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Iranian Oil, Gas & Petrochemical Products Exporters Union

. 4bn Euros in oil finance to enter Iran

. Jalil Jafari:
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. Iran the largest oil supplier to Turkey

. Iran exported 2.3 billion Dollars worth of gas and petrochemicals

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PARS RINE
Trading Company

Suite 405, No 184, Anahita Tower
Africa Ave, Tehran 1917643149, Iran
Tel: +98 21 88 20 70 44
Fax: +98 21 88 20 70 13
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Head Office : Unit. 1, 1th Floor, No. 1066,
Satarkhan St., Sadeghieh 1th Sq., Tehran-Iran
Tel : (+98 21) 44 22 66 44
Fax : (+98 21) 44 23 37 31
Factory Add : Ramshan Industerial Zone,
Across of Hossein abad Village,
16 Km Rasht Road, Qazvin-Iran
Factory Tel : (+98) 0282 - 225 3258-9
Factory Fax : (+98) 0282 - 225 35 60
Email : info@zanjanshimi.com
Website : www.zanjanshimi.com

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Address:No.386,Fourth floor,Dastgerdi St,Valieasr Ave, Tehran-Iran Tel:(0098-21)88644311-5 Fax:(0098-21)88644310

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


KISH SPA
T
Address: Unit 20, 5th
Tel: +98 21 88 64 75 2
www.kishspanta.com


ANTA INTERNATIONAL
RADING & INVESTMENT CO.
Floor, No. 269, Dastgerdi Ave., Africa Blvd, Tehran - Iran
20-22
Fax: +98 21 88 20 32 37
Info@kishspanta.com

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Proprietor : Iranian Oil , Gas and Petrochemical Products Exporters' Union
Editor – in – Chief:Seyed Hamid Hosseini
Editorial Desk:Mojtaba Khosrotaj, Ahmad Sarami, Nima Eslami
Mehdi Espandyari,Vahid Ebrahimi, Mohsen Taremian
Editor: Reza Razi
Chief Clerk: Seyed Behzad Akhlaghi
Comentators: Mani Rashtipour, Sarah Battaglia , Moghim Sadigh
John Graykowski, Maryam Rezazadeh
Art Director : Mohammad Roshangar, Arash Roshangar
Cover Designed by : Hamed Hakimi
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Iran plans surpassing Arabs in oil industry

We have still much to do for private sector

Encouraging domestic manufacturing in Gas Company will be developed

Iran the largest oil supplier to Turkey

Iran still holds world's largest gas reserves

Iran still holds the world's largest proven natural gas reserves, at 33.8 trillion cubic meters—or 18.2 percent of the world's total proven reserves—according to a BP report, up from 33.6 trillion cubic meters at the end of 2012, when it overtook Russia. The UK oil and gas giant's "Statistical Review of World Energy" also showed that despite holding the world's largest reserves, Iran only accounted for 0.5 percent of global natural gas production, at 166.6 billion cubic meters in 2013. Years of crippling sanctions have stymied Iran's oil and gas industries, leaving infrastructure and fields underdeveloped due to lack of investment and expertise. Energy subsidies coupled with a growing population have also created excess demand which the country's gas industry has not been able to meet, making it today a net importer of natural gas, despite more than doubling production between 2002 and 2012. Even a flurry of gas export deals signed during former president Mahmoud Ahmadinejad's time in office have failed to materialize due to the Islamic Republic struggling to supply its own 77-million-strong population. Only a deal signed with Turkey has remained intact, but Iran has been unable to deliver all of the 10 billion cubic meters per year agreed with Ankara.

Positive and negative in IRAN oil industries

Seyed hamid hosseini

Now that we offer you the new issue of World of Energy, we have witnessed many positive and negative events in oil industries in this year especially during the first three months after the new year. A quick look at these events would help us to understand and predict the future of oil market.

1. Holding Iran's International Oil and Gas Exhibition with a great success and active participation foreign companies and the reaction of American extremists threatening companies like Total, Siemens, Nexans, Lucent and other participants in Iran's Oil Exhibition has lead to the annulations of their contracts with the US government and consequently made way for Iran presenting its new draft oil contracts which are known as the third generation of Buyback contracts and which have attracted the attention of world big oil companies to investment and participation in Iran's oil and gas fields.

2. Transfer of the construction projects of 6 gas condensates refineries with the capacity of 80 thousand barrels (approximately 3.5 million tons per year) in Assaluyeh (Siraf Project) to the private sector was a step taken towards resistance economy and reducing dependence on imported products. The sites and infrastructures of these projects have been provided by the Oil Ministry and also NIOC will participate in 20% of each project. The required investment for each of these projects is 300 million dollars and the National Development Fund will provide most of it. At the moment, Oil Ministry is assessing investment candidates and is aiming to make these construction projects operative in the current year.

3. OPEC ministers meeting in Vienna, their agreement upon production of 30 million barrels of oil, and maintaining the current secretary general, was another important event that has taken place.

4. Importation of the first gas condensates cargo from America to Asia proves United States' gas condensates export capability in the future. Increasing gas and oil production and export, United States became independent from Middle Eastern oil and now can decide for the future of Middle East in a better condition.

5. Iran's 5+1 negotiations is coming to its final days and if Iran and western countries reach an agreement, it is expected that oil price reduces in global market and Iran increases its export.

6. Daesh invasion to Bagdad and Iraqi Shiite provinces caused turbulence and many worries in Iraqi's market and this country's borders with Turkey, Jordan, Syria and Saudi Arabia have been closed. Daesh invasion to PG refinery has caused product shortage in Iraqi market and the prices have gone extremely high in this country. Lack of stability and insecurity in Iraq can damage their future oil production plans and render the plan for increasing production from 3.5 million to 7 million barrels impossible.

7. Disputes over vote counts in Afghanistan also caused a crisis in this country and their borders were closed during the election, and this has led to an increase in prices in their market.

Currently thousands of trucks at the borders are waiting for permission to enter Afghanistan.

8. Settling the price of petrochemicals' supply gas and feed for 2020 Rials has led to the satisfaction of shareholders and investors in stock market. On the other hand providing the permission for selling products with free market foreign currency had a positive effect on their profitability and stock index rose past 70 thousands.

9. The statistics for export/import in the first three months of 1393 indicates an increase in export/import rates. Hopefully petrochemical products export has reached to more than 3 billion dollars and gas condensates export to 3.791 billion dollars and this means a billion dollars increase in these products' export in the first three months of the current year and there is hope for petrochemical products export to reach 12 billion dollars and for gas condensates to reach 15 billion dollars.

10. Disturbing events in Iraq and Syria and the Ukrainian crisis in the relationships between the west and Russia have affected oil market and Brandt Oil price has reached 115 dollars per barrel, and this is while majority of experts expected a price decrease by the beginning of summer.

* Editor – in – Chief

Dealing with the unintended consequences of progress

In a challenging economic climate, the shipping industry has become increasingly focused on maximising efficiency and cutting costs. However, as new eco efficiency technologies and measures develop, some bring with them unintended yet detrimental consequences. As shipowners use more new generation engines, such as Mark 8.1 or newer, to achieve improved fuel oil consumption they are, as a result, utilising longer piston strokes, allowing the cylinder walls to cool more than the older engine designs. Despite the improved efficiencies that come with longer piston strokes, this process also means water will condense on the surfaces of the cylinder liners, which reacts with the sulphur dioxide in the combustion gasses, leading to the formation of sulphuric acid and resulting in corrosion on the liner surface. The resulting iron compounds formed by this process are flushed into the cylinder oil, leading to excessive wear of the cylinder liner, the average replacement costs of which up are to $150,000. In recent service letters, engine manufacturer (OEM), MAN Diesel & Turbo has highlighted the importance of accurate and efficient monitoring of the conditions within the cylinder chamber in order to minimise cold corrosi

Having conducted extensive research into the issue, Parker Kittiwake has concluded that regular testing provides shipowners with a comprehensive overview of conditions within the cylinder chamber, allowing operators to avoid costly repair bills by addressing harmful levels of corrosive elements before they cause damage. Measuring the concentration of iron compounds in used cylinder oil will give an indication of the level of corrosion within the cylinder. Moreover, with OEMs now advocating the use of higher BN lubricants in newer engine designs in order to minimise the issue of corrosion, more unintended consequences emerge as scrape down oil is continually exposed to acidic combustion products that need to be neutralised before they corrode engine parts. Effective testing allows operators to monitor the efficiency of lubricants over a long period of time, maximising the potential life of the product, as well as saving both the cost and time incurred with repairs resulting from corrosive damage. With accurate and detailed data key to preventing corrosion, having quick and easy access to comprehensive data on-board means that operators can understand the exact operating conditions within the cylinders and easily identify where adjustments can be made to minimise corrosive wear and reduce. cost. The recently launched Parker Kittiwake Cold Corrosion Test Kit is the latest innovation in the range of solutions designed to give the most comprehensive analysis of corrosive wear in cylinder lubricants. When used in conjunction with ferro-magnetic analysers such as LinerSCAN, or the Shell Analex Alert, the shipowner will have an accurate measure of both metallic and corroded iron in the scrape down oil. As the shipping industry embraces new eco efficiency technologies, fast and easy access to the necessary data ensures that shipowners and operators are better armed against cold corrosion. Accurate condition monitoring is the most effective means of mitigating the risk before it occurs, ensuring that optimum operational efficiency is not unduly affected by the unintended consequences of energy efficient technologies.

Dr. Steve Dye

Business Development and Marketing Manager Steve joined Parker Kittiwake in 2011. As business development manager, he is heavily involved in R&D, whilst also focusing on unearthing new market channels.
Before joining Parker Kittiwake, Steve was the European and Asian sales director for Source Photonics and Northlight Optronics.
Previous roles include senior marketing manager and product development positions at Lucent and HP.

Iran the largest oil supplier to Turkey

Turkey imported 478 thousand tons from a total of 1.2 million tons of its imported crude oil from Iran. Turkey imported 290 thousand tons of oil from Iraq and 176.5 thousand tons from Nigeria

Director of International Affairs, National Iranian Oil Company, explaining the latest status of Iranian oil export to Turkey, reported about the export rate of 110 thousand barrels a day to the neighboring country and said: Turkey has extended its oil contract with Iran.

Seyyed Mohsen Ghamsari, mentioning the renewal of Iran's crude oil export contracts with turkey, told World of Energy: at the moment Iran's oil export to Turkey is carried out according to the defined quota.

Director of International Affairs of National Iranian Oil Company asserted that the amount of Iran's oil export to Turkey has not changed in current year and added: according to the agreements with Turkish refineries we export an average of 100 to 110 thousand barrels per day to this country.

According to Energy World, Iran became the largest oil supplier to Turkey, overtaking Iraq in this year's March exporting 478 thousand tons of crude oil.

Turkey imported 478 thousand tons from a total of 1.2 million tons of its imported crude oil from Iran. Turkey imported 290 thousand tons of oil from Iraq and 176.5 thousand tons from Nigeria.

He also asserted regarding the new agreements with India and other buyers of Iran's oil on payment with local currencies: National Iranian Oil Company is only responsible for selling and exporting oil.

Ghamsari, emphasizing that receiving oil income currency is Central Bank's responsibility, said: I have any information concerning the agreements with India on making the payments in Rupee or Omani Rial.

According to Director of International Affairs of National Iranian Oil Company, in the current situation there is no difficulty in exporting Iran's oil to India and oil sale is being done as usual.

We have still much to do for private sector

Masoud Mirkazemi, president of the Islamic Republic Parliament's Energy Commission and 9th cabinet oil minister, believes that good steps have been taken in localization of oil and gas industry but we must not confine ourselves to these activities and there is still much to do in this respect.

Foreign investment in Iran has always been accompanied by uncertainty, what do you think is the cause of this lack of interest?

Big oil companies, especially the supermajors, are very interested to open relationship with Iran but unfortunately their executives, in meetings with Iran's oil officials, have always showed their concerns about United States coercions, that is to say, they explicitly stated that we really like to work with Iran but United States constantly coerce, and even threatens, us not to do so, and they even arrested some of European oil companies' executives on charges of cooperation with Iran.

Indeed, all these companies, and Iranian companies as well, are interested in developing relationships for investment but the pressure of sanctions and irrational coercion of European and American politicians prevent this from happening.

Selling oil and its lower hand products in large amounts is exclusively in the hands of the government, does this not contradict privatization?

- According to the law, we cannpt transfer upper hand oil industries to the private sector, but it is possible for lower hand industries to be transferred, that is to say petrochemical units, refineries and even gas refineries are allowed to invest in private sector but oil fields cannot be transferred because they are public property by law.

Currently, since the refineries have been transferred, the private sector can invest in them.

Some oil contracts are long term, which means they have been made between governments and Iranian government and big companies and objective countries that make their sells and the private sector is allowed to buy as well. But in the current situation, under the sanctions, since these companies are under surveillance and even their ships are being sanctioned, the chance is very low for them to be able to make investments, although they are authorized to do so.

According to the last report that we received from oil ministry in the time of Mr. Ghasemi, the 9th Cabinet minister, we learned that these companies had requested large discounts and that could disturb the National Oil Company's long term sales. For instance, if we have contracts with big companies from countries like China, India and South Korea with specified prices and then offer a 15% discount to domestic companies, this would certainly lead to those countries dissatisfaction and objection.

One of the companies in the private

sector had requested discount and, immediately after, one of the foreign companies that had a long term contract requested the same as well. I believe we must not make changes in our price so that our relation with some of our clients that have been working with Iran for many years and pay Persian Gulf FOB prices be troubled.

State of the art technologies in oil, gas and petrochemical industries have a considerable value, to what extent have the related industries and technologies been localized in our country and what legal obstacles have been identified and obviated by the Parliament?

We have taken good steps but there is still much to do and we must not confine ourselves to what have been done. Before the revolution our oil industry was administered by American and European counselors, but we don't have any foreign counselor in Iran after the revolution, and this means that we are running our industries by the scientific capabilities of our own young generations; but we have much to do to be able to make equipments, that is to say, to reach a point where we can achieve a levels of quality higher than European products, and be able to export our products in addition to satisfying our needs and thus achieve complete independence.

What are the obstacles of manufacturing equipments?

The private sector must invest on research and development and form consortium. Our private sector is very small and they must grow to larger companies and approach oil and gas industries in the form of consortium, for when these small companies gather together their power grows and they can share their knowledge and financial resources and since they have unfilled capacities they can integrate their production facilities; some companies that have formed consortiums have been able to perform very well.

The private sector enters big industries in order to achieve heavy investments, Are the required investments available to achieve large capital investments?

- I believe they are available but the banks must cooperate in this regard and adhere to the law.

Jalil Jafari:
The real private sector has not still received necessary trust

The secretary of Islamic Republic Parliament's New Energy Resources and Nuclear Energy Committee and the head of Parliament's Foreign Investment Attraction Committee, Jalil Jafari, believes that the actual private sector in oil and gas industry did not received the necessary trust and the nation's real rights have not been properly secured.

Severe sanctions against Iran's oil and gas industry and also enormous debts, like the 10 thousand billion Toman debt of National Gas Company, have made serious problems for this national industry. Having the current situation of oil and gas industry and their role in managing the country, especially in providing current funds and subsides, in mind, what do you see to be the proper strategy to exit this situation? Is privatization the only solution to escape from current situation?

oil and gas play an essential part in country's economy; more than 70% of country's income depends on oil and gas. Of course, we have agriculture and other income sources as well, but country's current revenue as well as construction and other projects costs are being provided by oil and gas industry, and this is why oil and gas have a special place in macroeconomic management of the country, and again this is why securing current situation and developing oil and gas industry is one of our priorities, and this is the reason for placing Oil Ministry and oil industry in such an special place.

We must preserve our dominance in oil and gas industry, and this requires using the private sector for the development of the industry, rather privatization. Privatization in petrochemical industry did much harm in the past, and if we had kept petrochemical industry in the hands of the state and Oil Ministry and had developed it making large petrochemical complexes in the country, sanctions might not affect us the way they do today. We agreed the government not to interfere in petrochemical industry, but on the other hand the private sector has not entered the industry due to the heavy investments that it requires and the government could not support them efficiently as well; as a consequence we lost much power and production capacity in petrochemical industries: they must be much more than what they are today. If we are to bring the whole of private sector into oil and gas industry, we have to unconditionally support them but we did not do so in the past; financial and credential supports have had to be dedicated but they did not, and consequently petrochemical industry did not develop properly.

Now that we are obligated, by the article 44 of the constitution, to let the private sector manage our petrochemical industry, we must think of a solution to help petrochemical industry, in terms of providing financial supports, dedicating resources of National Development

Fund and allowing state aid to secure funds. We cannot have privatization as such in refinement and distribution in gas industry; refineries have an enormous maintenance costs, and if we are to transfer refineries to the private sector we have to consider many issues the first of which is qualification and competence; we must transfer these units to people and organizations that have the ability to operate and develop them. To the moment, we cannot find organizations which are able to operate state refineries and develop them; however, the real transfer of their shares to people and individuals is a good solution. That is to say, we can transfer the shares but leave management and governance to state experts.

With respect to oil and gas unprecedented foreign exchange earnings in recent years, one of the expectations was to use these resources for privatization in order to maintain the vitality of this industry; how much, do you think, recent privatizations conformed to private sector's real participation goals? To what extent can we expect that actual decisions based on political policies in oil and gas management would lead to real participation of the private sector?

The real private sector has not still received necessary trust, and up to the moment only certain institutions and organizations were able to privately acquire these transfers, and this means that the nation's real rights have not been secured. We must try to present the real share in bourse and to people and real private sector so that they can buy these shares and then with the acquired resources we can develop refineries. The cabinet and oil minister have to deliver on the real promises to people and transfer the shares to the real private sector. It is the essential responsibility of the government and oil ministry to sell public interest to the private sector and refrain from transferring shares to certain rentier organizations. Naturally, the parliament, regulatory forces, and country's general inspectorate and supervisory system must watch over the transfers to the private sector, that is to say there is one real responsibility of the government that has to be satisfied and the rest is on the shoulders of supervisory systems to keep watch of the procedures to be done properly.

Although in Fourth and Fifth Development Plans investors of the private sector are authorized to take part in lower hand industries, statistics show that the private sector did not show interest in these industries. It seems that in order to strengthen the integrated management of these industries it is necessary to reinforce and encourage the private sector in upper hand industries; what are the plans and policies of oil ministry about this issue?

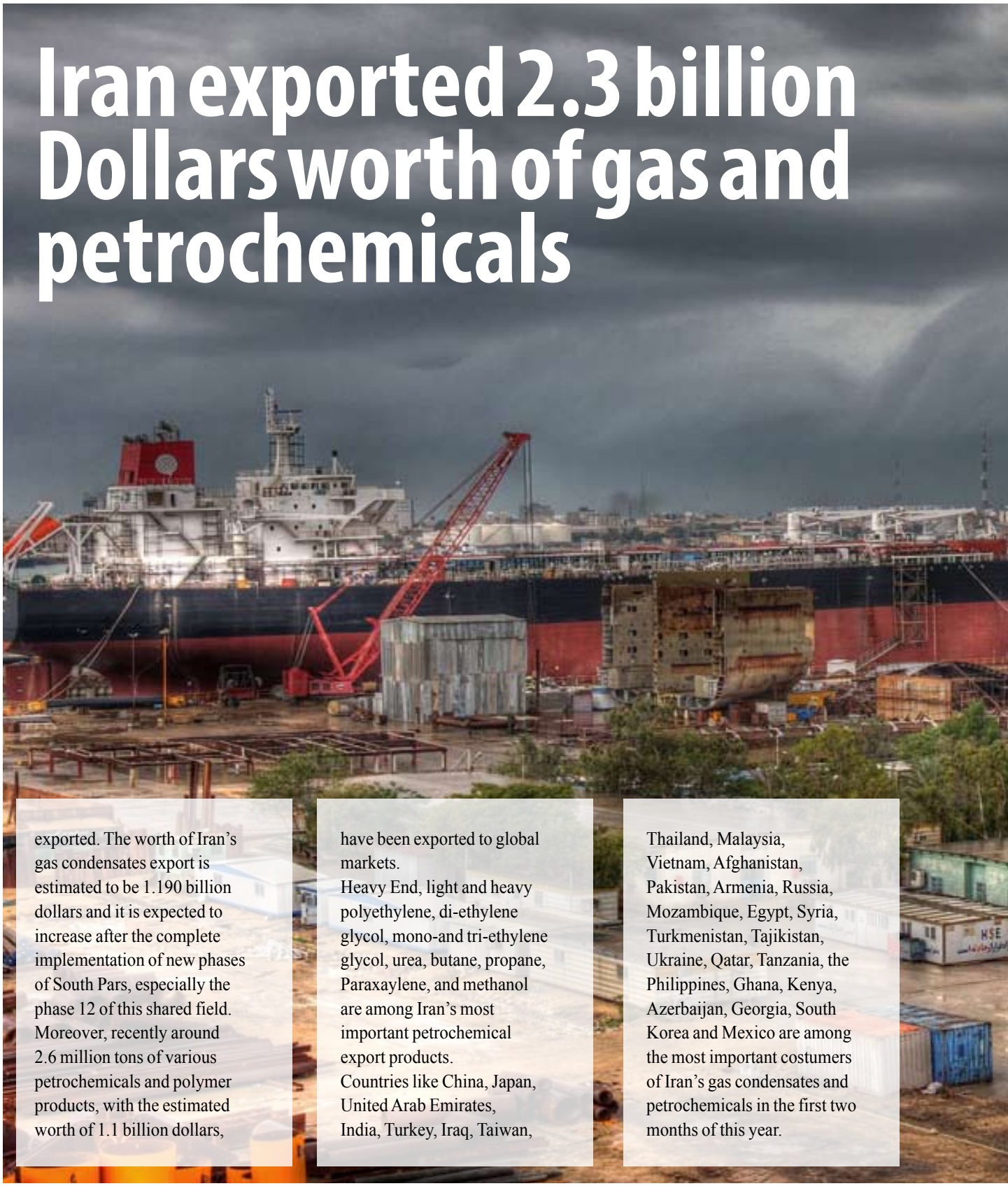
Upper hand industries involve oil exploration and extraction, like complexes with drilling rigs that can find and exploit oil wells. Since the government's capability for exploration and extraction is not sufficient, we must use private sector capacities specially for constructing rigs in our country. If it is not possible for them to construct rigs, or their construction capacity is limited, or they cannot make these upper hand industries, especially the drilling rigs, operative in due time, importing rigs from countries that possess fine and reliable relevant technology is the government's duty. Offering financial facilities and technical aids is among the things that must be done in this section in order to support the private sector, but with the condition that the private sector deliver on its promises in due time, because the time is very important for us in oil industry. That is to say, they must satisfy the needs of upper hand oil industry in the appointed time, and if they faced unavoidable deficiencies, import would be a solution.

