. Basically, the higher the geological barriers to easy extraction, the more price risk a given project faces. This is because unconventional extraction usually costs more than a vertical drill down to a deposit. This doesn't mean that oil and gas companies automatically mothball a project that becomes unprofitable due to a price dip. Often, these projects can't be quickly shut down and then restarted. Instead, O&G companies attempt to forecast the likely prices over the term of the project in order to decide whether to begin. Once a project has begun, price risk is a constant companion.

Supply and Demand Risks

Supply and demand shocks are a very real risk for oil and gas companies. As mentioned, operations take a lot of capital and time to get going, and they are not easy to mothball when prices go south, or ramp up when they go north. The uneven nature of production is part of what makes the price of oil and gas so volatile. Other economic factors also play into this, as financial crises and macroeconomic factors can dry up capital or otherwise affect the industry independently of the usual price risks.

Cost Risks

All of these preceding risks feed into the biggest of them all - operational costs. The more onerous the regulation and the more difficult the drill, the more expensive a project becomes. Couple this with uncertain prices due to worldwide production beyond any one company's control, and you have some real cost concerns. This is not the end, however, as many oil and gas companies struggle to find and retain the qualified workers that they need during boom times, so payroll can quickly rise to add another cost to the overall picture. These costs, in turn, have made oil and gas a very capital-intensive industry, with fewer and fewer players all the time.

The Bottom Line

Oil and gas investing isn't going anywhere. Despite the risks, there is still a very real demand for energy, and oil and gas fills part of that demand. Investors can still find rewards in oil and gas, but it helps to know the potential risks that go along with those potential rewards.

# LNG process must be open

While British Columbians are watching for the liquefied natural gas projects promised by the B.C. Liberals, one LNG proposal is quietly moving ahead.

And the provincial government just got approval to take control of that project's environmental-assessment process from the federal government.

Woodfibre Natural Gas Limited wants to build a $1.6-billion LNG plant about seven kilometres south of Squamish to produce 1.5 million to 2.1 million tonnes of LNG a year for 25 years. The Woodfibre project would mean 40 LNG tankers every year heading through Howe Sound and Juan de Fuca Strait.

The B.C. government wanted to take over the environmental assessment of the project. Before it could get the federal government to hand over authority, the people of B.C. were allowed to make comments on whether it's a good idea.

However, most of the people of B.C. were too busy celebrating Christmas and New Year's to notice when the Canadian Environmental Assessment Agency announcement went out on Dec. 17.

The agency decides whether an environmental review is needed, and federal Environment Minister Leona Aglukkaq decides wether to let B.C. take over that environmental review.

The deadline for public input was Monday, Jan. 6. That left 11 working days, assuming any interested parties got cracking right away on Dec. 17.

Those with a suspicious turn of mind suggest the timing was deliberate, to minimize the number of people who would be able to object, and make it easier for B.C. to take control.

The B.C. Liberals had made a mistake by waiving the province's right to its own environmental review of the Enbridge Northern Gateway bitumen pipeline. It left the province at the mercy of the federal process on a project that has become politically volatile.

With Clark and her government so committed to LNG, it's no surprise they want to avoid repeating that mistake. They want to control as much of the process as possible.

The 52-kilometre pipeline that will feed the Woodfibre plant is already getting an environmental review from the province.

Even if there are no sinister motives in the timing of the assessment agency's announcement, someone in authority should have realized the unfairness of providing such a short window during a period with three statutory holidays. Nearby residents called for an extension of the deadline to give them time to respond to both the issues, but last week, the federal minister approved B.C.'s application to take over the review.

Aglukkaq slapped a list of conditions on the province, including that the public have a chance to take part in the assessment process.

The B.C. Liberals have staked their future — and the future of the province — on LNG. It makes sense that the environmental process is done in B.C., but the government clearly has a vested interest in making sure the projects go ahead.

There is pressure to move quickly, as a Japanese government investment adviser said last week B.C. could lose out on his country's contracts if it doesn't act fast. The government said this week it will limit the amount of tax municipalities can charge LNG plants, which makes the province more attractive for companies but could paint local governments into an uncomfortable corner.

The government's hunger for LNG must not be allowed to skew the outcome of the assessment.

If the government wants to earn the trust and support of British Columbians, it must ensure the approval process is seen to be fair and open.

- See more at: http://www.timescolonist.com/editorial-lng-process-must-be-open-1.867298#sthash.ouxHdoMB.dpuf

صنایع شیمیایی

# صدر شیمی گستران یزد

شماره ثبت ۷۱۱

## اولین و تنها تولیدکننده اندرید مالئیک در ایران و خاورمیانه

SADR CHEMICAL Co. LTD.

