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# **The Arab Spring Of Change And Its Implications For The Global Energy Business**

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In Japan, the March 11 earthquakes and ensuing tsunami shook the world including the Middle East, where I come from. But in our region, we have had our own earthquakes and tsunamis of another kind this year which keep having implications across the globe. Ours we call the Arab Spring of Change, which in reality is **a string of revolts** which seems to keep stretching across the **Greater Middle East (GME)**.

The GME is a huge part of the globe and by far the largest reservoir of energy resources in the world. It stretches from Russia to Pakistan and from China's Central Asian borders to Mauritania and Morocco on the Atlantic, and running from Egypt down to the Horn of Africa.

Among many other things, the Arab Spring of revolts caused Tunisia's so-called "dictatorial and corrupt" President **Zine el-Abedine Ben'Ali** to flee his country to Jeddah on Jan. 14 and Egyptian President **Husni Mubarak** on Feb. 11 to step down after three decades of autocratic rule. Tunisia's was called "**The Jasmine Revolution**". Egypt's was called "**The Jan. 25 Revolution**".

In varying degrees, the wave of revolts has hit Algeria, Bahrain, Iraq, Jordan, Kuwait, Libya, Mauritania, Morocco, Oman, Saudi Arabia's oil-rich and Shi'ite populated Eastern Province, Sudan, and Yemen. Even **China** is worried that it might be hit by this wave, which now seems likely to spread to other parts of the GME and beyond. The Chinese government has omitted the word jasmine from its Internet search engines – just one example how worried Beijing has been by the likely effects of the Arab Spring on its future stability.

The revolts against Col. **Mu'ammur Qadhafi**'s 42-year rule in Libya are called "**The Feb. 17 Revolution**", which has so far split Libya in two parts. The revolts in Syria against the **Assad** regime are called "**The March 15 Revolution**" – this is because school-boys arrested for having written anti-regime graffiti were on March 15 released without their finger-nails.

There is, meanwhile, an ugly power-struggle in Iran between President **Mahmoud Ahmadi-Nejad** and the Shi'ite theocracy's Supreme Leader **Ayatullah 'Ali Khamenei**. Khamenei insists he is God's representative on Earth and that he must be obeyed by all in the world of **Wilayat ul-Faqih** (WuF) – a concept of universal Shi'ite theocratic rule which I shall explain during the Q&A part of this meeting if necessary. Ahmadi-Nejad, a supremacist somewhat like the Nazis, contests this claim and says the WuF concept should not affect his authority as a "popularly elected president of the Islamic Republic of Iran".

This has caused a serious split within the command of the ruling **Islamic Revolutionary Guard Corps (IRGC)** and its militia arm, the **Basij**. A relatively junior but supremacist faction of this command is siding with Ahmadi-Nejad, while the main faction is fiercely loyal to Khamenei.

The main reason behind the rift is Ahmadi-Nejad's plan to have a dialogue with the US and get his controversial in-law and close aide **Esfandiar Rahim Masha'ie** to succeed him as president in the 2013 elections, both of which strongly opposed by Khamenei. But Ahmadi-Nejad has finally bowed to Khamenei, although the stubborn president is expected again to challenge Khamenei's "divine authority" on another occasion. So the current developments in Iran are not definitive and there will be momentous changes in this country in March 2012 parliamentary elections and in the 2013 presidential elections.

The Arab Spring of revolts has hit Syria so hard that Iran's theocracy and its Lebanese branch **Hizbullah** have become extremely worried about the ability of President Assad's regime to survive. To them in Tehran, the loss of Syria could eventually mean a great weakening – or even the collapse – of the **Iran-led axis of anti-US/anti-Israel forces in the GME**. This is why the IRGC and its unit Hizbullah have been actively involved in the Syrian regime's violent crack-down on ever spreading protests throughout the country. For its part, Assad's regime is using all possible means, including **taqiya** (a formula to deceive), in order for it to survive.

In geo-strategic terms, Syria's centrality means that the collapse of its regime would cause the map of the GME to change. Both Khamenei and Ahmadi-Nejad are doing all they can for Assad's regime to survive. For their part, leaders in the US, EU, Israel, Saudi Arabia, Turkey and other important countries are split over whether it is good or bad for them if Assad survives.