Since privatization could not be a merely local act, especially in industries that require heavy investments, what policies the oil ministry has adopted on the cooperation of international companies as private sector investors while preserving national interests?

Foreign companies practically have not been present in our oil industry due to sanctions. Before the sanctions well known companies like Total, Shell and an Italian company were active in Iran and completed several projects, but after the sanctions they gradually left the country and Chinese and Russian companies filled their place but these companies were not successful. Now the opportunity is being made for the presence of powerful oil companies like British Petroleum, Shell, Total and even certain American companies in our oil and gas industry. Oil ministry will definitely welcome and support any form of foreign investment, be it direct monetary investment or through companies, for we are in need of such investments. Indeed, both the government and the parliament support these investments and even there exist legal weaknesses, we are ready in the Parliament's Foreign Investment Attraction Committee to review and amend the legislations if they have defects or weaknesses.

The cabinet, especially the oil ministry, has a strong tendency to encouraging and attracting foreign investments through companies or individuals.

Iran exported 2.3 billion Dollars worth of gas and petrochemicals



exported. The worth of Iran's gas condensates export is estimated to be 1.190 billion dollars and it is expected to increase after the complete implementation of new phases of South Pars, especially the phase 12 of this shared field. Moreover, recently around 2.6 million tons of various petrochemicals and polymer products, with the estimated worth of 1.1 billion dollars, have been exported to global markets.

Heavy End, light and heavy polyethylene, di-ethylene glycol, mono-and tri-ethylene glycol, urea, butane, propane, Paraxaylene, and methanol are among Iran's most important petrochemical export products.

Countries like China, Japan, United Arab Emirates, India, Turkey, Iraq, Taiwan, Thailand, Malaysia, Vietnam, Afghanistan, Pakistan, Armenia, Russia, Mozambique, Egypt, Syria, Turkmenistan, Tajikistan, Ukraine, Qatar, Tanzania, the Philippines, Ghana, Kenya, Azerbaijan, Georgia, South Korea and Mexico are among the most important costumers of Iran's gas condensates and petrochemicals in the first two months of this year.

More than two billion Dollars worth of Iran's gas condensates, petrochemical and polymer products exported from Assaluyeh terminals to Asia, Europe and Central America in the first two months of this year.

After the increase in Iran's oil export up to 1.2 million barrel per day, the amount of Iran's gas condensates export to global market has been increased in the first two months of this year.

The amount of Iran's gas condensates export in the first two months of this year, recording a growth ratio of approximately 1% in comparison to same period in last year, reached 1.3 tons, and this is while gas condensates constitute 37%, regarding weight, and 39%, regarding value, of the total exported goods of Iran.

The Pars Special Energy Economic Zone Organization, publishing a report about the latest status of gas condensates and petrochemicals export from Assaluyeh terminal, stated: in the first two months of this year a total 2.336 billion dollars worth of gas condensates, petrochemicals and polymer products was

Deputy Investment Director of National Oil Company said:

High economic returns is in front of investors in the construction project of 8 small refineries

The opportunity is provided for private companies to cooperate in the construction project of 8 gas condensate mini-refineries in Asaaluyeh and this project's investor are going to achieve high economic returns.

Deputy Investment Director of National Oil Company told World of Energy: if the investors participate, the construction project of 8 gas condensate mini-refineries will be implemented in not more than 30 months.

Ali Kardar said: the construction of these refineries, which has been approved by oil minister, has high economic returns and is very profitable for investors.

Mentioning the production of Naphtha, gasoline and gasoil in these small refineries, he said: the use of naphtha in petrochemical complexes and the possibility of exporting gasoline and gasoil would make a good condition for the active private sector to participate in the construction project of these refineries.

Kardar asserted that construction of each of these 8 gas condensate small refineries needs approximately 300 million dollars and added: these 8 refineries would have a single utility (water, electricity, vapor) and each investor would have a part of the shares of that utility and 20% of the investment in construction will be make by National Iranian Oil Company.

According to Shana, CEO of National Iranian Oil Refining and Distribution Company already stated: the construction operation of eight gas condensate small refineries in Assaluyeh will be assigned to the private sector through a public call in the near future.

According to Abbas Kazemi, basic engineering and providing general infrastructures of thee eight refineries will be done by National Oil Refining and Distribution Company and the rest of the project will be assigned to the private sector.

Transfering the power plants under the B.O.O and B.O.T contracts

Mentioning that the oil minister insisted on participation of the private sector in mini-LNG project, deputy Investment Director of National Iranian Oil Company added: investment department is carrying systematic studies in this regard, but for these to reach conclusion more technological relations must be made to provide the preparatory arrangements to benefit from this new technology.

Kardar also reported about National Iranian Oil Company's investment department plans for attracting investment in LNG sector and said: there is a possibility as well to transfer power plants to the private sector under B.O.T and B.O.O contracts.

Encouraging domestic manufacturing in Gas Company will be developed

In the first stage of this project 100 gas heaters with 82% efficiency and B energy class will be produced using domestic technical knowledge

Optimization fuel consumption and encouraging domestic manufacturing in Gas Company will be developed as a principle in oil ministry. Deputy oil minister in gas affairs told World of Energy: regarding Oil Minister's insistence on encouraging domestic manufacturing, National Iranian Gas Company has put this policy in agenda and is going to pursue its implementation. Hamidreza Araghi added: in order to bring domestic manufacturers to our projects it is necessary for these companies to act as consortiums so that they would be able to satisfy the needs of National Gas Company. He asserted: in recent days we signed a contract with some domestic companies in this regard so that these companies change their production line from parts to equipments. Concerning optimization of fuel consumption, CEO of National Iranian Gas Company said: production of high energy-efficiency class heaters is one of these programs.

According to him, in 19th Oil Industry Exhibition a contract was signed, on one side between the Presidential Department of Science and Technology and Pardis Technology Park, and on the other side between National Iranian Oil Company and a domestic manufacturer of gas appliances.

He stated: at the moment The Organization for Fuel Consumption Optimization pursues this policy.

Araghi stressed: we are cooperation with this organization in order to identify new manufacturers that can produce these heaters.

In the 19th International Oil, Gas, refining and Petrochemical Exhibition a contract was signed for licensing production of gas heaters with B energy class, designed by domestic inventors.

In the first stage of this project 100 gas heaters with 82% efficiency and B energy class will be produced using domestic technical knowledge. According to this report, the production of this heater will reduce gas consumption by 25% in comparison to low efficiency heaters, and regarding the production of 100 heaters 250 cubic meters of gas would be saved by each heater in year.

Annual savings of 8 billion cubic meters in natural gas consumption, flourishing the production in industries and making jobs without providing new investments, exporting high quality products and making foreign currency income are among the long term objectives of implementing this project.

Are Oil Traders Missing The Gravity Of Mosul's Fall To Insurgents?

Nick Cunningham

OPEC's second largest oil producer is in severe disarray just as the world has come to rely upon Iraq for greater energy supplies.

Iraq is facing its biggest security threat in years following a surprise attack by Sunni militants on Mosul. In the June 10 attack on Iraq's second largest city, members of the Islamic State of Iraq and Syria (ISIS) surprised Iraq's security forces, driving them out and storming military bases, police stations and the provincial governor's headquarters.

Government security forces shed their uniforms to avoid capture and abandoned their posts as Prime Minister Nouri Al-Maliki declared a state of emergency in the entire country. Eyewitness reports said civilians were streaming out of Mosul, fleeing the violence.

The attack by the militant Sunni

group is not the first. In January, ISIS attacked Ramadi and Fallujah in Anbar province, briefly taking control of the cities entirely. Despite Maliki's attempts to pacify the region, ISIS has retained control of some territory in Anbar.

Iraq has been deeply divided, with Maliki's government becoming increasingly authoritarian.

Sunni groups claim that Maliki discriminates and unfairly targets them. But the problem appears to be a cycle of fear and distrust; as Sunnis resist oppression and increasingly take to the streets, Maliki tries to strengthen his position by cracking down.

The January attacks by ISIS came after Maliki bulldozed a Sunni protest encampment in Ramadi, and intentionally conflated Sunni protestors with Al-Qaeda terrorists. Support for his government vanished in Anbar and Maliki's security forces withdrew as a result, paving the way for an ISIS takeover. (For a detailed rundown of the events that led to the crisis, read Kirk Sowell's exhaustive piece in Foreign Policy from earlier this year).

Now that the insurgency has spread to Mosul, the future of Iraq has again been thrown into question. Maliki's emergency decree may not matter much. He already has consolidated enough power to act but has shown an inability to quell the violence.

The turmoil in Mosul threatens to upend some of Iraq's oil production. Most of Iraq's oil is located in the south near Basra, but there are significant oil fields near Mosul, as well as in nearby Kurdistan. Perhaps more importantly, the fighting in Mosul has brought to a standstill the repairs to Iraq's main oil pipeline to Turkey. Moreover, the violence could threaten future investment in the country, which has plans to triple its oil production by the end of the decade. The phenomenal level of investment required to achieve such a feat will not happen in a country suffering from severe violence.

"Taking over Mosul will likely halt investment in oil and gas in that area," Paul Sullivan, a Middle East expert at Georgetown University, told Bloomberg News. "Who wants to drop hundreds of millions or billions in a place where ISIL could attack at any moment?"

One additional development that is complicating Iraq's oil picture is the central government's relationship with Kurdistan. After a second ship full of Kurdish oil left from the Ceyhan port in Turkey on June 9, an Iraqi government representative said that it would bring a complaint to the United Nations.

The move comes even as uncertainty shrouds the ultimate destination of both tankers. The first ship still has not docked – it initially traveled towards the U.S. Gulf Coast, but reversed course and is near the shore of Morocco. While the violence in Mosul is an acute threat to Iraq's oil industry, the lingering political conflict with Kurdistan is also holding back Iraq's potential as an oil exporter.

As I mentioned in my June 9 piece, OPEC is currently meeting in Vienna to discuss its output quota, which is expected to remain unchanged. But the oil supply picture is becoming more strained than experts predicted only a few short months ago.

Iraq intended to lift its oil production to over 4 million barrels per day (bpd) this year, but that seems unlikely at this point, especially given what's happened in Mosul. After hitting a 35-year high in February at 3.6 million bpd, production slipped the following month by almost 300,000 bpd. With other OPEC members also losing output, OPEC may need to rely upon Saudi Arabia to make up for any shortfall later this year if demand rises. As oil markets have tightened, prices have climbed. WTI is up more than 10 percent since the beginning of the year, from $93 per barrel in January to over $103 in June. Brent prices are up a more modest 3 percent, from $106 per barrel to $109.

If Iraq's security situation continues to deteriorate, it is not inconceivable that some of its production would be knocked offline. The world has come to take Iraqi oil for granted, and a significant loss of production would send prices skyrocketing.

Iran plans surpassing Arabs in oil industry

Speaking about Iran's plan to produce one million barrels of oil in the shared fields with Iraq, CEO of Petroleum Engineering and Development explained the latest construction status of the largest associated gas gathering plant in West Karoon zone.

Explaining the most important policies of Iran's National Oil Company for developing shared oil fields with Iraq, Abdolreza Haji Hosseinnejad said to World of Energy: our most important objective is to increase raw oil extraction from the shared fields with Iraq to 700 thousand up to one million barrels.

He stated that in the current situation the development projects of South Azadegan, Yadavaran, North Azadegan and Azar oil fields are at the same time in progress, he then added: consequently, producing 320 thousand barrels of oil in South Azadegan, 180 thousand barrels in Yadavaran, 75 thousand barrels in North Azadegan and increasing production in North and South Yaran and Azar are in our agenda.

Emphasizing that in the next three years we will be able to produce 700 thousand barrels of oil per day in the shared fields with Iraq, he said: by completion of the last phases of oil production development projects in West Karoon Fields and in particular the shared fields with Iraq we will reach the production rate of one million barrels a day.

Haji Hosseinnejad said about the latest construction status of the Iran's largest associated gas gathering plant in West Karoon: West Karoon's LNG plant has been transferred to Khatam Al-Anbia Construction Headquarters by a buyback contarct in previous government.

CEO of Petroleum Engineering and Development asserted that Khatam Al-Anbia Construction Headquarters has a 30% share of this project and the rest 70% is on petrochemical organizations, he added: site preparation operation, purchasing goods, logistical provisions and acquiring technical knowledge have been done so far.

Mentioning the plans for providing required pipelines for this gas project from domestic manufacturers, he said: initiation of West Karoon LNG plant depends on the development of Azadegan oil field and accumulation of petroleum associated gases.

75 thousand barrels in North Azadegan and increasing production in North and South Yaran and Azar are in our agenda

Will another oil price surge now tip the world into a global financial crisis like it did in 2008?

The oil price has a long record of plunging the world into recession. Indeed pretty much every major economic downturn for the past 40 years can be put down to oil. The global financial crisis of 2008 was no different with a sudden spike in oil prices to $147 a barrel that July as the straw that broke the camel's back. Remember until then financial markets were trading calmly close to record highs.

Oil's importance

What is it about oil that makes it so important to the global economy? Has its importance gotten greater or lessened over time? True there has been huge progress in lessening the world's dependence on oil as a commodity, from energy-saving innovations to the fracking revolution. But the problem is that global demand for energy keeps on rising as a greater proportion of the world's economy achieves lifestyles that where once only available in a limited number of Western countries. How many Chinese drove cars 15 years ago? Now it's the world's biggest car market.

It's a problem then when a nation the size of Japan has to shut down its nuclear stations after an earthquake due to safety fears, or when a country as large as Germany with no earthquake issues decides to do the same after a public vote on the matter. Oil is the swing producer. It's available, safe and easily used, at a price.

What's changed?

From the Middle Eastern perspective the world has only itself to blame for the current oil shortages by pursuing an ideological agenda based on the promotion of regional democracy in the Arab Spring while undermining traditional tribal and strongman governments. Anarchy is the result and anarchy is not good for oil supplies, so the price goes up. Syria and Iraq are in a state of chaos, and so is Libya after the toppling of its dictator. Egypt is still unstable. You can be an ardent advocate of democracy for all and still have to admit that this is a disaster with every sign that it will get worse before it gets better. Still this is a financial website looking at financial markets and we don't have a political agenda, however important that might now be for global oil prices and the world's financial markets. Is this any different from 2008? No it is quite uncannily similar. Here's the black swan event.

Oil sands development driving steady Canadian oil production growth into 2030

Canadian oil production is projected to grow steadily by an annual average of four per cent or 175,000 barrels per day over the period to 2030 as companies continue to develop the oil sands in response to strong demand indications from North American and global energy markets.

According to the Canadian Association of Petroleum Producers' (CAPP's) 2014 Crude Oil Forecast, Markets and Transportation, total Canadian crude oil production will increase to 6.4 million barrels per day by 2030 from 3.5 million barrels per day in 2013.

"Global demand for oil continues to increase and Canada's large reserves make it an attractive supply source for markets in the United States and beyond," says CAPP vice-president Greg Stringham. "Connecting Canadian supplies to these markets, safely and competitively, remains a key priority for our industry."

As oil production increases, more transportation capacity is required to transport products to new and existing markets. Several projects are at various stages in the regulatory process and others are being considered. They include pipelines to the east and west in Canada and south to the United States. The projected growth in production is dependent on expansion of transportation capacity to a portfolio of market opportunities.

While pipelines remain the primary transportation mode for large crude oil volumes over long periods of time, delay in the regulatory process for Keystone XL has provided the impetus for additional capacity from railways, barges, and tank transports in the transportation mix. With the construction of new loading and unloading facilities, existing rail lines provide flexibility to deliver to multiple destinations.

Over the full forecast period to 2030, oil sands remain the primary growth driver with production growth to 4.8 million barrels per day. Conventional oil production in Western Canada, including condensates, remains stable at 1.5 million barrels per day and Eastern Canadian offshore production declines to about 90,000 barrels per day.

Conventional oil production continues to reverse its previous long decline because of the continuing use of horizontal and multi-fracturing drilling techniques. Increased drilling in liquids-rich areas has also reversed a declining production trend for condensates, a light oil often used as diluent in the oil sands. In Eastern Canada, three recent discoveries in the Flemish Pass Basin may lead to increased projections for the region in future CAPP forecasts.

For comparison, CAPP's 2013 forecast estimated total production in 2030 at 6.7 million barrels per day, oil sands production at 5.2 million barrels per day, and conventional production at 1.4 million barrels per day. During the early part of the forecast period the two forecasts are very similar, with production from current projects and projects under construction being relatively firm. However, the latter part of the forecast is more dependent on new growth projects. While the overall trends in the two forecasts are consistent, the difference between the two forecasts later in the period primarily reflects increasing uncertainty regarding project timing related to cost competitiveness and capital availability. These impacts are more evident in proposed oil sands projects near the end of the forecast period.

CAPP's annual forecast is developed from oil producer survey data and CAPP analysis of historical trends, expected drilling activity, recent announcements and ongoing discussions with industry stakeholders and government agencies. CAPP does not forecast oil prices.

Gas Market Transparency Trails Power as Scrutiny Tightens

Rachel Morison

Natural gas companies and grid operators in Europe are behind their power market counterparts in providing flow and supply data under rules designed to prevent insider trading. The Agency for the Cooperation of Energy Regulators is discussing whether it can oblige gas importers in Europe to report disruptions of flows into the region, according to Alberto Pototschnig, a director at the organization. Data such as Russian inflows and liquefied natural gas cargoes to Europe have to be published under two-year-old European Union rules on energy market transparency. "Gas trading has a legacy of long-term contracts, the conditions of which are not publicly known, whereas power is traded more in organized markets," Pototschnig said in an interview in Ljubljana, Slovenia, where ACER is based. Under the EU's wholesale energy market integrity and transparency rule, known as Remit, companies must publish outages, flow data and, by next year, will have to report to ACER all trades in the region's 900 billion-euro ($1.2 trillion) power and gas markets. Energy costs hinge on how much is being produced at any given time, so unexpected supply interruptions can cause price swings that may benefit those with advance.

Least Transparent

There needs to be "more transparency in the gas market," Folker Trepte, a Frankfurt-based partner at PricewaterhouseCoopers LLP, said by phone on June 6. "What's least transparent is import data from Russia or Qatar and it will be difficult for the EU to change this under Remit."

Information relating to the capacity and use of production, storage, consumption or transmission of electricity, natural gas or LNG, including planned or unplanned unavailability of these facilities, must be reported under Remit.

ACER can't force foreign countries to disclose information on operations outside the EU, Pototschnig said.

Stockholm-based Vattenfall AB, the Nordic area's biggest utility, has published live data from its reactors since at least 2004. Germany's biggest generators, EON SE and RWE AG, started releasing near real-time power plant outage information in 2007 after industry groups campaigned for more transparency. Utilities throughout Europe have since stepped up publishing gas and power data on their own websites to meet the transparency requirements of Remit.

Centralized Platforms

While Remit makes energy markets more transparent, it's one of several trade reporting requirements under EU regulations, according to Rune Bjoernson, a senior vice president at Statoil ASA, Norway's biggest energy company. "We need to comply with all these systems, which makes it even more complex and costly," Bjoernson said in a May 20 interview. "We would like a more coordinated approach to that." To make generation and supply data easier to see, the European Energy Exchange AG in Leipzig, Germany, and London-based National Grid Plc are creating centralized platforms to display outage data. EEX plans to start its transparency platform by the end of this month. The exact date isn't yet known, Eileen Hieke, a spokeswoman for the exchange, said by e-mail June 5. The size of the plant, fuel type, reason and duration of outage will be published without the operating company or unit name, she said. EON plans to get rid of its own Remit website and report details of outages via EEX, Markus Nitschke, a spokesman for the Dusseldorf-based utility, said by e-mail on June 5.

ACER Review

National Grid plans to start a platform for power data by the end of this year at the request of utility SSE Plc, Mark Malbas, a London-based spokesman for the company, said by e-mail on June 5. It already operates a website for gas market information. ACER reviewed 13 cases of potential breaches of Remit rules last year, compared with 10 in 2012, the regulatory group said in its annual Guidelines on the trade data that companies need to submit have been delayed until after summer, the European Commission said. Trade monitoring will begin six months after the data requirements are published. The number of cases needing investigation for possible market abuse will probably increase once ACER has the trade information, the agency's Pototschnig said.

IEA Cuts Gas Use Growth Forecast as Coal, Renewables Gain

Global natural gas demand will increase at a slower rate than previously expected through 2019 amid weaker economic growth and competition from coal and renewables, according to the International Energy Agency.

Gas use will climb by 2.2 percent annually through 2019 from 2013 after last year posting the slowest growth among fossil fuels, the Paris-based International Energy Agency said today in its medium-term gas market report. Consumption will be driven by non-developed countries, which will see their market share rise to 57 percent of the total from parity in 2007.

"Slower economic growth, the ever-strong competition from both coal and renewable energies, together with high gas prices, are all slowing down the growth of natural gas across all sectors," the IEA said. "The maturity of most markets, slower economic growth, and competition from renewable energies or coal" will damp demand from developed nations, it said.

Nations outside the 34-member Organization for Economic Cooperation and Development will provide 85 percent of additional gas demand, led by China, where usage will rise 11 percent a year to 2019, according to the report. Europe and the former Soviet Union will see zero growth in the period.

Global consumption of gas increased 1.2 percent last year to 3.49 trillion cubic meters (123 trillion cubic feet) as oil use grew 1.4 percent, coal demand 3 to 4 percent and renewable power generation more than 4 percent, according to the IEA. Europe's push for green power and lower coal prices led to a loss of almost 40 billion cubic meters of gas in power generation alone over the past three years, the IEA said.

Power Demand

"As the European case has shown, lower power demand, the stronger than expected growth of one type of energy and high gas prices can easily send gas demand in the doldrums for an extended period of time," it said.

Usage will reach 3.98 trillion cubic meters a year in 2019, a 2 percent downward revision from last year's edition of the report, according to the IEA. Consumption will fall in the residential and commercial sectors, while demand from the power sector is set to increase, initially in North America and eventually in Europe, the IEA said.

"The current very low levels are starting to test the limits of the whole power system, and the decommissioning of coal-fired plants in the U.K. will help the return of gas use in the power sector," the IEA said.

Road Gas Supply

Global gas supply will rise 2.3 percent a year from 2013, reaching 3.98 trillion cubic meters by 2019, after climbing 1.1 percent in 2013, the IEA said. OECD nations in North and South America, Asia and Oceania will provide additional volumes, while unconventional and traditional gas developments in China will boost the country's output by 65 percent to 193 billion cubic meters by 2019. Outside China and Australia, and potentially Argentina and Mexico, unconventional output will be "modest," the IEA said.