### Specification of Maleic Anhydride

Appearance: Flake
Purity > 99.8%
Molten color < 20 APHA
Solidifying point < 53 C
ASH < 0.004%
Iron < 3 ppm
Packing: 25kg/bag

### مشخصات محصول اندرید مالئیک

شکل ظاهری : پرک
خلوص: حداقل ۹۹/۸ ٪
نقطه انجماد: 52.5 C
رنگ حالت مذاب: کمتر از ۲۰ (واحد APHA)
آهن: کمتر از ۳ ppm
خاکستر: کمتر از ۰/۰۰٤٪
بسته بندی: کیسه های به وزن ۲۵ کیلوگرم٤٤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فاکس: ۰۲۱ ۲۲ ۲۶ ۲۷۷۸
نشانی: تهران ، خیابان دکتر شریعتی ، روبروی کوچه کامیار ، پلاک ۱۳ ، طبقه۳

**کارخانه:**
تلفن: ۱۲ -۰۳۵۱ ۵۲۱ ۷۲۰۶
فاکس: ۰۳۵۱ ۵۲۱ ۷۲۱۴
نشانی: یزد ، کیلومتر ۲۵ جاده یزد-اردکان ، کیلومتر ۲ جاده حاجی آباد

Iranian Oil,Gas and Petrochemical Products Exporters' Union

## About Union

The oil, gas and petrochemical sector is the first and the foremost strikingly relevant superiority of the country and the reliance of Iran's economy. With respect to the importance of this sector and the need for more congruity and coordination of activists in the field of production and export of oil, gas and petrochemical products, a number of adroit entrepreneurs of the private sector have gathered to take collective and integrated countermeasures to the threats and grab opportunities by relying on one's power and wisdom. Holding same idea, the Iranian Union of oil exporters established at October 22nd, 2003 with the total number of 54 members. With the aim of developing theUnion's working span, and strengthening the sense of cooperation the Union changed its previous name to 'IranianUnion of Oil, Gas and Petrochemical Exporters', following the board's suggestion and the approval of theExtraordinary-General Meeting of the Union at June 17th, 2006; and currently, approximately all 281 active companiesworking in the field are the members of the Union.

## The most important actions of the Union, since the establishment

1. Organizing the oil export plans; designing and creating systems concerning production and exports; planning the implementation of programs and coordinating them with the Anti-Smuggling Headquarters.
2. Designing electronic information systems for the members regarding news, corporate and internal information via web site; designing and creating secretariat office automation system and members' electronic user dashboards.
3. Publications, yearbooks, specialized Union directories.
4. Cooperating with the authorities of the Islamic Republic of Iran via providing professional views in preparing adjusting and modifying related rules and regulations of oil export products.
5. Carrying out problem follow-ups for the exporters (including their banking problems, taxes, customs, standards, transit and etc.
6. Attendance and participation in Iran's international oil, gas and petrochemical fairs; efforts in taking charge of aforesaid fairs.
7. Renewing the rate of oil export products.
8. Establishing Iran's Oil Export Development Fund as the greatest achievement of the Union in its first time period.
9. Holding the exporters' annual conferences of oil, gas and petrochemical products over 6 consecutive years.
10. Developing services and providing conveniences and privileges for the members through the continuing coverage of complementary therapies; establishing housing cooperatives for the Union members.
11. Corporate problem follow-ups including members' financial problems; revising guidelines related to anti-trafficking issues and supplying subsidiary oil products to outside of the network; introducing the Union's reputed companies to correlated organizations such as the Anti-Smuggling Headquarters in order to further their export procedures; more collaboration with Iran Mercantile Exchange Agency regarding the procedure, supplying goods, their quantity, pricing process in the Stock Exchange, and modifying export ring instruction.
12. Publishing the Union's professional journal, 'World of Energy.
13. Efforts to establish a consortium to sell crude oil and other petroleum products.
14. Efforts to take sales and export permission of distillate fuel from relevant organizations.

**Address:First Floor,NO.10,Naghdi St,Mofateh north St**
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• The most important actions of the Union at the present time

- Improving the utilization of the Stock Exchange potentials through more collaboration with Iran Mercantile Exchange Agency, holding joint meetings and posing questions among parties; pricing and examining how to supply goods in the Stock Exchange; trying to solve related problems in performance of the Stock Exchange

- Utilizing the potentials of the Article 44 of the Constitution including the interaction with the Privatizing Organization, Ministry of Oil and the private managers of other oil, gas, petrochemical, refining and distribution subsidiaries to pave the grounds for participation of the members into the process of submissions;encouraging members to create consortiums in order to boost investment in relative fields of industry and in an association with the subfields of oil and gas industry; predicting proper solutions to encourage the international companies to cooperate with the established consortiums in terms of technology transfer and direct investment by establishi ng joint ventures

- Promoting interaction with the Parliament (Majles)

- Holding joint meetings with the Special Economic Measures Staff and the Oil Committee

- Pursuing export awards

- Interacting with the Oil Ministry in order to resolve the problems related to pricing of oil and petrochemical products, the process of supplying them in the Stock Exchange; the swap and transit of petroleum products and the completion of topics related to the approved feed rates of manufacturing members

- Trying to introduce the Union in the international bodies and its acceptance as the pricing source by the Trade Promotion Organization of Iran and the Central Bank of the Islamic Republic of Iran

- Carrying out promotional plans and marketing in the target marketplaces through holding seminars and loca l and international conferences, inviting business delegations; printing advertisements such as in prestigious publications and professional journals, and in the target media through televising teasers in television and satellite channels; trying to register members' brands in the target markets

- Establishing the necessary consortiums, cooperative enterprises and technical working groups

- Pursuing the necessary arrangements for holding the first international conference attended by Ambassadors, Business Advisors and economic activists of the target countries

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