At this point, it is important to note that **the IRGC controls Iran's controversial nuclear and regional ambitions**. These are ambitions to control the GME, because in Tehran's calculations – and here both Ahmadi-Nejad and Khamenei agree – **whichever power controls the GME will ultimately be able to control the whole world**.

The protests in Iraq in late February prompted the country's Prime Minister **Nuri al-Maleki** to impose a 100-day deadline for his administration to improve or face dismissal. Maleki had already cut his own salary by half both in fear of the Arab Spring's likely effects on his rule and in response to charges of corruption sweeping across Iraq. As the deadline approached this week, there was alarm in Baghdad that Maleki's government could face more serious trouble despite massive spending made to improve services.

The killing of **Usama bin Laden** in Pakistan on May 2 by US commandos has caused his Sunni/Neo-Salafi movement to wage a revenge war in Iraq and elsewhere. With **bin Laden's al-Qaeda Central (AQC)** now busy finding the man to succeed him as leader, **al-Qaeda in Mesopotamia (AQM)** has staged suicide bombings in Iraq which exposed the still poor state of combat readiness of Maleki's security forces and regular army.

**The Arab Gulf Co-operation Council (GCC)**, now consisting of three monarchies (Bahrain, Oman & Saudi Arabia) and four shaikhdoms (Kuwait, Qatar and the UAE), could be turning itself into the club of Arab monarchies as it considers bringing Jordan and Morocco into its fold, a move which would strengthen the political and economic capacity of the latter two countries' leaders to fend off any popular challenge as a result of the Arab spring.

In a surprise announcement at the close of a GCC summit meeting in Riyadh late on May 11, the GCC said it was considering a request by Morocco and Jordan to join the bloc, even though the two poorer countries have little in common with existing members. GCC Secretary-General **'Abdul-Latif al-Zayani** of Bahrain said foreign ministers of the six member-states would be holding talks with the two non-GCC countries to complete the procedures required for membership. It is not yet clear if membership will be granted or in what form.

The GCC was formed in 1981 in the wake of the Iranian revolution as an alliance of oil-producing states. Efforts at economic integration have been only partly successful, undermined by rivalries and political divisions. As republics dominated by family rule have proved most vulnerable to popular revolts this year, however, the GCC has been asserting itself, closing ranks to protect its members from the changes sweeping the region.

GCC troops were sent to Bahrain to support the Sunni royal family, helping it crush an Iran-guided Shi'ite uprising. Meanwhile, the GCC pledged \$10 billion in financial aid to each of Bahrain and Oman, another monarchy that was hit by protests.

Saudi Arabia, leader of the GCC and head of the Sunni front in the Muslim world, has also been dismayed by the willingness of the US to abandon long-time allies such as Egypt's Mubarak and to criticise a Bahraini intervention, which Riyadh insists was needed to counter Iranian meddling.

The GCC states have been sending the message to Tehran that no GCC ruling family will be allowed to fall – nor will Iran, which is seen as the biggest regional threat, be permitted to take advantage of the Arab Spring in the region. **Khaled al-Khalifa**, Bahrain's foreign minister, said on Twitter that Jordan and Morocco were “clear examples of good, wise governance and real political development”. The GCC, he added, had “a vital interest in joining together with them”.

Mustafa Hamarneh, a Jordanian political analyst, said the GCC move was a sign that Jordan belonged to the “conservative monarchy club”. What all the countries had in common, he said, was that “they see eye to eye on all the main issue: on Iran, on Bahrain and on the question of political reforms”.

Membership in the GCC would be a boost for the Jordanian monarchy, if it went ahead, but would prove a setback for groups seeking reform. **Hassan al-Mustafa**, a Saudi analyst, says the possible integration of the two countries into the GCC was an attempt to “reshape the region” by creating new alliances at a time when a democratically elected Egyptian government was likely to follow a more independent foreign policy, possibly becoming friendlier with Tehran.