"Despite some hopes, shale gas in the U.K. or in Poland will not reverse the trend because it will account for only a couple of billion cubic metres," the IEA said.

The Netherlands will probably become a net importer by the next decade, as Europe's own production declines by 25 billion cubic meters over 2013-2019. Russia, the world's second-biggest producer after the U.S., will have flat production over the period. After a collapse in 2013, Africa's production should recover to 254 billion cubic meters by 2019.

IEA's Roadmap for Low-Carbon Electrification in a «Golden Age» of Gas

On Jun 2014 the International Energy Agency released its latest Energy Technology Perspectives (ETP), a technology roadmap extending out to mid-century, with a major focus on the increasing electrification of global energy against a backdrop of climate change. It may also shed some light on the options for achieving the emissions cuts in the US Environmental Protection Agency's proposed CO2 regulations for power plants.

This is turning out to a big season for climate-change-related reports. The ETP arrived just a week after the US National Climate Assessment, which followed the latest volume of the IPCC's Fifth Assessment Report on climate change. The ETP caught the attention of renewables-oriented news sites for its characterization of natural gas as, "a transitional fuel, not a low-carbon solution unless coupled with carbon capture and storage (CCS)."

That might seem to contradict the general tone of IEA's earlier "Golden Age of Gas" scenario, though when that study was released in 2011 it, too, included caveats about the limitations of gas in reducing greenhouse gas emissions. From that standpoint, the new ETP is no more negative about gas than the relatively rosy (for gas) Golden Age scenario was, and in fact sees gas supporting both "increasing integration of renewables and displacing coal-fired generation."

The IEA's press release for the ETP highlighted the growth of electricity as a major energy carrier, particularly in the developing world, increasing from 17% of final global energy consumption in 2011 to 23-26% by 2050. However, it also noted, "While this offers many opportunities, it does not solve all our problems; indeed it creates many new challenges." Among other things, that alludes to the fact that while renewables such as wind and solar power have been growing rapidly, so has coal use, with the result that, as the ETP launch presentation put it, "the carbon intensity of (energy) supply is stuck."

The emissions benefits of electricity displacing oil from transportation and other fossil fuels from industrial, commercial and residential uses will be largely negated if power generation does not also shift towards lower-emitting sources such as nuclear, hydropower, geothermal, wind and solar power. The "2DS" scenario that received far more attention in the IEA's rollout than the ETP's other two scenarios, provides the prescription and justification for that transition.

Geoffrey Styles

Geoffrey Styles is Managing Director of GSW Strategy Group, LLC, an energy and environmental strategy consulting firm. Since 2002 he has served as a consultant and advisor, helping organizations and executives address systems-level challenges. His industry experience includes 22 years at Texaco Inc., culminating in a senior position on Texaco's leadership team for strategy development.

However, it's important to realize that the 2DS case is not a forecast or prediction; it's what scenario experts might call a "normative scenario"--one that the authors hope to encourage, rather than expect to occur.

2DS reflects the official stance of most member countries of the IEA and links to the low-emission "450" scenario in the agency's current World Energy Outlook. Both are predicated on creating a 50% chance of limiting the average global temperature increase due to climate change to 2°C (3.6°F), compared to pre-industrial conditions. That is generally thought to require keeping the atmospheric CO2 concentration below 450 ppm (0.045%). In their launch presentation for this report, as in other recent reports, the IEA sounded the alarm that this goal may be slipping out of our grasp. April's monthly CO2 average exceeded 400 ppm for the first time since measurements began, and it is growing at around 2 ppm per year.

The IEA makes a good case that the rapid energy transition described in their 2DS scenario is feasible and economically beneficial, despite its $44 trillion price tag, providing substantial future savings in fuel costs, or more modest ones on the discounted cash flow basis on which most investments are premised. However, they are equally candid that reaching this goal will require significantly greater commitments and actions than countries have already made--or than I would assess to be politically feasible in the current global environment.

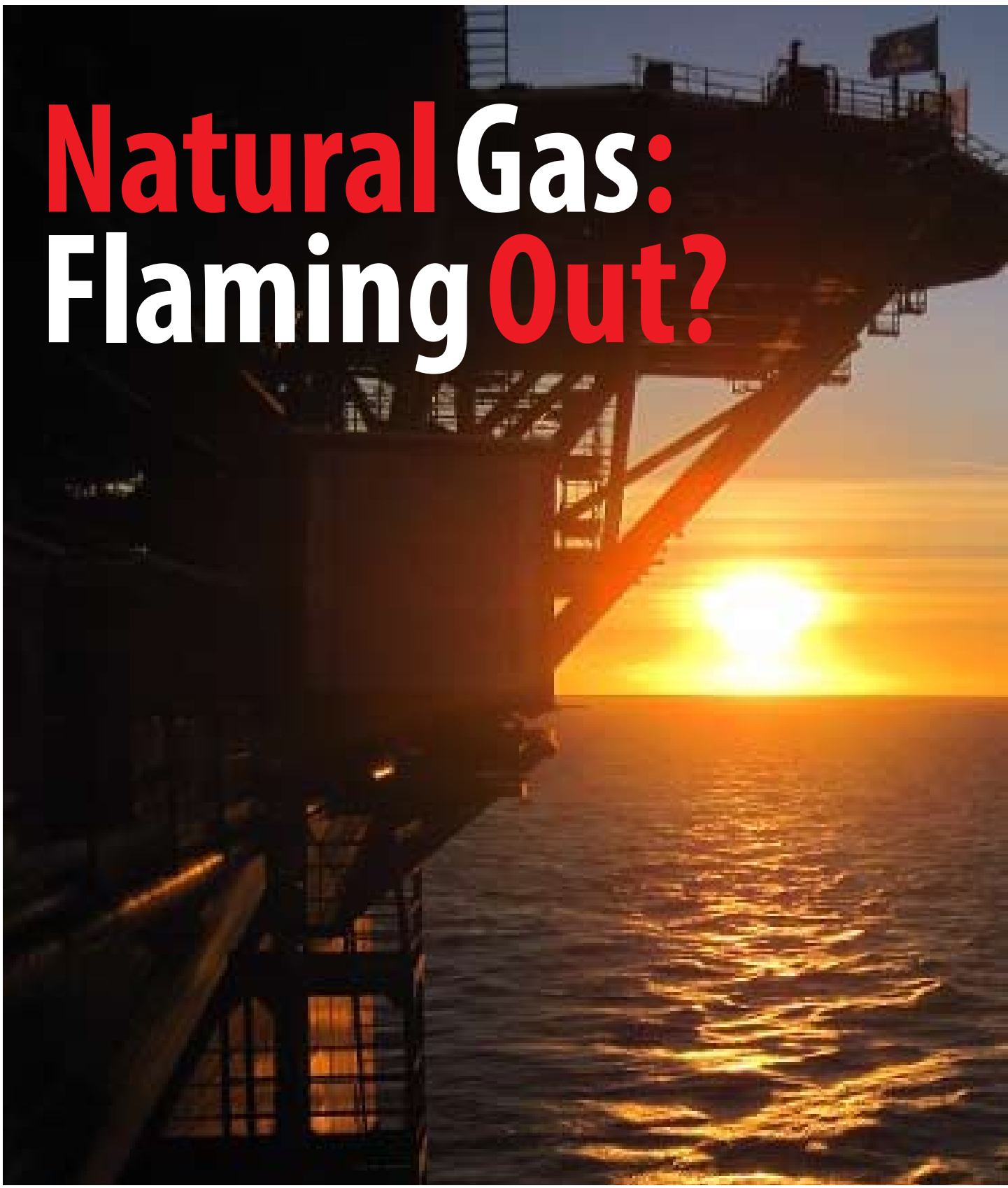
Renewables may be on-track, but many other aspects of the low-carbon transition aren't. That's especially true for new nuclear power, post-Fukushima, and carbon capture and sequestration (CCS) on which 2DS counts for 7% and 14%, respectively, of emissions reductions through 2050.

It's worth recalling that the main scenario in the World Energy Outlook was not "450", but rather the less-restrictive "New Policies" scenario, which appears to correspond to the middle "4DS" technology scenario of the ETP. (The WEO also includes a status quo "Current Policies" scenario.) In that context we must not let the appealing outcomes envisioned in 2DS obscure the emissions-reducing benefits of natural gas in the world we are still likelier to inhabit, based on current trends, than the one we might desire.

Only under the rapid replacement of fossil fuels by renewables and nuclear power and CO2 sequestration assumed in the 2DS/ "450" scenarios would it be true that, "After 2025...emissions from gas-fired plants are higher than the average carbon intensity of the global electricity mix; natural gas loses its status as a low-carbon fuel." Presumably in the ETP's other two scenarios, that crossover would not happen until much later, if at all.

Gas is thus still a crucial bridge to a lower-carbon world, and it will not lose that status until we have made much more progress in reducing energy-related emissions than seems likely in the near future. While I certainly wouldn't bet against the continued growth of renewable energy, the slow progress of the other elements of decarbonization leaves a vital role for gas to help fuel the beneficial electrification of energy that the IEA has highlighted, for multiple decades.

Natural Gas: Flaming Out?



A little known crisis is approaching in the world of natural gas, one that threatens the most successful part of the largely imaginary New American Bonanza (NAB) in oil and gas brought on by hydraulic fracking. The gas frackers did manage to increase domestic supplies, so much so that two things happened: every electric generator that could switch from coal to gas, did so; while the glut drove the price down so far that the gas producers started losing money. Their output, which had grown by seven percent in 2011 and five percent in 2012, managed to inch up one percentage point last year. Now the entire industry has an iceberg just off the starboard bow.

There isn't enough natural gas in the system to get us through a winter. The marketers have been too good at selling gas furnaces — they now heat half of our homes. So for years now the industry has during the milder months stockpiled four trillion cubic feet of gas in underground caverns. And in a typical winter, the industry draws down two trillion square feet to meet demand. Last winter, it took over three trillion. If that gas is not replaced in the reserves, and the winter is anywhere near as cold as the last one, people could be facing not just high prices, but insufficient supplies.

The bad news is that efforts to refill the caverns are running well behind the required pace, in part because natural gas is used for refrigeration and air conditioning, too, and demand is running very high. The good news is that gas prices are rising (no, wait, isn't that the bad news?) and that is causing power companies to start switching back to coal (you call that good news?), thus easing demand.

One unanswered question is whether the fracking companies, even given the gift of rising prices, will be able to respond with increased production. The hideous depletion rates of fracking wells means they have to be replaced at least every four years, more often than that if one wants to maintain or increase production volumes. The strains of trying to maintain the illusion of the NAB in the face of hard realities has left the players virtually broke and heavily in debt. Chesapeake Energy, the biggest player in the Marcellus Shale of West Virginia, Pennsylvania and New York, has been shedding wells and leases like a molting chicken sheds feathers. Last year, only 23 percent of its revenue came from selling gas. In desperation, it has been finding ways to cut payments to the owners of land it has already drilled, in some cases by 90 percent.

More and more this industry resembles the legendary retailer whose business plan was to sell shoes for a dollar a pair less than he paid for them, making up for the loss with "volume." Then there's the shortage of shoes. It was once claimed that the Marcellus (the only gas-fracking play in the country that has not yet peaked) contains 410 trillion cubic feet of recoverable gas. The emerging consensus is more like 50 trillion.

To quote the governor of Texas: "Whoops."

Now if this sick puppy of an industry fails to meet demand this winter, people will suffer and die, and the loss of faith will be complete. If the winter is mild and nothing bad happens, which seems likely in a year of El Nino, will we all continue to sing Happy and skip toward the edge of the cliff?

That would be the bad news.

The fight over liquefied natural gas

Doug Struck

Doug Struck has been a journalist for 35 years and reports on environmental matters from Boston.

The fight over liquefied natural gas for so many years was where and how to bring it into the United States. Now the fight is over where and whether to ship it out.

Boston was at the epicenter of the earlier skirmishes. The Everett LNG terminal is the only one that unloads the highly explosive fuel in the middle of a major US metropolitan area. Former Boston mayor Thomas M. Menino became afraid of the potential for catastrophe after 9/11, especially when he learned tanker ships of the stuff were coming from Yemen. But for decades, Everett received about half of the LNG imported to the United States. Now, with the excess of natural gas created in this country by hydraulic fracturing, gas companies are abuzz with proposals to build terminals to export LNG. And, ironically, New England finds itself watching the debate from the sidelines.

"The shale gas boom has started a race to develop LNG export terminals in North America," writes industry analyst Daniel Choi in a recent report by Boston-based Lux Research. The report concluded there is $120 billion in proposed LNG export projects. The Federal Energy Regulatory Commission lists 14 current proposals for export terminals.

LNG is tricky stuff. It is natural gas — mostly methane — that is pressurized and super-cooled into liquid to squeeze it into tankers and trucks that go where gas pipelines cannot.

If the stuff leaks out, it vaporizes immediately, and a spark could create a vast fireball that makes emergency officials shudder. They can't even train for an event that big. A simple tank leak in Cleveland in 1944 incinerated 70 homes and killed 128.

After the Everett facility opened in 1971, 10 other LNG import terminals were approved on the US coastlines — including two other Massachusetts sites: the Northeast Gateway in Massachusetts Bay, 18 miles east of Boston, and the Neptune Terminal, 10 miles off the coast of Gloucester. Those two are basically pipe connections through which ships can pump LNG ashore, where it is turned back into gas and shipped out in pipelines. But the United States is squeezing natural gas out of shale rocks at a furious pace, and now has a glut of it. The Neptune and Northeast Gateway terminals are not being used; LNG shipments into Everett are way down. Asia, Europe and other markets pay a lot more for natural gas than US customers, so gas companies are chomping at the bit to freeze and ship out fracked gas through export terminals. "The pendulum has swung the other way," said Seth Kaplan, vice president of the Conservation Law Foundation in Boston.

Some of the proposed export facilities — such as Cove Point, Md. — would be converted from import terminals. "A lot of the equipment you need is similar. The challenge is the regulatory process," analyst Choi said in a telephone interview.

But that will not happen in Massachusetts, despite the idle import terminals here, said Kaplan. The main limitation is pipeline capacity. Energy regulators say New England does not have enough pipelines to bring in as much natural gas as it needs, much less pass it through to an export terminal. New England power plants stockpiled — and burned — oil last winter to make sure electric generators kept running when gas supplies ran short. There also is little economic advantage to passing gas through the region, as Boston pays among the highest rates in the nation for natural gas. The pipeline giant Kinder-Morgan Energy has proposed a large new pipeline to bring more natural gas into New England from furious fracking going on in the Marcellus shale fields of Pennsylvania. Kaplan's group, a nonprofit watchdog of energy matters, opposes that. The existing pipelines in New England could be operated more efficiently to move more gas, Kaplan argues. And the Conservation Law Foundation says shortfalls in New England winters could be made up by importing more LNG, an unusual stance among environmental groups that typically oppose expanding LNG trade.Mostly, though, Kaplan argues that we should not be building a pipeline that could last 50 to 100 years, when we should be moving off all fossil fuels.

Gas grows more slowly than other fuels in 2013

In 2013, global natural gas demand gained only 1.2%, reaching around 3 500 billion cubic metres (bcm). Against the backdrop of a sluggish economic economy, competition from coal and renewable energies in the power generation sector and supply constraints, consumption increased less than forecast in the previous Medium-Term Gas Market Report (MTGMR) for that year (1.6%). There is nothing new in gas being outpaced by coal and renewable electricity generation; this has been the case over the past decade, but it is unusual that gas demand growth is behind oil too, which increased by 1.4% in

2013.
Another marked change comes from the non-OECD regions which exhibited subdued demand growth (1.2%) in 2013, significantly below the healthy pace of 4.1% per year seen over 2000-12. Non-OECD regions, which had been a backbone of demand growth, grew only slightly faster than OECD regions (1.1%). While diverging only slightly from the pace set since 2000 (1.5% per year), the OECD region's gas consumption growth can be considered as illusory, because it is largely driven by abnormal weather, notably a long winter in Europe in early 2013 and a cold end of the year in North America.

If not for the weather factors, OECD gas demand should have dropped by around 1%; consequently, the world would have exhibited stable natural gas consumption in 2013.
Once again, the People's Republic of China remains the driver behind global gas demand with a 13.3% growth rate, by itself responsible for half of the world's additional gas consumption. In contrast, many other non-OECD regions show modest growth, while demand even declined in non-OECD Asia and in the Former Soviet Union (FSU)/non-OECD Europe. One exception is Latin America, where droughts forced power generators to resort to gas-fired plants and drove exceptional increases in both gas demand and liquefied natural gas (LNG) imports.
Besides intrinsic demand factors such as economic growth, relative fuel prices, and transport and import infrastructure, both supply and trade play a paramount role in determining natural gas demand. Global supply grew by 1.1% in 2013, reaching an estimated 3 480 bcm. Among the highlights for 2013 were that the recovery of the FSU's gas production was driven by higher exports, while OECD Americas' growth abruptly slowed down. Africa's production plummeted by 4%, as large producers – in particular, Egypt – underperformed. In contrast, China's output surged by 9%, even though this increase only covered half of the additional demand. Many countries still face shortages, either due to their inability to increase domestic gas production, owing to the maturity of producing fields, the country's declining reserves or the new fields' cost of development being higher

than subsidised domestic gas prices. Geo-political events also played a role, with the attack on Algeria's In Amenas complex and the war in Syria, but they had less impact than the other reasons mentioned earlier.

Global interregional trade features almost stable LNG trade compared with surging interregional pipeline imports from Europe and China. Flat LNG supply growth in 2013 after a 2% drop in 2012 is a drastic change for an industry that had been growing relentlessly over the past two decades. Not only does it put pressure on demand, but the LNG supplies have shifted to Asia (including OECD Asia Oceania, non-OECD Asia and China), which now imports close to three-quarters of global LNG. The gap between Asian prices and US spot prices narrowed slightly in 2013, but remained large, with Asian LNG importers paying on average USD 16/MBtu. This price is consequently higher than the average prices seen in Europe and explains why Asia is able to divert LNG away from Europe, where LNG imports collapsed and represented a mere 14% of global LNG trade.

Gas is on its way to cross the 4 000 bcm mark by 2020

The medium-term outlook remains optimistic for the future of natural gas, with demand reaching 3 980 bcm by 2019, despite a slight reduction from last year's outlook due to lower growth in Europe and FSU/non-OECD Europe (Table 1). Nothing is set in stone, however. European gas and power companies would not have predicted in 2010 that their gas-fired plants would have to close three years later. Still, the power generation sector represents the backbone (53%) of future natural gas demand growth across all regions, even Europe, followed by industry (32%).

Table 1 Demand and supply changes, *MTGMR 2014* versus *MTGMR 2013* (bcm)*

Total	Demand	Supply
OECD Europe	-26	-9
OECD Americas	-12	-19
OECD Asia Oceania	-6	-9
Africa	-3	-7
Non-OECD Asia	-16	-15
China	-5	9
FSU/non-OECD Europe	-31	-51
Latin America	6	3
Middle East	24	32

* Negative values indicate a downward revision compared to *MTGMR 2013*.

Source: unless otherwise indicated, all material in figures and tables is derived from IEA data.

Despite this strong demand hike, gas's share in total power generation will increase by only 0.5%, comprising only 22% of the total, due to competition with other fuels, as well as insufficient supplies in many developing countries. In particular, the Middle Eastern power generators do not have sufficient domestic gas supplies to displace oil with gas and LNG imports are expensive. On the contrary, oil demand there will continue its relentless growth, even if its share in total power generation drops slightly. In Saudi Arabia, oil-fired generation is forecast to gain 27% over 2013-19 on the back of insufficiently growing gas production and the very low efficiency of Saudi power plants.

Non-OECD regions continue to drive natural gas demand: they will provide 85% of the additional consumption. China alone represents 30% of this demand, followed by the Middle East with 22%. In contrast, consumption in FSU/non-OECD Europe remains stable. OECD countries are unlikely to provide similar additional volumes due to the maturity of most markets, slower economic growth, and competition with renewable energies and/or coal across the three regions. Still, the OECD Americas region will contribute to around 50 bcm, approximately 10% of the incremental consumption over 2013-19.

Despite all its well-known qualities, natural gas will find it difficult to gain market shares, notably in the power generation sector. Europe is certainly the best example, with declining gas-fired generation. But the recent recovery in coal-fired generation in the United States and difficulties for gas to compete against coal in Asian countries reinforces this assertion. Natural gas also suffers from the fact that it always has a substitute in all sectors. In residential, natural gas must compete against electricity and oil products; in industry, the main competitors are oil products; and in the power generation section, coal, renewable energies and nuclear are the alternative energies. Presently, the difficulty mostly arises from the competition with either renewable energies or coal in the power sector.

Meanwhile, natural gas is trying to make inroads in new sectors such as transport. While a promising new outlet, with demand projected to double in road transport to 93 bcm by 2019, this market could prove to be a long and challenging process, with the main risk being the respective relationship between oil and gas prices. Using gas for shipping is particularly promising for the post-2020 period. Due to stricter emissions standards being put in place, the sulphur content of fuels used in some specific coastal areas will be limited

from 1% today to 0.1% from 2015 onwards. This tighter limit could be extended to other international waters with a 0.5% threshold as soon as 2020, instead of the current 3.5%. Three alternatives compete: use of marine diesel oil (MDO), scrubbers or LNG. This market requires creating not only new infrastructure for international and domestic navigation, but also building or retrofitting vessels. Here again, the price difference between LNG and MDO could be crucial. China could be among the first to develop LNG use for inland waterway transport due to the pressure to reduce emissions from diesel on rivers, such as the Yangtze and Pearl.

OECD regions feed 40% of supply growth, the FSU region falls behind

Two OECD regions (Americas and Asia Oceania) will provide around 40% of the additional gas volumes, while the Middle East contributes 19%. Nevertheless, the drivers behind the growth of the two OECD regions differ greatly: OECD Americas will primarily meet domestic demand and then export gas in the form of LNG from the United States from 2016 onwards. The role of natural gas liquids (NGLs) in supporting US gas production will be essential, as prices remain below USD 5 per million British thermal units (MBtu) over the forecast period. In contrast, the growth in OECD Asia Oceania is almost entirely dedicated to LNG exports from Australia. The exception in this region is that Israel's1 new gas will go mostly to its domestic market, along with some limited regional pipeline exports.

Meanwhile, the FSU/non-OECD Europe region falls significantly behind, providing only 6% of additional volumes. Even Africa, non-OECD Asia and China bring individually more volumes. This quite drastic change from previous outlooks comes as the result of limited import needs from Europe, where FSU gas competes against LNG as well as lower intra-regional exports from Russia to other FSU/non-OECD European countries. Russia also suffers from the absence of a pipeline to China (which is not expected to be operational before 2020) and a delayed start of planned LNG export projects. Against this backdrop, Central Asian producers will benefit from the expansion of the Central Asia Gas Pipeline to increase their deliveries to the gas-hungry Chinese market and Azerbaijan from the start of the Trans Adriatic (TAP) and Trans Anatolian (TANAP) pipelines to deliver more gas to Europe. Consequently, Russia's gas production will remain relatively flat over the projection period, while US output will increase significantly on the back of higher domestic demand, LNG exports and the absence of recovery of Canada's production. This relatively bleak outlook for FSU gas does not mean that Europe will reduce significantly its dependency

Equally impressive is the 14% increase in non-OECD Asia to 357 bcm, with Papua New Guinea, Myanmar and Viet Nam providing new volumes, while India recovers

on Russian gas, as pipeline supplies remain a key component of the region's supplies: the region will also need them in the short term, as more LNG will be heading to Asia. In the absence of increased pipeline supplies from North Africa, additional pipeline gas can only come from Russia and from Azerbaijan from 2019 onwards.

1 The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

For all its reserves, the Middle East finds it difficult to develop its large resource base. The issue is essentially above ground and has its roots in the discrepancy between the cost of developing non- associated or tight gas fields and domestic gas prices, often below USD 2/MBtu. Consequently, new volumes from the Middle East meet only 88% of its additional demand, requiring the region to import more LNG. The deal regarding Oman's Khazzan field shows that the development of more complex and expensive fields is possible if the country were to raise its domestic prices, as Oman did for industrials. This MTGMR is more optimistic regarding Iran's production developments, considering the recent developments on the international scene. Iran is also working on a new type of contract, different from the previous buy-back contract, with the aim of making it more attractive for foreign investors. But for the country to become a significant exporter of natural gas, sanctions would have be totally lifted, while gas demand would need to be curbed down through energy efficiency measures and price increases. Numerous pipeline export projects are in the planning stages and could move forward quickly should Iran increase its gas production faster than demand, but a decade would be needed for the country to enter the LNG market.

Elsewhere, China will be the fastest-growing region, with its production surging by 65% to 193 bcm on the back of new conventional gas developments supported by recent discoveries, shale gas, and coal gasification, which is expected to provide some 40 bcm of additional gas supply by 2019. After its collapse in 2013, Africa's production should recover quite well, to 254 bcm by 2019. For once, the traditional large producers are not the only source of growth, but production does not start to pick up in Eastern Africa, where LNG projects are expected to begin only after 2020. Equally impressive is the 14% increase in non-OECD Asia to 357 bcm, with Papua New Guinea, Myanmar and Viet Nam providing new volumes, while India recovers. Despite a 19% growth, Latin America

is considered as underperforming, as most of the growth originates from Brazil, while large reserve holders continue to struggle. Against this backdrop, Europe is the only region where gas production is likely to drop.

The Asian price stalemate: who blinks first?

The wide gap between Asian and US gas prices, which amounted to USD 12/MBtu in 2013, seems to have captured the gas industry's attention as it will affect not only future prices, but also investments and trade. While this gap concerns Asian buyers firsthand, it has also wide implications for the gas and energy world. Natural gas demand in Asia (including OECD Asia Oceania, China and the other non-OECD Asian countries) grows by around 250 bcm over the projection period, representing half of the world's incremental needs. Around 100 bcm will be fed by LNG imports, supported by additional LNG regasification being built. Still, this growth is fragile and depends also on prices. If gas cannot fill power generation needs, it will leave room for coal. Recent trends actually show coal coming back in many OECD Asia Oceania countries, while maintaining a large role in China and non-OECD Asia. Future gas pricing will also determine which of the new generation of LNG suppliers may take the baton from Qatar over the coming decade and whether other new trends in the LNG business will appear or expand over the coming years, such as the re-exports of LNG, which appeared as a consequence of the price spread. The future natural gas supply/demand balance in Asia will, therefore, have far- reaching consequences for global gas trade and whether the world will be short of gas, in the near to medium term.

For suppliers and buyers, the question is, therefore, who blinks first? On the one hand, Asian buyers are no longer ready to pay record oil-linked prices that harm their economies, with consequences such as Japan developing a trade deficit in 2011, a situation unseen for the past 31 years. There is also the question of the flexibility of gas supplies. As demand in Asia grows faster than in other regions, Asian countries think they should get better terms and are now considering developing co-operation among buyers. Additionally, companies are looking for different pricing mechanisms and more flexibility in the delivery terms. Signing up for cheaper hub-priced LNG from the United States seems very attractive at the current US price levels.

But, on the other hand, new greenfield projects are increasingly expensive, calling for securing revenues through long-term contracts preferably linked to oil prices. Around 150 bcm per year of LNG liquefaction capacity is under construction as of May 2014. Australia will provide about half of this capacity, but investment costs there are also at record highs – almost USD 4 000 per ton (including upstream and LNG costs). Global LNG trade is expected

Global LNG trade is expected to rise from 322 bcm in 2013 to reach 450 bcm by 2019; this 40% gain is much higher than that of interregional pipeline trade

to rise from 322 bcm in 2013 to reach 450 bcm by 2019; this 40% gain is much higher than that of interregional pipeline trade. More LNG will be needed thereafter, and given the five-year construction period that any greenfield LNG projects usually require, decisions must be taken now for supply arriving to the markets by 2020. Although many LNG projects are at the planning stage, actually very few final investment decisions (FIDs) have been taken since mid-2012. The FID taken by Russia's project Yamal LNG following the adoption of a law breaking the stranglehold of Gazprom on LNG exports shows that the Russian government has perfectly understood that the window of opportunity to capture a slice in the LNG pie may be closing soon, as US LNG projects progress. However, the Department of Energy's (DOE) approval of LNG projects' aiming at exporting to non-free trade agreement countries should not be confused with a formal FID. Indeed, this may be the main stumbling block in the path of US LNG projects, but it is not the only one. Other authorisations are necessary, and the financial side of the projects also matters. Only one single US LNG plant is under construction as of May 2014, even though this report assumes that US LNG will represent 5% of global trade (pipeline and LNG) by 2019. Four regions are competing to take the largest slice of the quite limited Asian LNG import pie: North America, Australia, Russia and East Africa. Solely based on resources, all of them could provide over 100 bcm of LNG liquefaction capacity. The United States has clearly departed from the traditional oil- linked long-term contracts with final destination clauses by proposing Henry Hub (HH)-based long- term contracts with no destination clauses. Of note is the fact that US LNG export plants still need long-term contracts and that those moving ahead have already sold a fair share of their output. No other supplier has formally made this change. But is price indexation the issue, or is it the price level? What buyers really want are lower gas prices, which also determine the profitability of future supply prospects. The industry faces the following options while trying to renegotiate existing long-term contracts and negotiate on new LNG contracts for projects still at the **planning stage:**

- continue with oil indexation but with lower slopes, lower reference price and S-curves triggered at lower oil prices,
- use an existing hub indexation such as HH,
- or include the possibility of using a still-to-be-determined Asian hub, once its liquidity is deemed sufficient (such an option could be included in contracts).

Decisions will need to be made and the options chosen will determine how the Asian market develops over the next decade.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The fallout from the Middle East's deadly oil game

Robert Gottliebsen

Robert is one of Australia's most respected investment experts and has been a key commentator on Australian business and finance for over three decades. Robert co-founded Eureka Report in 2005 and was also a founding member of Business Spectator, a business news and commentary site. Robert was the founding editor of Business Review Weekly in 1981 and spearheaded the magazine for the next 19 years. He was the original Chanticleer in The Australian Financial Review and after this, between 2000 and 2005 he was National Business Commentator for The Australian

Behind the capture of Mosul by Sunni militants with links to al-Qaeda is a deadly game of oil politics.

Earlier this year, Iraq was proudly announcing a plan to increase its oil production capacity threefold by 2020. Together with Iran, Iraq planned a strategy that would challenge Saudi Arabia's grip on the Organisation of Petroleum Exporting Countries.

The plan by Iran and Iraq to attack Saudi Arabia's status as the 'swing producer' in the OPEC cartel was a move that could have caused a dramatic fall in oil prices if Iraq broke the OPEC quotas and sold more of its crude on the open market.

The extent to which the planned big rise in Iraq oil production would reduce future oil prices depends on world growth in oil demand. If the oil price did fall, it would hit Australia's gas revenues, which are mostly tied to the oil price. But it would have been a disaster for the Sunni-dominated Saudi Arabia. To the extent that the current troubles firm the oil price, Australia and Saudi Arabia are beneficiaries.

Many saw the planned Iraq-Iran oil production increase as a Shia plot against the Sunni in Saudi Arabia. I do not know the extent to which the Sunni-Shia rivalry extended to an oil war. Under the grand Iraq-Iran plan, part of the planned increase in oil production capacity would have come from the exciting new fields that are being discovered around the region near Mosul and nearby Kurdistan.

It's now highly unlikely that these fields will be developed given the turmoil in the area. Currently, Iraq produces about 3 billion barrels of oil a day but the bulk of the production comes from the southern, more stable regions. Part of Iraq's current output is sent to Turkey via a pipeline, which passes close to Mosul. It has been cut in the fighting.

The Mosul capture will stop oil development in the area but given Iraq's oil reserves in the south, it will not slash current production.

In previous years the US was very dependent on Middle Eastern oil, but the development of US shale oil has greatly lessened US dependence on the Middle East. The Middle Eastern map was drawn by the old colonial powers. We may be looking at a remaking if the map that sees Sunnis living in some areas and Shia in others. This will be very disruptive for the population, but they are finding it very difficult to live together in the same space.

Angelos Damaskos: The Best Way to Profit from Peak Oil

The era of cheap oil is over, declares Angelos Damaskos. In this interview with The Energy World, the principal viser of the Junior Oils Trust says that oil will become progressively more expensive to find, with prices topping the all-time high of $147 per barrel within 10 to 20 years. He counsels that investors should avoid the majors (too stodgy) and the pure explorers (too risky) and should inste choose producers or near-producers, highlighting five companies with good reserves and room to grow.

You are the principal visor of the Junior Oils Trust. What are the vantages of junior oil companies?

When we set up the Junior Oils Trust in 2004, we believed in the development of a supercycle in energy. China was in the early stages of industrialization and urbanization, and would thus require increasing volumes of oil.

What are the dis vantages of the oil majors?
The integrated majors typically carry more than half of their balance sheets in activities such as storage, transportation, chemical processing, refining and distribution, which do not benefit from the rising oil price.
The juniors are more agile and entrepreneurial. They are more efficient and better able to discover new sources of production.

Which factors determine the price of oil?
The price of oil is clearly supply and demand driven. It spiked to $147/barrel ($147/bbl) by 2008 and then dropped precipitously throughout the financial crisis. The past three years have seen rather stable tr ing, at least for Brent, which has tr ed from $100–120/bbl.

Why the spre between Brent oil and West Texas Intermediate (WTI)?
The Brent price governs the European, North African and Asian crude market, including the Middle East. WTI generally dictates the pricing of American crude. America has seen the huge development of shale oil and gas in the last two to three years, which introduced a massive amount of new supply. It could potentially bring about U.S. energy independence in the next 10–20 years. On the other hand, Europe, the Middle East and North Africa have seen supply greatly disrupted by geopolitical instability. This began three years ago with the Arab Spring in North Africa and then spre to Syria and Iran. Now we have the conflict between Russia and Ukraine that could potentially destabilize the supply of gas through Europe, which gets more than one-third of its gas from Russia.

Some people claim that because fracking is so expensive and the returns from each well diminish so quickly, the amount of oil and gas it produces is likely to be quite short-term in nature. Do you agree?
Fracking is a very expensive business because of the process it employs. Fluids, sand and lubricants are pushed down a well hole with extreme pressure to break up the rock that hosts the gas and oil. As a result, these escape with great pressure, and even though there is very strong production for a few months, it declines very rapidly because there is no sustained pressure to maintain the production level. Therefore, the companies must d new wells, which drive the cost of production so much higher.
Some analysts estimate that many of the shale gas fields have marginal economics of around $5 per million British thermal units ($5/MMBtu), roughly the price today. We need high prices for these deposits to remain economically viable. If, for whatever reason, the prices of oil or gas drop, many operators will be forced to suspend production.

How does the oils sands industry in Can a compare to fracking?
The oil sands produce very heavy oil. Very low viscosity, very bituminous. It's effectively a mining process: The sands, which are mixed with oil, must be dug out, boiled and then chemically processed to remove impurities before refining.
Heavy-gr e oil is not really suitable for petroleum products. It is suitable for asphalt, lubricants and other industrial products. Like fracking, it's a very expensive and inefficient process that requires large energy inputs and high prices to remain economically viable.

How high must the oil price be to support oil sands mining?
We reckon the marginal cost of production to be $70–80/bbl. Operators need at least $100/bbl to make a satisfactory return and continue growing operations. The massive development and production of shale oil and gas has hit the oil sands operators very hard. West Can ian Select has been tr ing between $40–50/

bbl for the last few months. That is not good enough.

It has been suggested that the price of oil is constrained, particularly after the economic crisis of 2007–2008, because high oil prices led to economic regression, which in turn led to lower demand. Do you agree?

I do not. After 2008, the Asian economies continued growing at rates that more than compensated for any reduction in demand from the developed world. This explains the recent stability in oil prices I mentioned earlier. Generally, prices have to rise significantly above $120–130/bbl to cause a reduction in demand. The world is so dependent on oil for its energy needs that even at higher prices, it's very difficult to cut back. We may drive a little bit less, but 80% of oil consumption is used by transportation fuels, shipping, aviation, railways and commercial trucking. These are essential for the economy to function.

Where do you see the price of oil going this year?

The demand for oil continues to grow based on increasing demand from China, other Asian countries and the developed world. Demand has grown significantly in the last couple of years in the United States, whereas supply, even though it has grown significantly in the U.S., has been severely constrained elsewhere. For the last two to three years, new supply from America has filled in the gaps from elsewhere. I don't see very strong U.S. or Eurozone growth, despite quantitative easing and all the liquidity pumped to the system. China's growth seems to have slowed down. That said, I expect 2014 prices for Brent to remain $100–120/bbl. WTI is a different category because its price is at times dictated by the storage capacity at Cushing, Oklahoma, which is the giant storage center where many pipelines meet. The storage bottleneck there has been relieved by a couple of new pipelines. This has allowed WTI to close the gap with Brent. There's now less than $5/bbl difference between them; a year ago, the split was as high as $20/bbl. So WTI should tr e from $100–120/bbl in 2014, unless the Russia-Ukraine dispute results in instability of supply from Russia into Europe.

Do you believe in "peak oil," in the sense that the era of cheap oil is over?

This is indisputable. Even considering the fracking breakthrough, the easy oil fields have been found and now we are reaching into deeper territory, into very high-depths offshore, into oil fields with much more complex geology that require much more complex technology.

Given the difficulty and expense of finding new oil sources, how high can we expect the price of a barrel of oil to go in 10–20 years?

We think that the price of oil will continue trending higher. 2012 saw on an annual average basis the highest-ever oil price. 2013 was only a couple of dollars lower, and 2014 should be

higher than that. In 10–20 years, oil should be well above the 2008 high of $147/bbl.

Your Junior Oils Trust stresses the need to "avoid political and pure exploration risks." Which regions in the world are risks to be avoided?

We have avoided Russia and the former Soviet Union republics, such as Kazakhstan, Uzbekistan and Tajikistan. Elsewhere in Asia, we have avoided Kurdistan, the northern Iraqi territory bordering with Turkey. In Africa, we have avoided Uganda. In Latin America, Venezuela and Argentina. The rule of law and title of ownership are the most important things in the oil business because if you find oil, having your hard-earned dollars confiscated is the worst possible outcome.

Which jurisdictions do you like best?

About a quarter of our investments are in the U.K. North Sea and Norway. Among the rest, we focus on East and West Africa, particularly offshore developments that carry less potential for political intervention.
We like Australia, Indonesia and the South China Sea. In Latin America, we like Colombia, which is emerging as a major oil-producing region.

What are "pure exploration risks," and how can they be avoided?

By pure exploration risk, we mean companies very early in their development stage, companies that have secured licenses but require significant seismic processing to assess the likely targets before drilling them to find what lies beneath. Exploration is a very risky business. The odds for success are typically 8:1 against the explorer. Companies with exploration potential only can either have an amazing result, in which case their share price will multiply several times over, or they can have unsuccessful well results, which blow huge holes in their balance sheets.

Which criteria distinguish less-risky junior oil companies?

Companies that have found resources that can be produced economically, companies alre y producing or working toward production. We also prefer companies to allocate funds to exploration drilling, either on the fringes of what they have found with the aim of ding to their reserves, or in new territories where an unsuccessful result will not be catastrophic.

To what extent is future oil production dependent upon the success of oil juniors?

To a very large extent, because the oil juniors typically are the first movers in virgin territories.

Do their properties in New Mexico demonstrate the possibility of a significant increase in production?

We think so. They have h some excellent results announced recently, with much stronger flow rates than expected. They have always been confident that the average result of their wells will be better than forecast.

What do you like in Africa?

One of the few companies in our portfolio without current production is FAR Ltd. (FAR:ASX). It operates in Kenya, Guinea Bissau and Senegal. Because their targets are primarily offshore, the wells would be expensive: $80–100M, too much money for a company of this size. But the company has been extremely successful in securing partnerships with midcaps to fund exploration drilling. Its strategy is to be fully carried for the exploration span, and if the result comes in positive, it's going to be phenomenal, le ing to a high multiple of valuation. If unsuccessful, the company could write off the target, but it hasn't lost anything in terms of monetary value and still controls the license.

How low must juniors keep their failure rate in order to survive?

That depends on existing production and sustainability. If the company has a solid asset with material reserves that keeps producing and delivering positive cash flow, it can afford an unsuccessful exploration program. Companies that depend exclusively on exploration success for growth and production cannot afford many unsuccessful wells.

Can you give an example of a junior you like despite recent exploration reversals?

One of our bigger holdings is Salamander Energy Plc (SMDR:LSE). It focuses on Indonesia and has h a fairly poor drilling record for the last three years. It has been unlucky, or perhaps it misinterpreted its targets. But because of the company's very strong asset base, which features growing production and increasing reserves, we have recently increased our position in Salamander.
If Salamander's exploration luck changes, all the better, but we feel now that the company's valuation is supported by free-cash generation and by the existing value of its field.

Are Caza, FAR and Salamander likely takeover targets?
Yes, all of them are. It is the nature of the oil business. In the 10-year history of our fund, we have h more than 20 core holdings taken over. We like to say that we invest in the oil giants of the future.

How much of a takeover premium do investors in these juniors receive typically?
It is always related to the market price. The typical premium can vary from 30–60%, but if the takeover occurs in a period of depressed market conditions, like now, it's not a very satisfactory event for us as investors. But even a less-than-spectacular takeover price means that investors can monetize their position at a significant premium and then circulate that capital to other companies that might become takeover targets in the future.
Another problem engendered by depressed market conditions is that it becomes more difficult to negotiate terms for project investments. For example, if a company is capitalized at $100M and discusses a $100M farm-in agreement with a larger company for one of its assets, the larger company is likely to ask why it should spend $100M to control one part of the smaller company inste of buying the small company outright.

Are there any other junior oil companies you'd like to mention?
Parex Resources Inc. (PXT:TSX.V) produces approximately 17,000 bbl/d out of Colombia. Growth has been rapid indeed: up from 10,000 bbl/d in less than a year. They should exceed 20,000 bbl/d this year. With a market cap of about one billion dollars ($1B), this makes for a very attractive valuation. Even though Parex shares have risen significantly in the past year, it probably tr es at around five times prospective cash flow, a very attractive metric. This is a company that has delivered sustained successful exploration results that keep on ding to reserves. It's a very well-managed company in an attractive region.

You mentioned your fondness for the North Sea earlier. What do you like there?
Parkme Group Plc (PMG:LSE). It is run by Tom Cross, with whom our fund h a long relationship through his previous company, Dana Petroleum. Dana grew from a small early-stage company, which Parkme is now, to a midcap with production of 40,000 bbl/d. It was bought by Korea National Oil Corp for $1.8B in 2010.
With Parkme , Cross is following the example he set with Dana, focusing on fallow assets that have been abandoned by the majors and on new licensed areas that can be developed with relatively low capital expenditure. Cross has been buying some of his smaller peers that have been unable to progress their projects in a weak market environment. He has even managed to acquire significant production. Parkme is now a mix of production and development, as opposed to the pure development company it was a couple of years ago.

Given how risky the junior oil business is, what should potential investors be looking for in companies?
They must focus first on the reserves, what companies actually control of those reserves, and how economically viable a project is. It is not much use having a vast deposit of oil stuck somewhere that's either extremely difficult to access or in a politically unstable region. Management teams should have expertise not only in the territory, but most importantly in the geology and the type of reservoirs they control. A competent management team is much more likely to continue exploring and ding to the resources of the company.

Russia, Qatar compete in natural gas market

Russia has few simple relationships in the Middle East — or in other regions — but its relations with Qatar are especially complex.

The tension between Moscow and Doha over Syria is perhaps the most visible aspect of their relationship. Russia remains committed to Syrian President Bashar al-Assad, while Qatar is among the most assertive advocates of his ouster. This conflict reflects underlying differences in their attitudes toward Sunni Islamist ideologies — first concretely manifested during Russia's wars in Chechnya, when Chechen separatists sought and found financial support in Qatar. As senior Russian officials routinely cited these conflicts and the terrorism they produced as their country's top national security threat, this could have become a defining issue in their relations. Russian President Vladimir Putin's eventual pacification of Chechnya, which he subcontracted to the brutal and corrupt Chechen President Ramzan Kadyrov, may have prevented this by sharply reducing the day-to-day violence.

Nevertheless, the two are rivals in important respects, as curious as this may seem given that Russia's land area is over 1,400 times larger than Qatar's and its population is nearly 70 times larger. The reason for this is of course natural gas, as Russia and Qatar are among the world's leading producers and exporters. Accordingly, they cooperate in some respects, particularly in defending their shared interests, while competing in others. But unlike issues of national security and terrorism, the gas trade is just business. And so far, both Moscow and Doha have been prepared to take the view that business is business.

Russia's cooperation with Qatar is increasingly visible in the Gas Exporting Countries Forum (GECF), an emerging international organization with the rather broad goal of "supporting the sovereign rights of member countries over their natural gas resources." Moscow has been

seeking to create a "gas OPEC" for some time, hoping to further enhance its energy leverage with an OPEC-like cartel that Russia could lead by virtue of its position as the world's largest holder of natural gas reserves and, until recently, the world's largest producer. The GECF finally took shape in 2008, after seven years of ministerial meetings, and was soon headquartered in Doha (Qatar has the third-largest gas reserves and the second-highest exports within the group, by a very wide margin) with a Russian secretary-general to lead its administrative apparatus. (The current secretary-general is Iranian.)