Mustafa says: “The GCC will also help Jordan and Morocco to avoid pressure or collapse of these regimes. But Moroccans and Jordanians are more politically active and won't accept the GCC dictating foreign policy”.

Dris Ben 'Ali, a Moroccan economist who has been advocating political reforms, said he was concerned about the political rationale behind a potential membership in the GCC, which might be aimed at halting Morocco's move towards a “democratic, parliamentary monarchy” that could become a model for others in the region.

## **The Global Perspective & New Middle East Energy Resources**

Now allow me to review the global situation and make a brief conclusion: **There must be a coordinated policy within the Group of 20 powers (G-20) to end the global economic imbalance** of which many nations suffer.

Although the world remains divided into a **paper economy**, a **dangerous element of casino capitalism** and a **real economy**, a division which I explained in my presentation to this prestigious Institute in May 2009. The global trend now is a shift to lower carbon energy, which I explained in my IEEJ presentation in May 2010. Many countries in the Middle East are shifting to cleaner energy for domestic use and it will not take too long for them to export cleaner sources of fuel and electricity in large volumes. My presentation here last year explained this shift and I gave examples – namely models adopted by some Middle East energy exporting states - which I am willing to repeat during the Q&A part of this meeting. I believe the IEEJ has kept a record of my 2009 and 2010 presentations and, to my knowledge, has published them in its website.

In the futures markets, paper WTI and Brent prices can rise to \$150/barrel or above in the coming months or 2012, or fall below \$100/barrel. To a large extent, what moves paper oil prices

up or down is more or a financial matter of speculation than the real balance of supply and demand of physical crude oil.

**Goldman Sachs**, which in April predicted the recent major correction in paper crude oil prices, on May 6 said paper crudes could surpass its recent highs by 2012 as global oil supplies continue to tighten. The Wall Street bank, seen as one of the most influential in commodity markets, said it did not rule out a further short-term fall after the May 5 near record drop, especially if economic data continued to disappoint. But the bank reaffirmed its traditional long-term bullish view of paper oil.

**JP Morgan** took the bold step of raising its paper crude oil price forecasts for this year by \$10/barrel, becoming the most bullish of 27 forecasts in a Reuters poll. JP Morgan analysts, including Lawrence Eagles, said in a note late on May 6: "While financial bushfires or perhaps a rapid resolution to the Libyan civil war could radically alter market dynamics, the balance of both risks and fundamentals still points to a supply-constrained world".. They said paper oil would rise to \$130 in the third quarter to check demand.

Goldman, meanwhile, stuck largely to the same view it first aired three weeks earlier — a medium-term correction followed by a renewed ascent. In a research note, Goldman Sachs' analysts said: "It is important to emphasise that even as oil prices are pulling back from their recent highs, we expect them to return to or surpass the recent highs by next year. We continue to believe that the oil supply-demand fundamentals will tighten further over the course of this year, and likely reach critically tight levels by early next year should Libyan oil supplies remain off the market".

## Unconventional Arab Petroleum Resources

US geologists and energy economists are advising their counterparts in Baghdad that, apart from proven and potential conventional oil and natural gas reserves, Iraq may be sitting on hundreds of trillions of cubic feet (TCF) of untapped gas deposits. These are not conventional. The challenge is that these deposits are inaccessible through normal techniques.

In neighbouring Saudi Arabia, for example, there are believed to be **447 TCF of unconventional gas resources yet to be discovered**. The state-owned Saudi Aramco already has begun work on tapping such resources, using new E&P techniques developed in North America. There are **shale oil deposits being developed in Jordan not far from Iraq's western borders**.

The Iraqi Oil Ministry on Oct. 4, 2010, said the country had around 143 billion barrels of proven conventional oil reserves, about 24% more than previous estimates. These reserves are mostly located in 66 oilfields in southern Iraq. The official estimate of Iraq's proven conventional reserves of natural gas has been put at 117.6 TCF (3.36 TCM).