During the GECF's July 2013 Moscow summit, Putin urged the group to defend long-term supply contracts and oil-based pricing formulas — key points in the "Moscow Declaration," the GECF summit communique. This was likely not too difficult, in that most suppliers want and need long-term predictability in making the massive infrastructure investments required to produce and transport natural gas. No less important for Russia, Putin won the somewhat obliquely-phrased rhetorical support of the GECF in his battle with the European Union over its so-called "third energy package," which mandates the separation of energy production and transportation businesses to promote competition. The summit statement announces the forum's commitment to "enhance the global-scale coordination of actions to protect the interests of the Gas Exporting Countries in all areas including interactions with regulatory authorities of gas-consuming countries." Despite this, Qatar's gas exports have been causing problems for Russia and its gas monopoly Gazprom — although the root cause lies in the United States. After developing extensive facilities to export liquefied natural gas (LNG) to the United States, Qatar's intended customer faded away as US shale gas production soared. Qatar's redirection of its LNG to European markets swelled the spot market for gas, putting significant downward pressure on natural gas prices and eventually contributing to conditions that forced Gazprom to refund $2.7 billion to its European customers in 2012 alone. Hence Putin's complaints.

Qatar's choices are significant because it exports a third of the world's LNG, now overwhelmingly to Asia. Although the spot market for LNG is just 20% of the overall market, it nevertheless can have a significant impact on pricing and other contract terms, as it has in Europe. Russian companies have been quite slow to enter LNG markets and, as a result, Russia's gas exports travel overwhelmingly by pipeline. Interestingly, some have argued that Moscow may have turned the tables in the recent $400 billion gas deal between Gazprom and China National Petroleum Corp., which they see as a challenge to Qatar in the mid to long term. This competition between Russia and Qatar reflects fundamental structural tensions in the GECF that will likely limit its long-term influence.

The Organization of Petroleum Exporting Countries (OPEC) has long faced its own challenges, primarily in setting and enforcing production quotas — something political scientists see as a classic problem of collective action. In OPEC, members have strong incentives to exceed their quotas and therefore secure additional revenue, though if too many do so their combined actions can drive down prices and harm everyone. Nevertheless, at least in today's global economy, OPEC members are relatively confident that they can sell whatever oil they produce in the highly developed international oil market. This exacerbates the collective action problem, but also insulates OPEC members to some extent.

Natural gas markets are of course fundamentally different. Most gas is still delivered by pipelines with fixed starting and ending points and cannot be quickly, easily or cheaply redirected to other customers. Even the more flexible LNG exports require massive capital investments to build liquefaction and re-gasification facilities. This consideration drives exporters' interest in long-term supply arrangements. Russia is especially concerned precisely because so much of its gas travels by pipeline. As a result, however, the competition among gas exporters is much sharper than that between oil exporters — and losing out can be very costly. Thus, while GECF members may be able to cooperate to defend their preferred contracting principles, major consumers can also find ways to divide them and set them against one another. From this perspective, Gazprom and Qatargas, among others, are directly competing. Still, in the case of Russia and Qatar, Doha appears to have found at least one way to mitigate any tensions arising from competition for customers.

The Qatar Investment Authority has committed $2 billion to the government-connected Russian Direct Investment Fund for infrastructure projects in Russia. Coming as Western governments attempt to isolate Moscow economically, it is a significant gesture that the Kremlin will notice and understand — "business is business" also means "nothing personal." As US and European relations with Russia continue to erode, that message may matter.

Here are 7 takeaways from the IEA's 2035 energy outlook

For all the talk of technological breakthroughs and North American unconventional fossil fuels transforming energy markets, the International Energy Agency's latest forecast expects the world to largely follow the same pattern it has for decades: We will remain heavily dependent on Middle East oil.

It will come at a steep price, though, at a time companies are reluctant to invest in expensive projects and climate change issues demand bolder policies from governments.

"Decisions to commit capital to the energy sector are increasingly shaped by government policy measures and incentives, rather than by signals coming from competitive markets," the Paris-based agency says in its report on energy investment published Tuesday.

Here are some key highlights from the report:

OIL REMAINS DOMINANT, BUT AT A HIGHER PRICE

The world will need to invest between US$11-trillion to $13.7-trillion in the oil sector alone over the next 20 years, the IEA says, dispelling the notion that crude oil is losing its lustre as the fuel of choice for many countries.

"However, the share of oil in total energy supply investment declines from 36% in the period to 2020 to 32% in the period after 2030," the Paris-based agency adds.

About 80% of the investment will be needed just to replace declining oil fields, but the world's hunger for crude will push companies to develop more challenging and remote fields.

"Although offset in part by technology learning, this puts pressure on upstream costs and underpins an oil price that rises to reach US$128 per barrel in real terms by 2035," said the IEA, which advises Canada and 28 other industrialized nations on energy policy. RBC Capital Markets believes the IEA's estimates are "cautious" and expects more upside risk in spending to boost oil and gas production.

"Incremental barrels are more technically challenging — deepwater and shallow offshore shown as costing nearly $25 per barrel to find and develop, and light tight oil $35 per barrel compared to $8 per barrel for Middle East conventional and $10 per barrel for enhanced oil recovery," Peter Hutton, analyst at RBC Capital, wrote in a note.

US$40–TRILLION BILL

The global energy sector spent more than US$1.6-trillion last year — a figure that has nearly doubled since 2000. That's still not going to be enough going forward, and companies will need to raise investments to $2-trillion a year to meet growing energy demand across the world. That will push the global investment bill to US$48-trillion, with about US$40-trillion in energy supply and the remainder in energy efficiency.

About US$23-trillion of the investment will be focused on fossil fuel extraction, transport and oil refining, the IEA estimates. A further US$10-trillion will be spent in power generation, of which low-carbon technologies — renewables ($6 trillion) and nuclear ($1 trillion) — account for almost three-quarter. Another US$7-trillion will be spent on transmission and distribution.

A US$1T FOR HEAVY OIL and BITUMEN

The Americas, led by the United States, will spend just over US$5.8-trillion in upstream oil and gas investment over the next two decades. Of these, heavy oil and bitumen will account for around US$1-trillion in investments, IEA data shows, although it does not break down how much will be invested in the Canadian oil sands. A quarter of the the world's investment in oil and gas will be diverted to unconventional resources such as oil sands, tight oil and shale gas. North America tight oil will account for 13% of upstream investment but, significantly, it will only account for 6% of new resources, highlighting the limits of shale oil boom.

RETURN OF THE MIDDLE EAST

As North America's unconventional resources' boom starts to run out of steam around the middle of the next decade, the world will once again likely turn to the Middle East's resource-rich and cost-effective oil fields. "Rising output of tight oil from the United States, the oil sands of Canada and the prospect of new deep-water conventional supplies from Brazil have put oil developments in the Middle East somewhat in the shade in recent years," said the IEA. But as U.S. tight oil production recedes, Middle East's low-cost conventional resources will be required to feed an energy-hungry world. "Yet there is a risk that Middle East investment fails to pick up in time to avert a shortfall in supply, because of an uncertain investment climate in some countries and the priority often given to spending in other areas," said the IEA. Fossil-fuel rich countries such as Iraq, Iran, Libya, Sudan and Yemen remain in the midst of great political turmoil and their internal conflicts will likely add a risk premium to the price of oil. Greater dependence on the Middle East would mean tighter and more volatile oil markets, with an average price almost US$15 per barrel higher in 2025.

INVESTMENT CHALLENGE

Nearly two-thirds of energy-supply investment takes place in emerging economies, with the focus for investment moving beyond China to other parts of Asia plus Africa and Latin America; but aging infrastructure and climate policies create large requirements also across the OECD. The largest share of energy efficiency spending is in the European Union, North America and China.

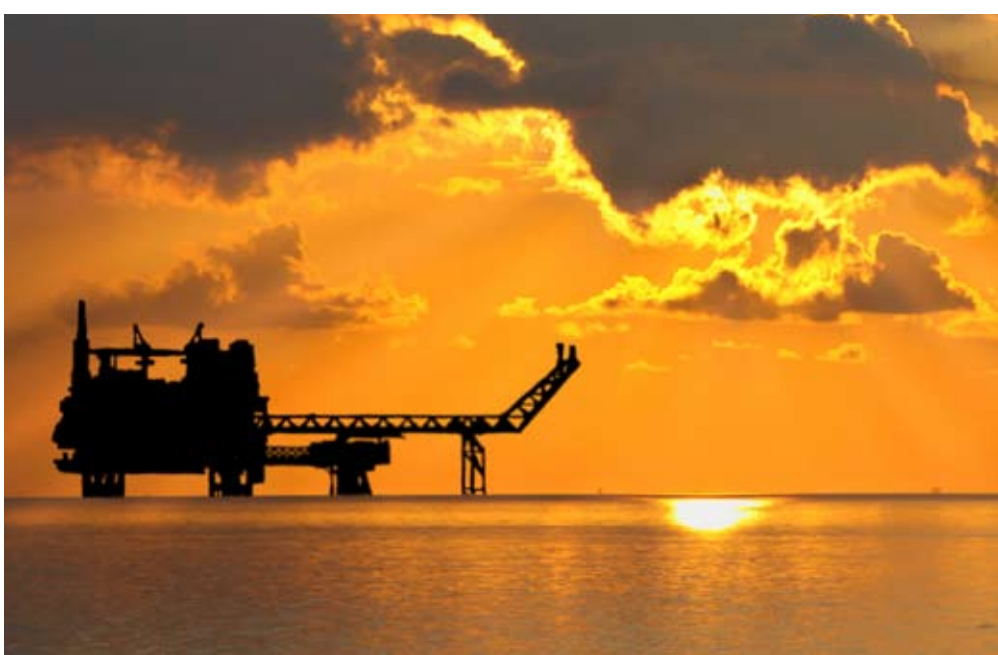
The maturing of existing energy infrastructure presents an "investment challenge" for policy makers and the industry, the IEA says. "Decisions to commit capital to the energy sector are increasingly shaped by government policy measures and incentives, rather than by signals coming from competitive markets," the IEA notes. "In the oil sector, reliance on countries with more restrictive terms of access to their resources is set to grow, as output from North America plateaus and then falls back from the mid-2020s onwards."

EUROPE'S LNG FIX

Companies are expected to pour in as much as US$736-billion on liquefied natural gas projects over the next two decades, or about 8% of total investments in natural gas. But don't expect natural gas to be cheap. "The high cost of many liquefaction projects and cost inflation could dampen the hopes of LNG buyers for more affordable supply. Europe's near-term perspective for expanding LNG purchases is constrained by the need to outbid Asian consumers for available gas," the IEA said. Trade in LNG will likely rise to 550 billion cubic metre by 2035, from 330 bcm as new suppliers from North America come on stream and existing suppliers such as Australia beef up their capacity. The IEA is especially hopeful that U.S. LNG exports would "have the potential to encourage movement towards a more global gas market." Europe's concerns over energy security in the wake of tensions with its key natural gas supplier Russia, has forced the continent to seek other sources of supply, such as LNG. The IEA expects North American and East African LNG facilities are expected to start meeting Europe's natural gas needs by 2020.

RISE OF NOCS

As major oil and gas companies cut costs and shelve projects to appease shareholders, national oil companies (NOCs) will need to step up. While dynamic North American companies will soak up much of the investments over the next few years, the pendulum will swing back in favour of NOCs by the end of the decade, as they sit on roughly 80% of the world's proven oil reserves and 60% of natural gas. Expect NOCs to team up with major oil companies, especially to develop so-called frontier basins.



Will Natural Gas Fuel America in the 21st Century?

The Post Carbon Institute undertook this report in order to examine three widespread assumptions about the role that natural gas can and should play in our energy future:

• Assumption #1: That, thanks to new techniques for hydraulic fracturing and horizontal drilling of shale, we have sufficient natural gas resources to supply the needs of our country for the next 100 years.

• Assumption #2: That the price of natural gas, which has historically been volatile, will remain consistently low for decades to come.

• Assumption #3: That natural gas is much cleaner and safer than other fossil fuels, from the standpoint of greenhouse gas emissions and public health.

Based on these assumptions, national energy officials at the Energy Information Administration (EIA) foresee a major expansion of natural gas in the coming decades. President Obama touted natural gas as a cornerstone of his Administration's "Blueprint for a Secure Energy Future" and endorsed plans for converting a sizable portion of the vehicle fleet to run on natural gas. Some environmental groups, rightfully concerned about the greenhouse gas emissions of coal, have called for large-scale replacement of coal-fired power plants with those that burn natural gas, despite increasing concern over the environmental impacts of hydraulic fracturing.

As this report details, all of these assumptions and recommendations need to be re-thought. What emerges from the data is a very different assessment.

But if this report is right, then how could mainstream energy analysts have gotten so much so wrong? It is not our purpose to analyze in detail the social, political, and economic process whereby public relations became public policy. Nevertheless it is fairly easy to trace the convergence of interests among major players. First, the shale gas industry was motivated to hype production prospects in order to attract large amounts of needed investment capital; it did this by drilling the best sites first and extrapolating initial robust results to apply to more problematic prospective regions. The energy policy establishment, desperate to identify a new energy source to support future economic growth, accepted the industry's hype uncritically. This in turn led Wall Street Journal, Time Magazine, 60 Minutes, and many other media outlets to proclaim that shale gas would transform the energy world. Finally, several prominent environmental organizations, looking for a way to lobby for lower carbon emissions without calling for energy cutbacks, embraced shale gas as a necessary "bridge fuel" toward a renewable energy future. Each group saw in shale gas what it wanted and needed. The stuff seemed too good to be true—and indeed it was.

The biggest losers in this misguided rush to anoint shale gas as America's energy savior are members of the public, who need sound energy policy based on realistic expectations for future supply, as well as sound assessments of economic and environmental costs.

It is understandable that the shale gas industry would fudge supply and price forecasts in the interest of drumming up investment capital. However, the EIA is supposed to be an impartial purveyor of data and analysis. Yet that organization has historically been overly optimistic with regard to fossil fuel supplies and prices. During the past decade several non-profit energy groups, including Post Carbon Institute, warned that depletion of giant oilfields and declining oil discoveries would lead to a situation of higher petroleum prices and tight supplies beginning before 2010. Indeed, a leveling off of world crude oil production and a simultaneous steep rise in oil prices during the past few years have arguably marked the most significant shift in the history of the petroleum industry—a shift whose consequences continue to ripple throughout the entire global economy. Yet EIA oil forecasts in the early years of the decade contained no hint of this impending and wholly foreseeable supply-price shift. In our view, the EIA is making similar mistakes in its too-rosy projections with regard to shale gas supplies and natural gas prices.

With mounting evidence of the environmental and human health risks of shale gas production, environmental groups are rightfully questioning the "cleanliness" of shale gas. But if

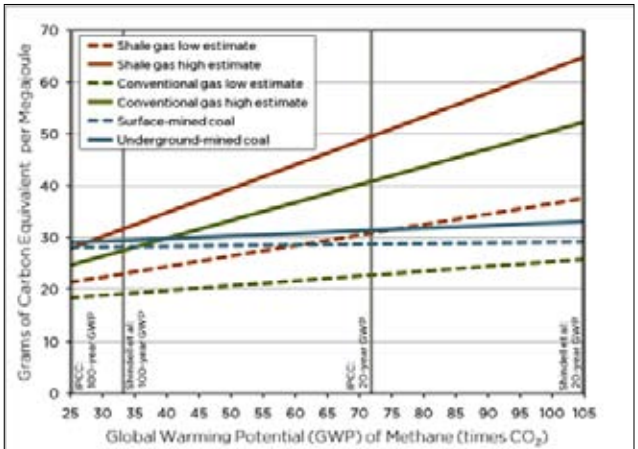


Figure 22. Comparison of Howarth et al.[94] estimates for shale gas, conventional gas and coal in terms of carbon emissions per unit of heat versus Global Warming Potential (GWP) using the estimates of the IPCC[95] and Shindell et al.[96] on 20- and 100-year timeframes.

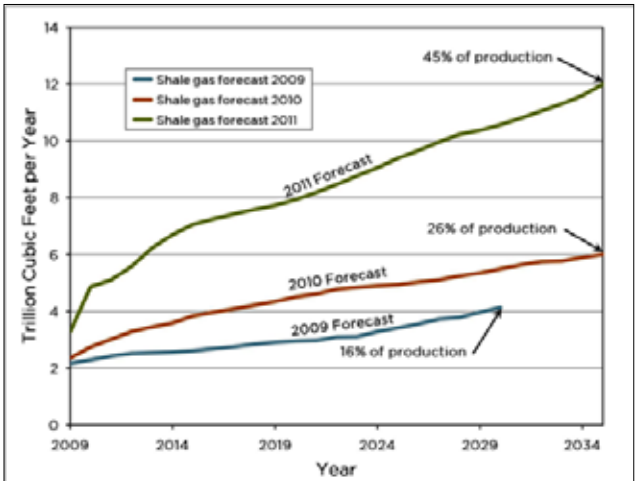


Figure 17. Forecast growth in U.S. shale gas production in the 2009, 2010, and 2011 EIA reference case forecasts.[69] Shale gas production is now forecast at 45% of U.S. supply by 2035, up from 16% in 2030 in the EIA's 2009 forecast.

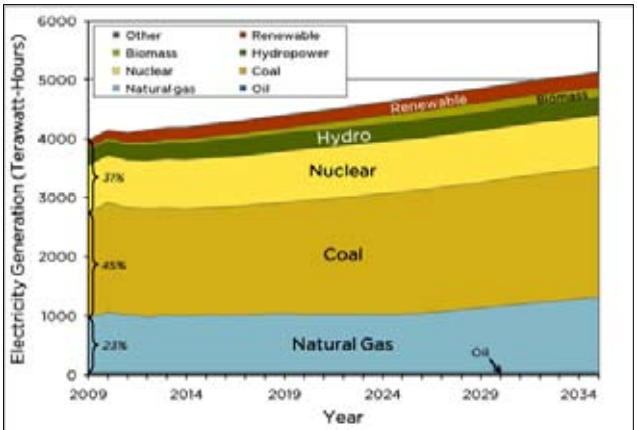


Figure 7. U.S. electricity generation by fuel projected through 2035. This is the EIA's reference case projection from its *Annual Energy Outlook 2011*.[17] Coal in this scenario is expected to be the major fuel source for electricity generation through 2035, growing in real terms but declining in terms of market share. Gas use will increase both in real terms and slightly in terms of market share.

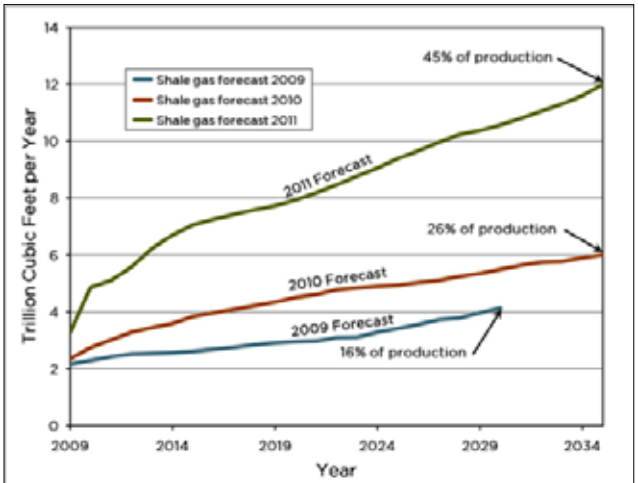


Figure 17. Forecast growth in U.S. shale gas production in the 2009, 2010, and 2011 EIA reference case forecasts.[69] Shale gas production is now forecast at 45% of U.S. supply by 2035, up from 16% in 2030 in the EIA's 2009 forecast.

these groups focus their arguments only on the contamination of ground water supplies of shale gas without at the same time questioning the economics of shale gas drilling, they will have helped set up conditions for a political battle that could undermine their own influence and credibility. Political interests traditionally funded by the oil and gas industries will once again claim that environmentalism is the only thing standing between Americans and energy security. And if environmentalists are successful in enacting regulations to minimize the risks of water contamination without clarity about the full lifecycle greenhouse gas emissions of natural gas, they may inadvertently exacerbate the very crisis they are trying to address.

The stark reality we face is that humanity has embarked on the era of extreme energy, where there are no simple solutions. The inexpensive, high-yield fossil fuels that powered the industrial revolution and that helped make the U.S. the world's wealthiest and most powerful nation are dwindling, and all of them emit dangerous levels of greenhouse gases. While enormous amounts of natural gas, oil, and coal remain, the portions of those fuels that were cheapest and easiest to produce are now mostly gone, and producing remaining reserves will entail spiraling investment costs and environmental risks. Moreover, while alternative energy sources exist—including nuclear, wind, and solar—these come with their own problems and trade-offs, and none is capable of replicating the economic benefits that fossil fuels delivered in decades past.

There is no likely scenario in which the decades ahead will see energy as abundant or as cheap as it was in decades past.

None of the major participants in our national energy discussion wants to utter that dismal truth. Yet continued appeals to wishful thinking merely squander opportunities to pre-adapt gracefully and painlessly to a lower-energy future.

The Unavoidable Solution: Energy Conservation

It is past time for policy makers to get serious about the most important strategy we can and must adopt in order to succeed in this new era—energy conservation. Reducing demand for energy and using energy more efficiently are the cheapest and most effective ways of cutting carbon emissions, enhancing energy security, and providing a stable basis for economic planning.

Unfortunately, energy supply limits and demand reduction do not support robust economic growth. This is probably the main reason why policy makers and many energy analysts and environmentalists shy away from conveying the real dimensions of our predicament. However understandable this response may be from a political perspective, it is one that only compromises our prospects as a nation and a species. There is much we can do to ensure a secure social and natural environment in a lower-energy context, but we are unlikely to take the needed steps if we are laboring under fundamentally mistaken assumptions about the amounts of energy we can realistically access, and the costs of making that energy available.

The above is Richard Heinberg's Foreword to the new report 'Will Natural Gas Fuel America in the 21st Century?' by Post Carbon Fellow David Hughes.

Here is a sampling of some of the graphics from the main report: **Will Natural Gas Fuel America in the 21st Century? The Full Report can be found here**

J. David Hughes is a geoscientist who has studied the energy resources of Canada for nearly four decades, including 32 years with the Geological Survey of Canada as a scientist and research manager. He developed the National Coal Inventory to determine the availability and environmental constraints associated with Canada's coal resources. As team leader for unconventional gas on the Canadian Gas Potential Committee, he coordinated the recent publication of a comprehensive assessment of Canada's unconventional natural gas potential.

Over the past decade he has researched, published, and lectured widely on global energy and sustainability issues in North America and internationally. He is a board member of the Association for the Study of Peak Oil and Gas–Canada and is a Fellow of the Post Carbon Institute. He recently contributed to Carbon Shift, an anthology edited by Thomas Homer-Dixon on the twin issues of peak energy and climate change, and his work has been featured in Canadian Business, Walrus, and other magazines, as well as through the popular press, radio, television, and the Internet. He is currently president of a consultancy dedicated to research on energy and sustainability issues.

Source: The Oil Drum

Oil in Russia
Picnic time for teddy bears

"WE LOVE our teddy bear. We will clean it and take care of it." This is how Igor Sechin, Russia's energy tsar, described his attachment to Rosneft, the country's largest state oil company, of which he is also the chief executive. The occasion was a pow-wow with investors in London six months ago. Mr Sechin (pictured, right) was trying to soften Rosneft's image as it prepared to take over TNK-BP, a joint venture between BP, a British oil firm, and a group of Russian oligarchs.

Six months on, the teddy bear has shown its claws. Rosneft's board voted to take up to $10 billion in cash from the accounts of TNK-BP's subsidiaries to help pay for the $55 billion acquisition. The snag is that 5% of the shares in those subsidiaries are owned by minority shareholders. By sucking the cash from TNK-BP, Rosneft is ignoring their interests. This is the "worst scenario we could imagine", says Gennady Sukhanov of TKB BNP Paribas Investment Partners, a minority investor in TNK-BP. The price of the publicly traded TNK-BP's shares fell by nearly 40% at the end of March.

Formally, Rosneft said it would borrow this money and pay interest. Minority investors are not reassured. Some doubt that the state oil company will share its profits with them or buy them out at fair value. After years of being paid healthy dividends, they are upset. Mr Sechin seems unfazed. "We never took any obligations towards TNK-BP's minority shareholders," he said on Russian television. Perhaps they should have bought Rosneft shares instead, he added with a smile: "We love our shareholders very much."

Stiffing minority shareholders now could make it harder for Rosneft to tap foreign capital markets in the future. It may dampen enthusiasm for any future attempt to privatise a chunk of Rosneft, something President Vladimir Putin has hinted might be on the cards. Rosneft needs money, to repay a $20 billion loan it took to acquire TNK-BP and to ramp up production at TNK-BP's ageing oilfields in western Siberia. Vladimir Milov, a former deputy energy minister and now an opposition politician, says a fall in production at TNK-BP coincided with Rosneft's takeover.

Mr Putin's pledges to make Russia more alluring to investors and to turn Moscow into a global financial centre sound ever less plausible. Timo Rossi of Northern Star, a Finnish investment fund with shares in TNK-BP, calls Mr Sechin's decision a "huge embarrassment" for those trying to attract foreign capital to Russia.

Mr Sechin's tactics hardly seem necessary. By one investor's estimate, it would have cost Rosneft less than $2 billion to convert minority shares in TNK-BP into Rosneft shares, avoiding the controversy. The company could also have raised cash by ordering TNK-BP to make a special dividend payment to all shareholders, including minority ones. So why is Mr Sechin doing it the bare-knuckle way?

Perhaps it is because he can. Whereas TNK-BP's former private shareholders had to rely on the capital markets, Mr Sechin has the backing of the state and its obedient banks. He is doubtless betting that the markets have short memories when it comes to lending money to state-owned oil firms. As for privatisation, Mr Sechin was never keen on selling Rosneft's shares—at least not on the open market.

Rosneft has found a convenient moment to make a play for TNK-BP's billions.

Rosneft's new board of directors, which is supposed to include Bob Dudley, the boss of BP, is not due to start until June. BP, which swapped its 50% share in TNK-BP for 12.5% of Rosneft, had no comment on the treatment of minority shareholders. But Mr Sechin's words raise concerns about how BP itself could be treated as a minority shareholder in Rosneft.

Minority shareholders have written a letter to Rosneft's non-executive directors complaining of their treatment, but have not publicised it. "The truth is everybody is afraid of Sechin," one investor sighs.

IEA Says the Party's Over

Here's a bit of context missing from the IEA report: the oil industry is actually cutting back on upstream investment. Why? Global oil prices—which, at the current $90 to $110 per barrel range, are at historically high levels—are nevertheless too low to justify tackling ever-more challenging geology. The industry needs an oil price of at least $120 per barrel to fund exploration in the Arctic and in some ultra-deepwater plays. And let us not forget: current interest rates are ultra-low (thanks to the Federal Reserve's quantitative easing), so marshalling investment capital should be about as easy now as it is ever likely to get. If QE ends and if interest rates rise, the ability of industry and governments to dramatically increase investment in future energy production capacity will wane.

Related Article: Kurdish Oil Looks For Buyers As Baghdad Warns Them Away

Other items from the report should be equally capable of inducing policy maker freak-out:

The shale bubble's-a-poppin'.

In 2012, the IEA forecast that oil extraction rates from US shale formations (primarily the Bakken in North Dakota and the Eagle Ford in Texas) would continue growing for many years, with America overtaking Saudia Arabia in rate of oil production by 2020 and becoming a net oil exporter by 2030. In its new report, the IEA says US tight oil production will start to decline around 2020. One might almost think the IEA folks have been reading Post Carbon Institute's analysis of tight oil and shale gas prospects! www.shalebubble.org This is a welcome dose of realism, though the IEA is probably still erring on the side of optimism: our own reading of the data suggests the decline will start sooner and will probably be steep. Help us, OPEC—you're our only hope! Here's how the Wall Street Journal frames its story about the report: "A top energy watchdog said the world will need more Middle Eastern oil in the next decade, as the current U.S. boom wanes. But the International Energy Agency warned that Persian Gulf producers may still fail to fill the gap, risking higher oil prices." Let's see, how is OPEC doing these days? Iraq, Syria, and Libya are in turmoil. Iran is languishing under US trade sanctions. OPEC's petroleum reserves are still ludicrously over-stated. And while the Saudis have made up for declines in old oilfields by bringing new ones on line, they've run out of new fields to develop. So it looks as if that risk of higher oil prices is quite a strong one.

A "what-me-worry?" price forecast.

Despite all these dire developments, the IEA offers no change from its 2013 oil price forecast (that is, a gradual increase in world petroleum prices to $128 per barrel by 2035). The new report says the oil industry will need to increase its upstream investment over the forecast period by $2 trillion above the IEA's previous investment forecast. From where is the oil industry supposed to derive that $2 trillion if not from significantly higher prices—higher over the short run, perhaps, than the IEA's long-range 2035 forecast price of $128 per barrel, and ascending higher still? This price forecast is obviously unreliable, but that's nothing new. The IEA has been issuing wildly inaccurate price forecasts for the past decade. In fact, if the massive increase in energy investment advised by the IEA is to occur, both electricity and oil are about to become significantly less affordable. For a global economy tightly tied to consumer behavior and markets, and one that is already stagnant or contracting, energy constraints mean one thing and one thing only: hard times.

What about renewables? The IEA forecasts that only 15 percent of the needed $48 trillion will go to renewable energy. All the rest is required just to patch up our current oil-coal-gas energy system so that it doesn't run into the ditch for lack of fuel. But how much investment would be required if climate change were to be seriously addressed? Most estimates look only at electricity (that is, they gloss over the pivotal and problematic transportation sector) and ignore the question of energy returned on energy invested. Even when we artificially simplify the problem this way, $7.2 trillion spread out over twenty years simply doesn't cut it. One researcher estimates that investments will have to ramp up to $1.5 to $2.5 trillion per year. In effect, the IEA is telling us that we don't have what it takes to sustain our current energy regime, and we're not likely to invest enough to switch to a different one.

Norway The rich cousin

NORWAY IS THE odd man out in the Nordics. While its neighbours are flirting with free markets, Norway is embracing state capitalism. Its national oil champion, Statoil, is the largest company in the region. The Norwegian state owns large stakes in Telenor, the country's biggest telephone operator, Norsk Hydro, its biggest aluminium producer, Yara, its biggest fertiliser-maker, and DnBNor, its biggest bank. It holds 37% of the Oslo stockmarket, but it also controls some non-listed giants such as Statkraft, a power-generator, which if listed would be the third-biggest company on the stockmarket.

The simple explanation for Norway's penchant for state capitalism is oil. When it was discovered in the North Sea in late 1969 it transformed the country's economy. Today Norway is the world's eighth-largest oil exporter. Petroleum accounts for 30% of the government's revenues as well as a quarter of the country's value added.

There is also a more nuanced explanation. Norwegians have always looked to the state to help manage their abundant natural resources—minerals, fjords, forests, waterfalls—and to look after isolated and thinly spread communities. Norway has a population density of only 13 people per square kilometre. Norway also came up with the idea of the state owning shares in private companies: after the second world war the government nationalised all German business interests in Norway and ended up owning 44% of Norsk Hydro's shares. The formula of controlling business through shares rather than regulation seemed to work well, so the government used it wherever possible. "We invented the Chinese way of doing things before the Chinese," says Torger Reve of the Norwegian Business School.

In recent years the Norwegians have been adjusting their model to get the best combination of state control and global competition. In 2007 they merged two state companies, Statoil and Hydro, in order to create a national champion. They also reduced the state's share to 62.5%. For some this shows that Norway is liberalising. But the strategy is remarkably similar to that being adopted in China and other state-capitalist countries. Norway's state capitalism has resulted in several oddities. The country has become a significant oil producer, though it is not a member of the OPEC club. But unusually among oil-producing nations, it is also a big advocate of human rights—and a powerful one, thanks to its control of the Nobel peace prize.

Norway has been able to cling onto more of its old social democratic habits than its neighbours. The oil boom led to a boom in public spending: since the 1970s the number of people employed in education has doubled and that in health and social services has quadrupled. The public sector continues to account for 52% of Norway's GDP. Oil wealth is bringing its own problems. The oil sector is monopolising the nation's technical talent, with more than 50,000 engineers currently being employed offshore. Property prices are rising by nearly 7% a year. McDonalds charges $7.69 for a Big Mac, against $4.37 in America. Oiling the wheels of welfare

Fellow Nordics like to dismiss Norway as the world's most northerly Arab country, but the most striking thing about Norway is how quintessentially Nordic it is. Oil may have filled its coffers and reconfigured its political economy, but it has not changed its culture. Oslo is singularly free from the soaring skyscrapers and bling-filled shopping malls that sprout in other oil capitals. The new opera house is magnificent, but it tries its best to look modest. The Munch Museum, celebrating the country's most famous painter, is housed in a concrete mausoleum.

The Norwegians are well aware of oil's terrible ability to turn riches into rags and sages into fools. Back in 1990 they established a sovereign-wealth fund (formally known as the Government Pension Fund Global) to prepare the country for a post-oil future and to prevent deindustrialisation. They also used the oil industry to promote other local industries such as shipping.

The fund is not without its problems, such as its size (it now accounts for 1% of all the world's stocks), its leisurely approach (it was slow to exploit the opportunities offered by the 2007-08 financial crisis) and its penchant for blacklisting offending companies. But it is nevertheless one of the best-run in the world. The Norwegians have established a clear division between the finance ministry as owner and the central bank as manager. They are now trying to improve returns and diversify risks.

The oil wealth has not destroyed Norway's egalitarian spirit. Finn Jebsen, chairman of the Kongsberg Group, which has large defence interests, points

out that his country has some of the world's best-paid manual workers and some of the worst-paid CEOs: blue-collar workers earn three times as much as their British peers, whereas the boss of Statoil earns just a couple of million dollars a year. Many of Norway's richer citizens live in London to escape from high taxes and a somewhat claustrophobic society.

Still, Norway is changing fast: new wealth is pulling in newcomers from all over the world and shaking natives out of some of their old habits. In Oslo you now see nouveaux riches flashing their wealth, drug addicts and dropouts begging for money, an army of Swedish barmen and waitresses and men with prayer beads driving taxis. Some 11% of Norway's residents were born elsewhere.

Like its neighbours, Norway wants to occupy upmarket niches and sell its expertise to the rest of the world. Its government created Statoil out of nothing by compelling private oil companies to hand over some of their expertise in return for their contracts and by building on the country's established skills in shipping. It badgered the company to innovate by taxing profits heavily but providing generous tax relief on R&D spending.

Norway is now the world's deep-sea drilling capital. Statoil is a leading global company in its own right as well as being at the centre of an elaborate network that includes Norwegian companies such as Aker Solutions and Kongsberg Maritime and the deep-sea divisions of foreign oil companies such as Schlumberger. Norwegian companies have learned how to drill horizontally as well as vertically. They have also cut the cost of exploratory drilling by developing technologies for mobile rigs that allows them to be kept steady in rough weather. The demand for this expertise is booming.

Norway applies the same strategy to traditional industries such as fishing, logging and mining. Its fjords are home to the world's most advanced fish-farming industry. Its pulp and paper companies are moving into biorefining. Its tradition of exploiting natural resources ("we live off what we find in nature" is a common refrain) is giving rise to new occupations such as bioforaging. Norwegian aquaculturists are selling their expertise to other countries that specialise in fish farming, such as Chile. Norway has also caught the region's enthusiasm for entrepreneurship. The government is promoting new businesses through bodies such as Innovation Norway and university science parks. Venture-capital firms such as Northzone, too, are on the lookout for clever ideas. The Norwegian Institute for Air Research has come up with a device that can measure the levels of volcanic ash in the air. Clean Marine has invented a way of cleaning ships' exhaust. Norway also has a flourishing culture industry: Karl Ove Knausgard, the author of "My Struggle" (in six volumes), is a huge literary talent.

The country's principled response to the actions of Anders Breivik, who committed mass murder in the name of white supremacy, was deeply impressive

Norway is also a strong exponent of Nordic social values, supporting negotiated solutions abroad and humanitarian policies at home. Of late it has not been a wise guardian of its biggest source of soft power. Giving Barack Obama the Nobel peace prize before he had a chance to do anything, or to the European Union in the midst of a euro crisis, might have been fine individually, but doing both in rapid succession was bad management.

Still, the country's principled response to the atrocities perpetrated by Anders Breivik was deeply impressive. Mr Breivik blew up eight government buildings in Oslo, killing eight people, and then shot dead 69 more, most of them teenagers, on the nearby island of Utoya. He committed mass murder in the name of white supremacy. Yet the country's reaction was a model of restraint. The court gave him an impeccably fair trial and sentenced him to 21 years in prison. He now spends his time writing letters complaining about life in his "mini Abu Ghraib" and working on a book to explain his actions.

Correction: Norway is not a member of OPEC, as this article originally suggested. This was corrected on

Exclusive: Kurdish oil finds new buyers in Europe despite Baghdad threats

Russian oil firm Rosneft bought a cargo of Kurdish oil for a German refinery it co-owns with oil major BP, quietly circumventing Baghdad's ban on independent oil sales by its autonomous region, according to trading sources.

While Iraq and Kurdistan will have to work together to combat an Islamist militant group that this week seized Iraq's second city Mosul, near the Kurdish border, they have been locked in a bitter oil dispute for the past two years, with Baghdad saying only its state company is authorized to sell crude.

The militants from the Islamic State in Iraq and the Levant (ISIL), an offshoot of al Qaeda, were closing in on Iraq's largest oil refiner on Wednesday.

Baghdad has already blacklisted Austrian firm OMV, so far the only regular buyer of Kurdish crude in Europe. It has threatened measures including revising contracts to develop large Iraqi oil fields as a deterrent to others.

Rosneft and BP buy crude oil via separate trading divisions for their German refining venture, Ruhr Oel, although BP is the main operator of the venture. Both companies declined to comment on the Kurdish crude purchase.

Rosneft, controlled by the Russian government, has no major projects in Iraq, while BP is among the biggest investors and is leading the project to develop the huge Rumaila field.

Outside Europe, Israel and the United States have also been frequent lifters of Kurdish oil.

The dispute escalated at the end of May when Kurdistan started selling oil out of its newly built pipeline to Turkey. Kurdish oil was previously trucked to two Turkish ports, but the pipeline would increase exports sharply.

Baghdad has so far successfully fought off the first attempt to sell pipeline crude, with a loaded tanker, the United Leadership, being forced twice to change course abruptly without being able to discharge its cargo.

But market sources told Reuters that another tanker with Kurdish oil had quietly been sold into Europe, ending up The Minerva Antonia cargo loaded around 41,000 tonnes of Kurdish light grade Taq Taq, which had been trucked from Kurdistan to the Turkish port of Mersin on the Mediterranean.

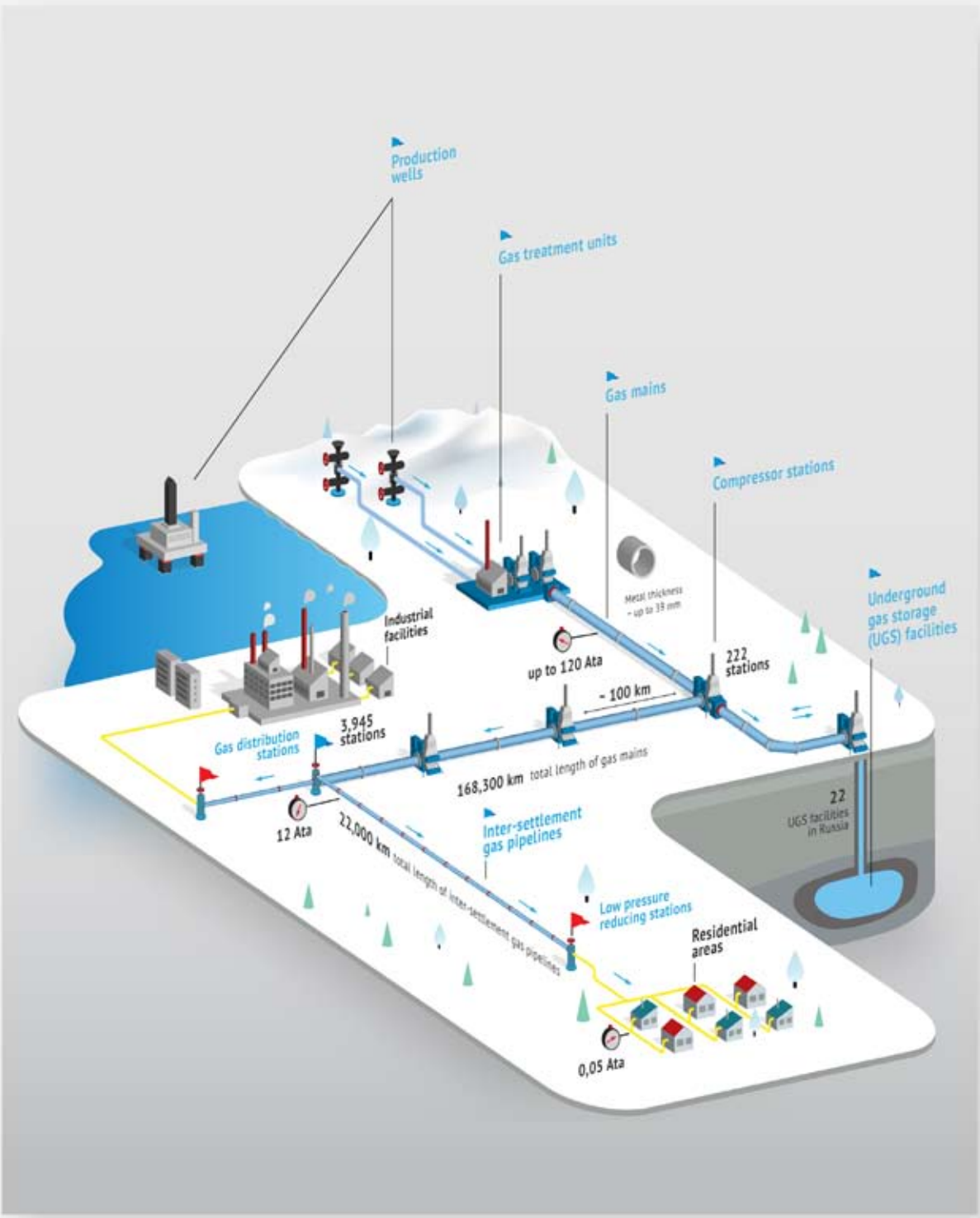
The cargo - around $30 million worth of oil - then sailed to the Italian port of Trieste on May 8, according to Reuters AIS Live ship tracking and two shipping sources.

The oil was then pumped through the Trans-Alpine Pipeline for Ruhr Oel's refining facilities into Germany, several industry sources with direct knowledge of the matter said.

Because BP is the operator of the refining venture, its German arm, Deutsche BP, featured as the technical receiver of the oil, according to two shipping lists from local agents seen by Reuters and one source with direct knowledge of the matter.

Rosneft, which bought the crude, according to market sources, has no obligation to coordinate crude purchases with BP, though the development could still put the British major in an uncomfortable position.

HOW NATURAL GAS REACHES CONSUMERS



Mosul Falls to Insurgents, Threatening Iraqi Oil Sector

OPEC's second largest oil producer is in severe disarray just as the world has come to rely upon Iraq for greater energy supplies.

Iraq is facing its biggest security threat in years following a surprise attack by Sunni militants on Mosul. In the June 10 attack on Iraq's second largest city, members of the Islamic State of Iraq and Syria (ISIS) surprised Iraq's security forces, driving them out and storming military bases, police stations and the provincial governor's headquarters.

Government security forces shed their uniforms to avoid capture and abandoned their posts as Prime Minister Nouri Al-Maliki declared a state of emergency in the entire country. Eyewitness reports said civilians were streaming out of Mosul, fleeing the violence.

The attack by the militant Sunni group is not the first. In January, ISIS attacked Ramadi and Fallujah in Anbar province, briefly taking control of the cities entirely. Despite Maliki's attempts to pacify the region, ISIS has retained control of some territory in Anbar.

Iraq has been deeply divided, with Maliki's government becoming increasingly authoritarian. Sunni groups claim that Maliki discriminates and unfairly targets them. But the problem appears to be a cycle of fear and distrust; as Sunnis resist oppression and increasingly take to the streets, Maliki tries to strengthen his position by cracking down.