Of the 117.6 TCF of conventional Iraqi gas reserves discovered so far, 10% are in gas caps. Most of the gas reserves found are in **Tertiary** reservoirs - in seven gas fields located in the north-east of the country. Some of the gas found in western Iraq lies in **Ordovician Khabour** sandstones. One of the fields found there, **Akkas** said to contain 7 TCF, lies in the Rutbah Platform above the Ordovician, where a well in 1993 tested light oil and condensate from sandstones with the Silurian formation from the Upper Khabour.

The increasing international isolation of Iran's militarised theocracy, coupled with its expensive nuclear and regional ambitions, will make it harder for Tehran to halt a steady decline in its crude oil production capacity. This poses a major challenge to Baghdad, as Tehran will never accept that Iran is over-taken by Iraq as OPEC's second largest oil producer. So, Iraqi political leaders fear, Iran will always try to undermine Baghdad's efforts to boost its oil production capacity, which is projected to reach 12 million b/d, plus 1.5 million b/d in Iraqi Kurdistan, by 2017.

An Iraqi crude oil output increase is proceeding. But a shortage of infrastructure and security challenges remain an enormous problem, with the country suffering a variety of attacks including suicide bombings by AQM. Oil Ministry officials and international oil companies (IOCs) complain this situation cannot continue and say the government must take drastic action to resolve this combination of problems.

The Oil Ministry, however, has lined up projects to raise its crude oil export capacity to about 12.4 million b/d by 2017. If Saudi Arabia agrees to revive an Iraqi pipeline to the Red Sea, this capacity could reach 14.05 million b/d.

American geologists suggest that deep within the lower Paleozoic zone in Iraq could hold hundreds of TCF of shale gas and say this country could also prove to be rich in other unconventional gas resources. Shale gas is gas deposits trapped within shale rocks, particularly in western Iraqi areas adjacent to Jordan, a country where shale oil is being explored and developed in the initial phase of a programme which will ultimately lead to shale gas. In the US, the rapid development of shale resources has led to a massive rise in gas production, which is playing a key role in suppressing global gas prices at present.

Iraq is also said to be potentially rich in **tight gas**. Such deposits are found in low-permeability rock formations which require fracturing to release them for production. The IEA suggests a definition based on a gas reservoir which cannot be developed commercially by vertical drilling because of the lack of natural flow. Even with horizontal drilling, hydraulic fracturing is required to produce commercial quantities of tight gas – of which Oman is one of the rich countries.

Saudi Aramco has already begun exploring for unconventional gas in the kingdom. Saudi Aramco's CEO Khaled al-Faleh told a World Energy Council meeting in Montreal on Sept. 13, 2010, that shale gas could significantly boost the kingdom's gas reserves. Although the potential for Saudi shale gas has been known for more than a decade, it had never been viewed as a strategic priority for the Saudi authorities.

A study from the US Geological Survey in 2001 estimated a 50% chance of there being 447 TCF of unconventional gas resources in Saudi Arabia yet to be discovered in the Qusaiba Paleozoic reservoirs in the Rub' al-Khali (empty quarter) desert and around the giant Ghawar axis of oilfields in the Eastern Province.

Faleh's statement suggested that the need to secure more gas feedstock for Saudi power generation and industrial consumers, and meet a self-imposed target of adding 5 TCF/day to Saudi gas production within five years, means Saudi Aramco will have to drill deeper into its geological inheritance to ensure sufficient supply.

Justin Dargin of Harvard University's Belfer Centre says: "A lot of people are excited about...Saudi Arabia's shale gas reserves, but the devil is in the detail". The Saudis may struggle to match **the rapid expansion of the US shale gas industry**. Since 2000, shale gas production has risen from 1% of total US output to 20% in 2009. In 2008, US-based shale gas produced some 50 BCM, according to the IEA.

Experts say both Iraq and Saudi Arabia have some of the features which could create a successful shale gas industry. Saudi Arabia boasts shale gas formations with mature gas resources, shale gas formations being the source for Khuff gas reservoirs in the Saudi kingdom. In any case, the presence of massive hydrocarbon deposits in the Saudi kingdom is another indicator of the likelihood of strong unconventional resources, since most shale deposits are located in systems where conventional reserves are already significant. Saudi Arabia is clearly in a strong position with conventional natural gas reserves estimated at 267 TCF.