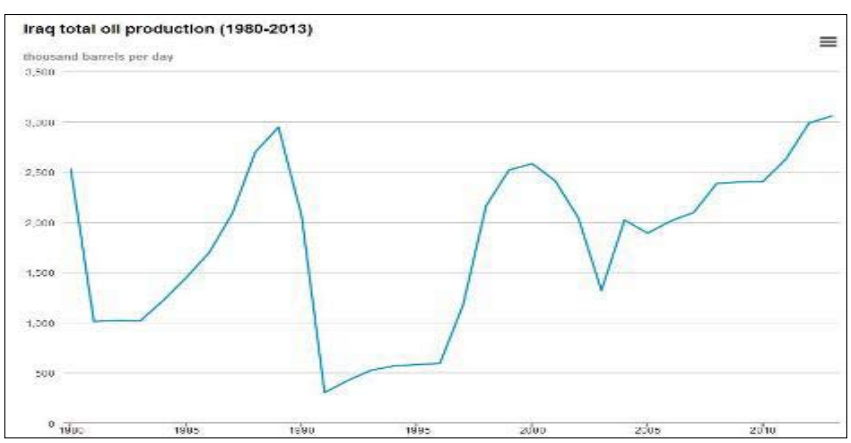
The January attacks by ISIS came after Maliki bulldozed a Sunni protest encampment in Ramadi, and intentionally conflated Sunni protestors with Al-Qaeda terrorists. Support for his government vanished in Anbar and Maliki's security forces withdrew as a result, paving the way for an ISIS takeover. (For a detailed rundown of the events that led to the crisis, read Kirk Sowell's exhaustive piece in Foreign Policy from earlier this year).

Now that the insurgency has spread to Mosul, the future of Iraq has again been thrown into question. Maliki's emergency decree may not matter much. He already has consolidated enough power to act but has shown an inability to quell the violence.

The turmoil in Mosul threatens to upend some of Iraq's oil production. Most of Iraq's oil is located in the south near Basra, but there are significant oil fields near Mosul, as well as in nearby Kurdistan. Perhaps more importantly, the fighting in Mosul has brought to a standstill the repairs to Iraq's main oil pipeline to Turkey.

Moreover, the violence could threaten future investment in the country, which has plans to triple its oil production by the end of the decade. The phenomenal level of investment required to achieve such a feat will not happen in a country suffering from severe violence. "Taking over Mosul will likely halt investment in oil and gas in that area," Paul Sullivan, a Middle East expert at Georgetown University, told Bloomberg News. "Who wants to drop hundreds of millions or billions in a place where ISIL could attack at any moment?"

One additional development that is complicating Iraq's oil picture is the central government's relationship with Kurdistan. After a second ship full of Kurdish oil left from the Ceyhan port in Turkey on June 9, an Iraqi government representative said that it would bring a complaint to the United Nations.



Iraq Total Oil Production (1980 - 2013)

The move comes even as uncertainty shrouds the ultimate destination of both tankers. The first ship still has not docked – it initially traveled towards the U.S. Gulf Coast, but reversed course and is near the shore of Morocco. While the violence in Mosul is an acute threat to Iraq's oil industry, the lingering political conflict with Kurdistan is also holding back Iraq's potential as an oil exporter.

As I mentioned in my June 9 piece, OPEC is currently meeting in Vienna to discuss its output quota, which is expected to remain unchanged. But the oil supply picture is becoming more strained than experts predicted only a few short months ago.

Iraq intended to lift its oil production to over 4 million barrels per day (bpd) this year, but that seems unlikely at this point, especially given what's happened in Mosul. After hitting a 35-year high in February at 3.6 million bpd, production slipped the following month by almost 300,000 bpd. With other OPEC members also losing output, OPEC may need to rely upon Saudi Arabia to make up for any shortfall later this year if demand rises.

As oil markets have tightened, prices have climbed. WTI is up more than 10 percent since the beginning of the year, from $93 per barrel in January to over $103 in June. Brent prices are up a more modest 3 percent, from $106 per barrel to $109.

If Iraq's security situation continues to deteriorate, it is not inconceivable that some of its production would be knocked offline. The world has come to take Iraqi oil for granted, and a significant loss of production would send prices skyrocketing.

After hitting a 35-year high in February at 3.6 million bpd, production slipped the following month by almost 300,000 bpd

Here Are The World's Five Most Important Oil Fields

Nick Cunningham

Nick Cunningham is a Washington DC-based writer on energy and environmental issues.

Much has been made about the role that hydraulic fracturing – or fracking -- has played in revolutionizing the energy landscape, unlocking vast new reserves of oil trapped in shale rock. This "tight oil" is pouring into the global pool of oil supplies at a crucial time, preventing oil prices from spiking in an age of high demand and geopolitical turmoil.

But the world still relies overwhelmingly on conventional oil production from existing fields, many of which are in decline. The Middle East has dominated the world of oil for half a century and as the list below shows, it remains king. Here are the top five most important oil fields in the world.

1. Ghawar (Saudi Arabia) The legendary Ghawar field has been churning out oil since the early 1950s, allowing Saudi Arabia to claim the mantle as the world's largest oil producer and the only country with sufficient spare capacity to act as a swing producer. Holding an estimated 70 billion barrels of remaining reserves, Ghawar alone has more oil reserves than all but seven other countries, according to the Energy Information Administration. Some oil analysts believe that Ghawar passed its peak perhaps a decade ago, but Saudi Arabia's infamous lack of transparency keeps everyone guessing. Nevertheless, it remains the world's largest oil field, both in terms of reserves and production. It continues to produce 5 million barrels per day (bpd).

2. Burgan (Kuwait) Just behind Ghawar is another massive oil field located in the Middle East. The Burgan field was originally discovered in 1938, but production didn't begin until a decade later. The field holds an estimated 66 to 72 billion barrels of reserves, which accounts for more than half of Kuwait's total, and it produces between 1.1 and 1.3 million bpd.

3. Safaniya (Saudi Arabia) The Safaniya field is the world's largest offshore oil field. Located in the Persian Gulf, the Safaniya field is thought to hold more than 50 billion barrels of oil. It is Saudi Arabia's second largest producing field behind Ghawar, churning out 1.5 million bpd. Like Saudi Arabia's other fields, Safaniya is very mature as it has been producing for nearly 60 years, but Saudi Aramco is working hard to extend its operating life.

4. Rumaila (Iraq) Iraq's largest oil field is the Rumaila, which holds an estimated 17.8 billion barrels of oil. Located in southern Iraq, Rumaila was highly sought after when the Iraqi government put blocks up for bid in 2009. BP and the China National Petroleum Corporation (CNPC) are working together to develop the giant field along with Iraq's state-owned South Oil Company. The field now produces around 1.5 million bpd, but its operators have plans to boost that production to 2.85 million bpd over the next couple of years.

5. West Qurna-2 (Iraq) Also located in southern Iraq, the West Qurna-2 field is Iraq's second largest, holding nearly 13 billion barrels of oil reserves. The West Qurna field was divided in two and auctioned off to international oil companies. Russia's Lukoil took control of West Qurna-2 and successfully began production earlier this year at an initial 120,000 bpd. Lukoil plans on lifting production to 1.2 million bpd by the end of 2017. The neighboring West Qurna-1 field – operated by a partnership of ExxonMobil, BP, Eni SpA, and PetroChina – holds 8.6 billion barrels of oil reserves. They hope to increase production from 300,000 bpd to more than 2.3 million bpd over the next half-decade. It's clear that the Middle East is still the center of the universe when it comes to oil. Despite their age, these supergiants remain the oil fields of tomorrow. And as the tight oil revolution in the U.S. plays out, these fields will remain, and the world will continue to depend heavily on the fortunes of a few countries in the Middle East.

Opportunity For Azerbaijan As Europe Seeks Alternative To Russian Energy

Claude Salhani

The last time Azerbaijan found itself at the center of geopolitics in a major way was when Nazi Germany was hoping to take over the important oil wells in this country. The fact that Germany was unable to grab the Azerbaijani oil wells was not for lack of trying on Adolf Hitler's part. Part of the reason for the Battle of Stalingrad was to secure the Baku oil fields.

Azerbaijan, at the time part of the Soviet Union, suffered tremendously because of the Second World War, known in the former Soviet space as the Great Patriotic War. It lost 210,000 soldiers and 90,000 civilians out of a total population of just over three million people, almost 10 percent of its population. The memory of this tragedy is never too far from the minds of people in this region, who still recall the years of war, partial occupation and years of subjugation that followed, as the Cold War settled in and they found themselves on the wrong side of the Iron Curtain.

Today Azerbaijan is in the forefront of global politics once again, albeit in a much more favorable position. The recent turmoil in Ukraine has repercussions far beyond its borders.

Europeans need Russia's gas, or failing that, they need to replace it. And the solution needs to be found sooner rather than later.

In the immediate future, the only two countries able to provide the amount of gas needed to replace Russian supplies are Turkmenistan and, to a lesser degree, Azerbaijan. But Turkmenistan's gas would need to pass through the Caspian Sea, via the Trans-Caspian pipeline, through Azerbaijan and onto Georgia, Turkey and only then to its final destinations. This can only happen if Azerbaijan is willing to risk displeasing Moscow, and if Russia doesn't overreact if Baku does.

Azerbaijan today holds particularly strategic importance to the Western alliance. Its oil and gas reserves are squarely at the center of the region's politics and policies.

It might be worth reminding policymakers in the United States that the Russian border is only about 100 miles from Baku.

Relations between Washington and Baku are cordial but could be better; Washington wants to see more evidence of democratic progress, like civil rights and rule of law.

But after years of living under communist rule, democracy in this part of the world must be spoon-fed and advanced one baby step at a time, while a solid base is built on which to build democratic institutions. Rushing headfirst into a politically unknown future frightens many here, with good cause.

Considering the neighborhood it finds itself in, the risk of destabilization in Azerbaijan is a fear the leadership would rather not have to contend with. Iran to one side, to the other Armenia – with which Azerbaijan is, for all intents and purposes, in a state of war -- and then there is Russia, Armenia's close ally. The former Soviet countries of Central Asia, with their mélange of ethnicities, nationalities, religions and political leanings, are potentially explosive minefields, and one must tread very carefully. Even so, while Russian is still widely spoken in Azerbaijan, and Russian culture is still very much alive, it is not difficult to see that people's hearts lean very much towards the West and America.

Anyone in doubt of how much influence the United States has in this part of the world should simply look at the recent Eurovision Song Contest: Contestants from Armenia, Azerbaijan, Belarus, Hungary, Romania, Slovenia, Ukraine, and even Russia, all chose to sing in English, instead of their native languages.

Oil could be $15 more per barrel without more Middle East investment

Global oil prices could go up by $15 per barrel in about 10 years, if the Middle East doesn't invest more in its oil fields, the International Energy Agency says. The IEA also reports the world may find itself more reliant on Middle East investment for shale oil production. If the Middle East fails to invest adequately in its oil fields, global oil prices could spike by an additional $15 per barrel in the 2020s. That comes from the International Energy Agency in a new report assessing global energy investment needs through 2035.

The report estimates the investment in energy required to meet global demand over the next several decades. For example, $1.6 trillion was spent on energy supplies across the globe in 2013. That figure is expected to climb to $2 trillion annually over the next 20 years, with more than half of the annual sum going to offset declining production. In other words, the world will be forced to cough up over $1 trillion each year just to keep energy production flat. While those figures are hard to fathom, they point to a future in which fossil fuels – oil in particular – become more expensive as cheaper reserves decline and producers go after harder-to-reach resources. The US has become infatuated with shale oil and gas, and has been lulled into a false sense of confidence because of rising oil production in North Dakota and Texas. The oil industry has been busy convincing the American public that we are destined for energy "superpower" status. It is true that US oil production has risen to its highest levels in over 20 years, but it may be short-lived. The IEA predicts that tight oil production in non-OPEC countries "starts to run out of steam in the 2020s." After US shale oil begins to fizzle out, the world "becomes steadily more reliant on investment in the Middle East" to meet demand growth. But the problem is that the Middle East may not be up to the task. The IEA projects that the Middle East will need to lift its production from around 28 million barrels per day (bpd) currently to 34 million bpd by 2035. This will require billions of dollars in new investment. But the national governments in question – which largely control oil within their territories instead of private companies – cannot necessarily be counted upon, according to the IEA. "There are competing government priorities for spending, as well as political, security and logistical hurdles that could constrain production," the report says, in what could be the understatement of the year. (Related Article: The Questionable Staying Power Of The US Shale Boom) The Middle East will "need to invest today if not yesterday," the IEA's chief economist, Fatih Birol said, because oil projects have lead times of about seven years. So in order to make up for declining tight oil production in places like the U.S., as well as meet rising demand, the Middle East needs to be preparing today for its 2020 production. More to the point, the IEA predicted in a 2013 report that nearly half of total oil production growth between now and 2035 would come from just two countries – Iraq and Brazil. Iraq has succeeded in boosting its production to 3.6 million bpd, the highest level in 30 years, but its ability to nearly triple its oil production over that timeframe – which the IEA is counting on – is suspect, to say the least. That means that oil prices could spike much higher by the 2020's. The IEA estimates it could be $15 per barrel more as a result, but that could be wildly optimistic. Just to take one example, the IEA predicted in its 2002 World Energy Outlook that oil prices would remain flat for a decade or so, hitting $21 per barrel in 2010, after which prices would "rise steadily to $29 in 2030." Accurate forecasting is difficult, but that's the point: Unanticipated geopolitical events can disrupt or entirely shatter our assumptions about what the future will look like. All this is to say that we can't count on adequate supplies (at a price we are willing to pay) to meet demand indefinitely. US tight oil won't solve all of our problems, despite what the industry says, nor will the traditional producers of the Middle East.

Why is energy-rich Gulf so hungry for gas

Rania El Gamal, Sylvia Westall

In the space of just late june 2014 core OPEC oil producer Kuwait lined up $15 billion worth of gas supply from BP and Royal Dutch Shell to help meet soaring demand. So why is it that Kuwait – along with neighboring OPEC powers Saudi Arabia and the United Arab Emirates – is left wanting for gas when the region houses around 30 percent of the world's resources?

For decades, gas was overlooked while these producers went all out to exploit their vast oil reserves. Political feuds and low local gas prices also slowed development of this clean-burning fuel and held up purchases from nearby Qatar, the world's top exporter of liquefied natural gas. Galloping demand from a population and industrial boom is forcing gradual change, although many billions will be needed to tap the region's gas. Much of that gas is low in quality and high in sulphur, making it expensive and difficult to extract.

"Most Middle East crude producers are now realizing the economic and environmental benefits of increasing gas production – and, in the near term, gas imports – for their rising power demand," said Kelli Maleckar of energy consultancy IHS. Kuwait and the UAE have done just that – boosting their reliance on imported gas to meet power demand, especially in summer when consumption to power air conditioning goes through the roof. Saudi Arabia does not import gas. Domestic political infighting that has long delayed Kuwait's negotiations with the oil majors to help it tap its gas reserves could also derail its purchases:

It has signed a $3 billion five-year LNG deal with BP and a $12 billion six-year LNG deal with Shell. After pressure from Kuwaiti lawmakers, an investigation was launched in 2011 into a gas service agreement with Shell.

"Even though Kuwait has signed these [Shell and BP] deals, there is always that risk that a parliamentarian is going to come and say 'you know what, I would actually like to question this deal,'" said Eman Alkadi of consultancy Eurasia Group. Kuwait also signed a short-term gas deal with Qatar last month, but it is unlikely to depend on Doha in the long term due to a political rift over Doha's support for Islamists, analysts say. A long-discussed regional pipeline network would meanwhile go a long way toward solving supply problems, but it has also been hampered by political disputes. Demand for gas in the Gulf Cooperation Council states is likely to rise more than 50 percent, from 256 billion cubic meters in 2011 to 400 bcm in 2030, according to IHS.

Objections by top oil exporter Saudi Arabia had halted a plan for Qatar to pipe gas to Kuwait in the past. Many GCC members have long-running border disputes with each other.

Riyadh had also opposed Qatar's pumping gas to the United Arab Emirates, but the Dolphin Energy project went ahead regardless.

It now carries about 2 billion cubic feet of gas per day to the UAE and Oman.

The UAE has exported LNG since the late 1970s, but soaring domestic demand and sluggish progress with its own production have turned it into a net gas importer over the last five years. In the longer term, Iraq, which invaded Kuwait in 1990, could also provide supply for the region. For now, however, it faces its own acute power shortage. And Iran, which holds the world's largest gas reserves, is unlikely to provide a quick supply fix even if it reaches a deal with world powers over its nuclear program and sanctions are lifted. "[Iran] faces a number of obstacles, among which is a crowded market place of suppliers, neighbors unwilling to pay a higher price for its gas, and its own national financial and operational hurdles," said Valérie Marcel of Chatham House. Qatar, which imposed a moratorium on new gas developments, has offered to help Iran get more from the world's biggest gas field which both countries share. Doha is concerned that too much Iranian drilling might impair recovery rates for both sides. In anticipation of rapidly rising consumption, Saudi Arabia, which holds the world's fifth largest gas reserves, is exploring unconventional gas – "a game changer in our upstream production strategy," according to state-run Saudi Aramco. It expects that natural gas demand to almost double by 2030 from 2011 levels of 3.5 trillion cubic feet per year. Saudi Arabia burns a significant amount of its crude to generate electricity and analysts warn that rising consumption will erode the amount available for export.

Natural Gas Exports Are No Longer An American Dream

Jack Rafuse

Dr. Jack Rafuse, former White House energy adviser and current principal of the Rafuse Organization, advises government agencies, policy centers, businesses and associations on energy, trade, sanctions, national security issues and their interrelationships.

The US Department of Energy (DOE) proposed changes to its process for review of Liquefied Natural Gas (LNG) export applications to non-free trade agreement (FTA) countries. Good idea, but this procedural change only further muddies the water on next steps for these applications. The new policy would eliminate conditional approvals for terminals, and have the DOE make final public interest determinations only after completion of the review required by

environmental laws and regulations by FERC. The DOE action merely highlights the need for legislation to set clear rules and timelines on the DOE and streamline project approvals. Fortunately, the House of Representatives will soon be considering legislation that does just that. Later this month the House will vote on H.R. 6, the "Domestic Prosperity and Global Freedom Act" introduced by Rep. Cory Gardner (R-CO), a bipartisan-supported bill that would require the DOE to approve LNG export applications within 90 days of the end of the comment period or after the enactment of the new legislation. This legislation reflects the significant shift in market dynamics that has occurred over the past few years. Only five years ago, there were 47 applications for LNG import terminals pending due to the major and growing shortage of domestic gas and a stagnant energy market. Domestic prices were at a high of $11.00 per BTU and forecasts of recoverable domestic natural gas resources were a small fraction of today's most conservative estimates.

Today's energy landscape stands in stark contrast; the U.S. Energy Information Agency reports that energy imports are at historic lows; and estimates show that natural gas production far outstrips domestic demand by 2035.

The United States is poised to become a top exporter of LNG, resulting in significant economic benefits to the nation. According to a recent study by ICF International, LNG exports could add between 73,100 and 452,300 jobs in the U.S. by 2035. An updated analysis of the 2012 NERA Economic Consulting study for the Department of Energy similarly found that LNG exports would have "net economic benefits" in every export scenario, could contribute as much as $86 billion to GDP in 2038 and potentially add up to $60 billion to U.S. trade balance. LNG exports would also help the U.S. to strengthen global energy security amid confrontation from Russia, Iran and several other nations. Disruptions in European markets have a direct impact on U.S. security and economic priorities. LNG exports will send a strong signal to foreign entities that use energy as a political weapon that U.S. is ready to lead this market. Opening global markets to American natural gas would diversify our allies' options and prevent future market disruptions. By enacting policies now, we can set the standard for a more stable global market in the years to come. The changing energy landscape is a reality, yet America's ability to realize the huge economic and geopolitical benefits is not guaranteed. Some groups and companies are working hard to undermine LNG exports despite its clear benefits to the nation and our allies and trading partners. Those cynical "me first" companies want to keep natural gas prices artificially low; they argue that LNG exports will cause consumers to feel the pain in their wallets, when no credible analysis comes to any such conclusion.

The free exchange of goods across borders benefits American consumers and businesses. Opening global markets to American LNG provides certainty to the LNG market and will sustain growing demand that will drive continued investment in natural gas production.

For the sake of logic and the good of the nation, legislators should update the antiquated regulatory framework that limits American energy exports. The "Domestic Prosperity and Global Freedom Act" is meaningful legislation that reflects America's growing status as one of the world's greatest energy producers. It should be adopted without delay, along with new legislation to accelerate the permit process for oil and natural gas pipelines in this country.

IEA :World needs to Invest US$40T to meet energy demand

Meeting the world's energy supply needs by 2035 will require US$40-trillion of investment, as demand grows and production and processing facilities have to be replaced, the International Energy Agency said. More than half of that amount will be needed to compensate for declining output at mature oil and gas fields, and the remainder on finding new supplies to meet rising demand, the Paris-based agency said in a report Tuesdsay. The world will increasingly rely on countries that restrict foreign companies' access to their oil reserves, as North American shale output tails off from the middle of next decade, it predicted.

"Declines and retirements set a major reinvestment challenge for policy makers and the industry," said the IEA, which advises 29 of the most industrialized nations on energy policy. "In the case of oil, the focus for meeting incremental demand shifts towards the main conventional resource-holders in the Middle East as the rise in non-OPEC supply starts to run out of steam in the 2020s."

While a boom in shale oil is pushing U.S. production to its highest level in almost 30 years, diminishing the biggest crude consumer's reliance on imports, this output surge is forecast to fade, restoring the importance of supplies from the Middle East and the Organization of Petroleum Exporting Countries.

Upstream Spending

Spending on extracting oil and gas worldwide will climb by 25% to US$850-billion a year by 2035, with most of this concentrated in natural gas, according to the report. Global markets will tighten if investments in the resource-rich Middle East are too slow, pushing oil prices US$15 a barrel higher on average in 2025, it warned. Brent futures averaged $108.70 a barrel last year.

"The prospects for a timely increase in oil investment in the Middle East are uncertain," according to the agency, which estimates that more than 70% of global oil and gas reserves are under the ownership of state-controlled entities. OPEC, whose largest producer is Saudi Arabia, currently accounts for 40% of global oil supplies.

"Decisions to commit capital to the energy sector are increasingly shaped by government policy measures and incentives, rather than by signals coming from competitive markets," according to the IEA.

About half of the US$40-trillion spent on energy through to 2035 will be on extraction, refining and transporting fossil fuels, the report indicated. Two-thirds of the total will be spent in emerging economies, according to the agency. Investment needed in renewable energy will total US$6-trillion, with another US$1-trillion in nuclear power.

Annual spending on satisfying global energy requirements will increase to US$2-trillion by 2035, up from US$1.6-trillion last year, the agency projected.

Spending on energy efficiency through 2035 pushes the total required investment to US$48-trillion, according to the IEA.