The dominant shale deposit in Saudi Arabia is Qusaiba's in the Eastern Province. The organic-rich shales in the Lower Qusaiba constitute the main source rock for the kingdoms' Paleozoic petroleum system. Though assessments of the prospectivity of the Saudi shale are still in their infancy, analysts see positive indicators.

The Saudi kingdom's major gas rich shale formations tend to be very thick layers with trapped hydrocarbons in continuous shale layers. This leaves a weaker proximity to brittle rock layers, such as limestones or dolomites, which can be fractured, propped and serve as drainage pathways for the gas entrapped in the shales.

## **Iraq's 1<sup>st</sup> Shale Gas Tests**

Preliminary tests of relatively shallow shale gas in Iraq in 1993 were conducted at the 'Akkas gas field in the province of Anbar which borders with Syria, Jordan and Saudi Arabia. But those tests were limited in both scale and purpose. The real purpose was to look for conventional gas at the field.

Under shale gas extraction techniques, hydraulic fracturing – the high-pressure injection of water, chemicals and sand – breaks up the rock structure and allows the gas to flow more easily. In the main Paleozoic shale zone, the gas-rich zone lies at the bottom of the shale formation at thousands of feet deep, into which it is particularly difficult to tap.

While thinner layers of organically rich shales are available in other areas of Iraq, these have been largely ignored due to their limited commercial value. There are still formidable technical and financial obstacles to be overcome. Fracturing would force development costs to rise to tens of millions of dollars for each well. Building infrastructure for shale gas, including gas-gathering and distribution facilities, covering vast distances, will add significantly to costs.

Cost is a key issue in the context of a subsidised gas market in Iraq. The same is true in the case of Saudi Arabia, where the sales price of gas is capped at \$0.75 a million BTUs. The best North American shale play in terms of the breakeven cost is \$3.50 a million BTUs. That shows how hard it will be to make it work commercially. Kidan, the massive Rub' al-Khali-based sour gas field of Saudi Aramco and Shell, is reported to require a gas price of \$6/million BTUs to make it commercially feasible.

Developing shale gas will require relatively advanced technology, and in this respect Iraq is far behind Saudi Aramco. But even Saudi Aramco, which has built up a strong reputation in the application of technology, it will need to develop different technical skills needed to capture such unconventional gas resources.

The cutting edge technology for shale gas is largely in the hands of specialist US companies such as XTO, which was acquired by ExxonMobil two years ago. Another technical challenge is presented by the amount of water needed in the hydro-fracturing process. The water has to be relatively unpolluted when used in hydro-fracturing, since it must not push pollutants into natural reservoirs.

While desalinated water could be used for this purpose, this is an expensive option. Many of the favourable factors connected with the US – the geology, tax breaks and the existence of a vibrant service industry — are generally not replicated outside the North America.

Some of the technologies which make development of commercial-scale shale gas possible – such as horizontal drilling and hydraulic fracturing – are coming in for growing criticism over their environmental impacts. Another drawback is that their depletion rates are estimated to be five times that of conventional gas.

**Tight gas** deposits found in low-permeability rock formations require fracturing to release them for production. They cannot be developed commercially by vertical drilling because of the lack of natural flow. Even with horizontal drilling, hydraulic fracturing is required to produce commercial quantities.

Saudi Aramco's tight gas effort is focused on the lower Paleozoic silica-clastic succession. These are found in various parts of the Eastern Province and elsewhere in the kingdom. They are said to exist in Iraq.

**Oman** has some of the largest tight gas reserves. **BP** in 2010 began production from the **Khazzan and Makarem fields**, part of a 2,800 sq km area, and is looking to raise output in 2011 up to 300 MCF/day. State-owned Oman Oil Co. is developing the Abu Butabul tight gas field in a project to cover over U\$1 billion.

## **Conclusion**

There will be a great deal of political turbulence in the GME – which, however, will end up with a type of stability to which we will all have to adjust. But this area will remain by far the largest reservoir of energy resources in the world. Combined with a rapid and massive shift towards low carbon energy and renewable sources of energy around the world, I see a potentially constructive balance between world energy supply and demand in the future.

Thank you.

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