Turkish Energy Market Compliance:
Lacunae In Turkish Natural Gas Law

Zuhal Uysal

In recent years, several natural gas pipeline projects and natural gas import opportunities have come to the force in Turkey. After completion of the pipeline project TANAP, which is regarded as the biggest natural gas pipeline project investment in Turkey, approximately 6 bcm of natural gas of 16 bcm will be purchased by Turkey and 10 bcm of this quantity will be exported to Europe. Current gas field discoveries Leviathan, Tamar and Cyprus have also brought new pipeline project opportunities along, such that Turkey has the opportunity to become an energy hub. Nevertheless, it is a debatable point if and how these projects will affect the natural gas prices in Turkey. Despite all international natural gas import and trading developments and even if the Turkish Natural Gas Market Law has enabled the exercise of market activities to the private sector companies, there are legal restraints for especially natural gas importers which limits the natural gas import in various ways.

Natural gas importers shall supply the natural gas from BOTAŞ (Petroleum Pipeline Corporation)

A limitation in natural gas import in Turkey is the provision of the Natural Gas Market Law which sets forth that natural gas import from countries in which no contracts of BOTAŞ exist, is subject to the evaluation and permission of the Energy Market Regulatory Board. According to the Natural Gas Market Law, the Energy Market Regulatory Board may permit to natural gas import from such countries by evaluation of market competition, the obligations arising from the existing contracts and also the import connections. On the other hand, natural gas import from countries in that contracts of BOTAŞ exist is not permitted to the natural gas importers until these contracts expire. After the expiration of these contracts, natural gas importers may sign contracts for the same quantities as BOTAŞ imports. Briefly, natural gas supply directly from the third countries or from the pipelines is not allowed to the natural gas import companies. In contrary, the domination of BOTAŞ is still existing in the natural gas import.

Requirement of separate licenses for import and export activities

As is known, principally a separate license is required for each market activity in natural gas market. This principle is also applicable for natural gas import companies. According to the Natural Gas Market License Regulation, a natural gas importer shall obtain an export license in order to export the imported natural gas abroad. Moreover, a separate import license is also required for each import connection.

The legislation provides limits not only for the natural gas import from abroad, but also for the imported and sold natural gas quantity. Pursuant to the legislation, the natural gas which may be imported and sold by natural gas import companies shall not exceed 20 % of the estimated natural gas consumption of the relevant year which is determined by the Energy Market Regulatory Authority.

What has been regulated by the Draft of the New Natural Gas Market Law in this regard? The Draft of the New Natural Gas Market Law also regulates the same market restrictions in import and sale of natural gas. However, if the New Natural Gas Market Law enters into force as drafted, 50 % of the natural gas amount which will be imported shall be reduced from the obligations of BOTAŞ in the event that the import company imports the natural gas from countries in which contracts of BOTAŞ exist.

Privatisations in natural gas market: Private sector monopoly instead of states monopoly?

Within the frame of the Natural Gas Market Law, the restructuring and privatisation of BOTAŞ has been intended. Pursuant to the Law, only transmission will be under monopoly of BOTAŞ. This will have the consequence that certain natural gas companies become dominant players in the market which may cause the evolution of a monopoly of these private sector companies which dominate the natural gas market currently and the obstraction of the targeted market competition.

Indonesia's Pertamina holds early talks with Talisman Energy on possible stake in Duvernay gas fields

Indonesia's PT Pertamina has held preliminary talks with Talisman Energy Inc. about acquiring a stake in the Calgary-based company's Duvernay shale gas acreage in Alberta, an official with the national oil company said Wednesday.

Dr Sugiharto, Pertamina's president commissioner, said officials with the state-run company met with Talisman representatives, including chief executive Hal Kvisle, to discuss a possible acquisition in the liquids-rich gas zone.

"We are still at the infant stage," Mr. Sugiharto said on the sidelines of an energy conference in Calgary. He declined to say how big of a stake Pertamina might take in the blocks, which lie northwest of Edmonton.

Pertamina has budgeted US$7.9-billion for capital expenditures this year, including for mergers and acquisitions, he said. Acquiring a stake in Talisman's Alberta gas fields would be the state-run company's first foray into Canada's oil and gas industry, he said.

The company plans to spend US$61-billion over the next five years, with 70% for gas development, he said. Pertamina last year looked at acquiring a stake in Statoil ASA's oil sands properties but decided against the move, he said. Talisman has been seeking a partner to develop its Duvernay holdings as it looks to raise as much as $2-billion from asset sales over the next 12 to 18 months in a bid to cut debt. A spokesman with the company was not immediately available for comment.

Talisman last year sold its interest in its Northwest Java field offshore Indonesia to a Pertamina unit, according to the Calgary company's web site.

In the other hand on asia energy market we consider India a potential market for oil sands but pipeline needed first, exec says. ONGC Videsh Ltd., the overseas arm of India's biggest state-owned energy explorer, wants to see pipelines built before sinking cash into Western Canadian oil sands and natural gas properties, a senior executive said Wednesday, as the federal government readies a decision on a major oil export conduit.

ONGC is scouring the globe for energy and is eager to form partnerships to meet surging domestic demand, Subhash Kumar, senior vice-president of business development with the company, said at a Calgary energy forum. It has assessed possible minority positions in "a number" of oil sands assets going back five years, he said. But volatile prices for Alberta crude have made valuing potential acquisitions difficult, he said, preventing the company from clinching a deal. Though it has recovered somewhat, the price for Western Canada Select, the key heavy oil blend, plunged as much as $40 below the headline North American crude in recent years as production outstripped available pipeline capacity.

"We believe that once there is capacity to put the oil on high seas then it should be possible to address the issue of differentials," Mr. Kumar said, referring to the gap between Canadian and U.S. crude prices. "That would make the task of coming to a right valuation easier. Today it's very difficult to make a call."

he federal government is expected to make a decision by June 17 on Northern Gateway, the $7.9-billion Enbridge Inc. project designed to send oil sands-derived crude from Alberta to British Columbia's northern coast for export.

The 525,000-barrel-a-day pipeline has drawn the ire of environmentalists and B.C. First Nations groups, who have pledged to fight the conduit in court should it be approved.

Calgary-based Enbridge has said the pipeline could be up and running by late 2018, although company officials have said they would seek additional

support for the project before starting construction.

A decision on the hotly contested project comes amid mounting concern over rising industry costs and access to capital needed to develop multi-billion-dollar oil sands projects. France's Total SA recently halted work on its $11-billion Joslyn bitumen mine, and the Canadian Association of Petroleum Producers, the industry's main lobby group, trimmed its long-term production forecast for the resource by about 5%.

"If you can't get your product to market you're not going to be putting investment into production," Alberta finance minister Doug Horner said Wednesday, speaking on the sidelines of a Calgary energy conference. "That's one of the risks we have today, but I think our federal government is quite aware of that risk."

Investment by state-run energy companies in oil sands assets ground to a halt after Ottawa overhauled foreign-investment rules in the wake of Nexen Inc.'s $15.1-billion acquisition by China's CNOOC Ltd. The changes effectively limited state-owned companies to minority positions in the resource.

India's national energy explorers have long been considered possible buyers of Canadian energy assets, although deals have been slow to materialize. Even so, the subcontinent is seen as an ideal market for Canadian crude. Husky Energy Inc. last year sold one million barrels of oil from fields offshore Canada's East Coast to India Oil Corp. Husky described the move as a test sale and said additional cargos were possible once pipelines were built.Crude delivered along TransCanada Corp.'s proposed $12-billion Energy East pipeline to Canada's Atlantic coast "would be of natural interest to us," ONGC's Mr. Kumar said, adding shipments from the B.C. coast would also be welcome "to the extent that [it would provide] clarity on what is going to be realized for every barrel of oil."

With uncertainty over oil prices, some state-run companies are focusing instead on gas. On Wednesday, a senior official with Indonesia's PT Pertamina said the company is in talks to potentially acquire a stake in Talisman Energy Inc.'s Duvernay shale gas holdings. A spokesman for Talisman declined comment.

2013 Turkey Energy Report

Turkish economic growth that had been going on for more than a decade have created a strong economy that is based on high demand for energy. However as a country that is heavily dependent on energy imports Turkey is investing on the means that will provide it with a more diversified energy base. This report is intended to provide an extensive analysis of such an effort on the part of Turkey by laying out the energy map of the country. It puts a specific emphasis on combining the sector specific dynamics with the legal knowledge of the Turkish energy market. The report should be read in conjunction with the recent developments in the region including new discoveries of energy resources in the Eastern Mediterranean and their resonances for the Turkish energy policy as well as the energy policies of the regional players.

GENERAL MACRO ECONOMIC OVERVIEW AND POLITICAL ANALYSIS

Turkey's Economic Outlook 2013

Turkish economy has been growing in unprecedented rates during the course of the last decade. Its macro economic restructuring and reforms following the economic crisis of 2002 had paid off and led the country to an economy based on solid macro-economic foundations. Throughout the last ten years the country has been increasingly associated with the emerging economic power houses of BRIC and has been regarded as an economic hub in its region.

GDP per capita increase from 3,492 USD in 2002 to 10,497 USD in 2013

Economic growth by 3.6% in 2013

Inflation rate 7.4% in 2013

Annual Exports of 151.3 USD billion in 2013

Annual Imports of 248.3 USD billion in 2013

Budget deficit to GDP 1.2%

Political Analysis

Outstanding Turkish economic performance which has spread out to the last decade has a keen connection with the political situation in Turkey. Once a country of an unstable politics that is marked by ever changing coalition governments, Turkey has managed politically to transformed itself in to a stable and reliable country with a single party government capable of implementing much needed political and economic reforms. Throughout the last decade Turkey had experienced no major political crisis and the stable political situation had found an expression in the country's unprecedented economic growth almost reaching double digit numbers in its heyday.

The year 2014 is a year to watch for the Turkish politics to see if the country will continue to proceed in a stable course or two ballot boxes that will be brought before the Turkish electorate will change the political landscape in Turkey. Turks will go to the polls both in March 2014 local elections to determine who will run the Turkish cities and August 2014 to directly elect their President for the first time in their history. What is crucial for these two elections are two events that have the potential to change the Turkish politics.

Turkish Energy Market in Perspective

Turkish energy market has been structured through the liberalization policies of Turkish government with intent to form a competitive energy market.

Despite the latest monetary policies of Central Bank of Turkey on interest rates which were implemented against to currency risk, Turkish electricity consumption rate is estimated to mount up to 4.5 % annually in parallel with GDP.

Turkish natural gas market is sharply expanding with substantial privatizations in recent years. In line with economic growth, Turkish natural gas consumption augmented circa 5% compared to 2012.

Electricity consumption performed a sustainable growth throughout 2007 to 2013. Although it was very soft winter season last year, the electricity consumption increased 1.3% in 2013. This is a fundamental indicator that electricity demand is mostly related to industrial consumption.

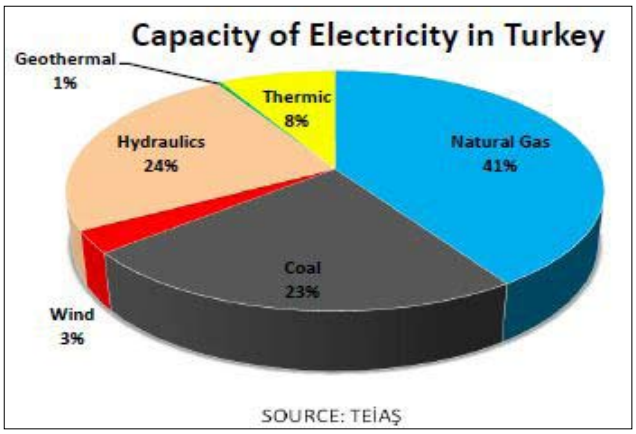
Overall Distribution of Energy Resources

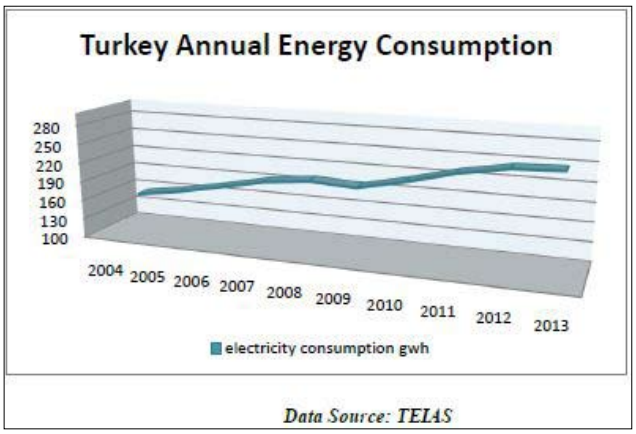
Turkey has become one of the fastest growing energy markets in the world and has been experiencing rapid demand growth in all segments of the energy sector for decades.

Turkey comes in possession of the most dynamic energy economies of the world in terms of increase in energy demand. Having a substantial potential for the renewable energy resources, Turkey ranks seventh in the world and first in Europe in terms of geothermal energy. Turkey aims at further increasing its use of hydro, wind and solar energy resources and Turkey has potential producing 30% of its electricity need from the renewable by 2023.

Turkey is geographically located in close proximity to more than 70% of the world's oil and gas reserves.

Annual electricity generation is approximately 179, 5 billion kWh in





Turkey. Renewable energy and energy efficiency projects are assisting to reduce CO2 emissions in Turkey by more than 3 million tons annually. Turkey has different kinds of energy sources which Turkish energy sector is becoming more active, competitive and attracting the attention of investors.

Annual energy consumption

In comparison with 2012, annual electricity consumption in Turkey has risen by 1.3% and climbed to 245K GWh. The highest energy consumption revealed on July by 22K GWh due to the cooling off items usage.

Total Energy Supply Sources

Energy Generation

Electricity demand has been growing in line with economic developments which driven by industrialization and urbanization in Turkey.

Growing demand is driven by population and industrial growth which in emerging markets calls for a rise in the supply capacity as well as diversity in the energy generation mix.

Diversification of primary energy supplies decrease dependency on a single source and contributes to supply security. Developing countries which is Turkey to constitute 93% of the growth in demand. According to the International Energy Agency (IEA), shale gas caused a decline in gas prices which increase the demand on natural gas and LNG.

Turkish electricity market has been increasing in size with its economic developments which industrialization and urbanization make room for the importance of electricity in Turkish market.

The Turkish electricity market is one of the fastest growing in the world with an average of approximately 9% annual growth in 2010 and 2011.

Turkish electricity market play a crucial role in terms of natural gas demand since it is expected to grow by 2.9% annually until 2020 according to the Ministry of Energy and Natural Resources.

Turkey has the second highest energy consumption growth after China and is highly dependent on external energy resources.

Energy Imports

There is a competitive global market place in which energy cost is a significant competitive factor. Turkish economy is an aim of becoming more competitive in the global market place. The geographic position of Turkey and its proximity to the energy sources is its biggest asset. The energy intensity of Turkish industry is higher than any modern standard. Energy intensity of Turkish industry is two times higher than the OECD average and four times higher than Japan's average. Turkish industry has to increase energy efficiency in production and increase the share of the renewable energy in its energy mix in line with the EU regulations and standards. Turkey is located in a region that holds 72% of the world's proven gas reserves and 78% of proven oil reserves. Countries to the west of Turkey consume 50% of world's oil and natural gas while countries to the east produce 70% of world's oil and natural gas.

Turkey has the second highest energy consumption growth after China and is highly dependent on external energy resources

Why the Middle East Needs Solar Energy

Travis Hoium

Growth in the solar industry over the next decade won't be driven by subsidies or government backing, but rather locations where the energy source is cheaper than alternatives. In the case of the Middle East, solar is not only economically viable, it's a necessity because its most valuable commodity -- oil -- is more valuable as an export than it is being burned in power plants.

For the solar industry, that opens up an incredible opportunity that could generate hundreds of billions in revenue and create incredible value for shareholders.

Image source: First Solar.

Why the Middle East needs solar

When your main industry is energy it's logical to use the energy you extract from the earth to generate

electricity, which is why most Middle Eastern countries generate electricity from oil. In Saudi Arabia, that's become problematic because electricity consumption has risen rapidly in the past decade and that's lost revenue potential from oil exports.

SunPower workers install a new utility scale project. Source: SunPower.

According to a report from The Oxford Institute for Energy Studies, a growing middle class, higher standards of living, and the diversification of industries has led to a number of problems for Saudi Arabia. From 2003 to 2012 consumption nearly doubled from 128,629 million kW-hr to 240,288 million kW-hr. This was driven by residential consumption, which used 50% of electricity, no doubt to stay cool in the hot climate.

To generate that much electricity, the Saudi Electric Company consumed 995,000 barrels of oil equivalent per day and considering that they're 77% of capacity it's safe to say that oil equivalent used to generate electricity was over 1.2 million barrels per day. If the alternative was selling the oil for $100 per barrel, the country lost out on $43.8 billion in potential exports by consuming oil and natural gas to generate electricity.

The problem isn't getting better either. The country plans to increase generating capacity from 55 gigawatts to 120 gigawatts by 2020 just to meet demand. Then there's the insane swing in consumption from winter to summer, when air conditioning goes on full blast. According to the Oxford report cited above, overall consumption rose nearly 1 million barrels per day from low to high.

Saudi Arabia Oil Consumption Chart

Saudi Arabia Oil Consumption data by YCharts

Why solar makes sense

The cost of solar has fallen rapidly over the last decade and new projects in the Middle East would likely be built for well below $0.10/kW-hr. SunPower's (NASDAQ: SPWR) Henrietta project that's under construction has a power purchase agreement, or PPA, for $0.104/kW-hr, First Solar's (NASDAQ: FSLR) Macho Springs PPA is $0.085 when state incentives are included, and even Germany's feed-in tariff rate for large solar systems is 9.19 Euro cents/kW-hr. A project built by SunEdison in Chile. Source: SunEdison.

Saudi Arabia doesn't publish what its electricity costs or prices are but since it generates about 65% of its electricity from oil we can get a ballpark idea of the cost from the one state in the U.S. that generates a lot of electricity from oil -- Hawaii. In Hawaii, the lowest residential utility rate was an incredible $0.351/kW-hr and ran as high as $0.45/kW-hr in 2012, according to the latest data from the Energy Information Administration.

Solar energy would not only reduce oil consumption and increase exports of oil and gas in the Middle East, it would lower costs, reduce volatility of exports, and make for a cleaner future.

Most of the data provided above is for Saudi Arabia, but it can be assumed that Qatar, the United Arab Emirates, Iraq, Kuwait, and any other energy producing country will see the same dynamics. Solar energy is too cost effective to ignore and with domestic consumption rising it's in their best interest to build solar so they can export more oil and gas.

The opportunity is huge

The Middle East is a tiny solar market as it stands today, but that will likely change in the next few years. Saudi Arabia alone has a $109 billion plan to build enough solar to generate 1/3 of its electricity. It plans to tender 1 gigawatt of projects, or about $2 billion in investment, by the end of 2014.

Source: First Solar.

Qatar has built a 300 megawatt solar manufacturing plant and sees 2.5 gigawatts of production in its future. The UAE's Abu Dhabi region just completed a 100 megawatt concentrated solar power plant and also sees a great future for solar.

This isn't an opportunity that's lost on some of the best companies in solar. First Solar says about 10% of its potential booking opportunities come from the Middle East and its thin-film panels perform well in the desert heat. 1.7 gigawatts of SunPower's 7.65 gigawatt pipeline is in the Middle East and Africa and the company hopes its majority owner, Total, has been a presence in the Middle East for decades. Those ties could give the company a leg up in building relationships and its C7 concentrator design can be partially built in-country, satisfying the domestic manufacturing requirement many countries are looking for. Of the big publicly traded installers, SunEdison (NYSE: SUNE) trails the group with only 17% of its backlog in Europe, the Middle East, and Africa. As the company transitions to a project builder, look for this exposure to increase.

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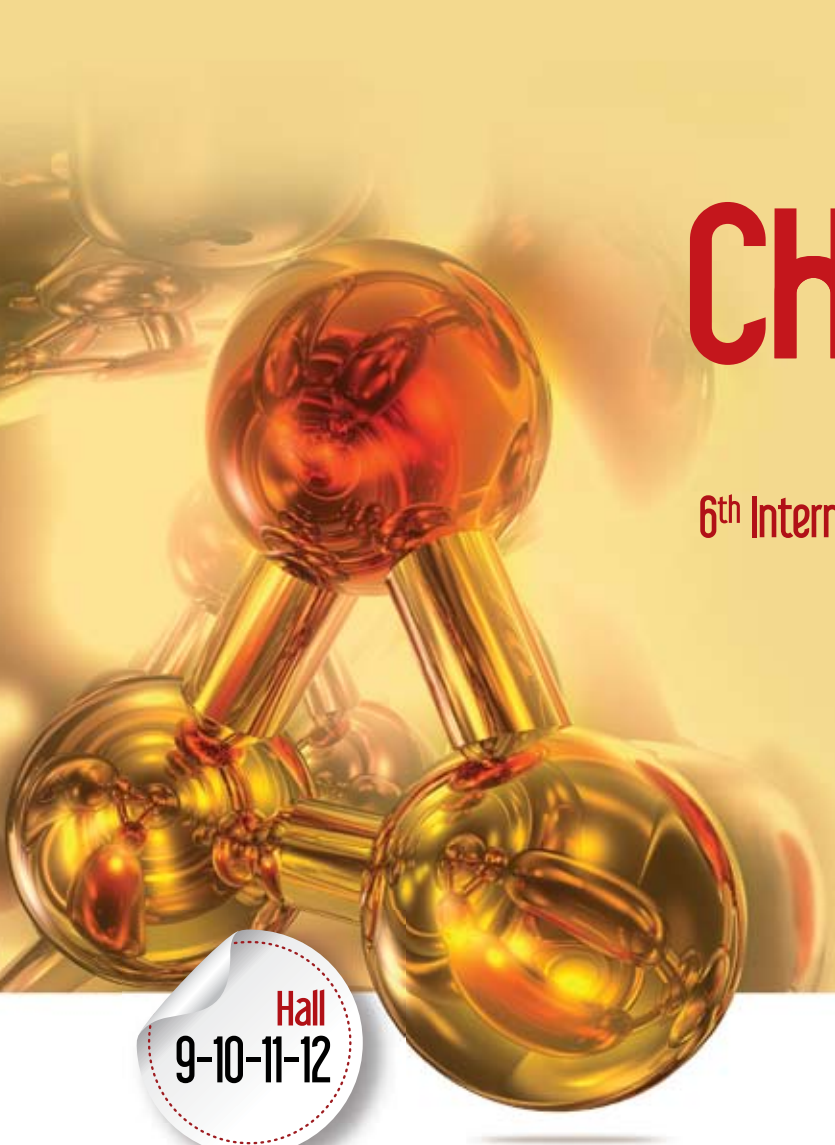

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