GLOBAL RISK INTEL

RISK FACTORS IN THE OIL & GAS INDUSTRY

MIDDLE EAST AND NORTH AFRICA EDITION

www.globalriskintel.com

RISK FACTORS IN THE OIL & GAS INDUSTRY

MIDDLE EAST AND NORTH AFRICA EDITION

Global Risk Intelligence

MARCH 18, 2019

Washington, D.C. · London · Singapore

www.globalriskintel.com

DISCLAIMER:

THE VIEWS EXPRESSED IN THIS DOCUMENT ARE THE SOLE RESPONSIBILITY OF THE AUTHOR(S) AND DO NOT NECESSARILY REFLECT THE VIEW OF GLOBAL RISK INTELLIGENCE. THIS DOCUMENT IS ISSUED WITH THE UNDERSTANDING THAT IF ANY EXTRACT IS USED, THE AUTHOR(S) AND GLOBAL RISK INTELLIGENCE SHALL BE CREDITED, PREFERABLY WITH THE DATE OF THE PUBLICATION.

About **Global Risk Intelligence**

For over seven years Global Risk Intelligence has advised clients about risks relevant to their business and operations using exclusive formulas and methodologies to identify key issues. We offer a comprehensive portfolio of tools, insights, briefings, and expert analysis that assist with helping clients better understand their situation.

For more information on all Global Risk Intelligence products and services, visit www.globalriskintel.com.

Lead Author

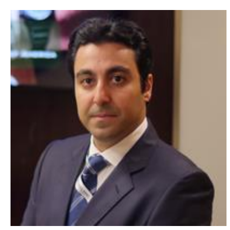
Justin Marinelli, MSc is a Risk Analyst at Global Risk Intelligence. He earned his MSc in Global Politics from the School of Government and International Affairs at Durham University.

Note from the President & CEO

The Middle East and North Africa regions have always been significant areas to the affluence of the oil and gas industry. Commerce longevity is naturally credited in part due to the resource-rich and saturated geography of the regions that enable petroleum to be extracted as well as transported along strategic routes to international markets.

Industry continuity entails the need to prepare for confrontation against relevant risks, which are always evolving, and preparation against future dangers. Success and profitability in the industry therefore is directly tied to being aware of such potential threats as well as the ability to mitigate against associated hazards.

In this release, Global Risk Intelligence provides overview to a select set of factors that continue to pose threats to the oil and gas industry in the Middle East and North Africa. In this respect, it should also be noted that reverberations of impacts in these regions can create more serious implications for not only this industry, but also greater global security as well.



Dr. Nadir Gohari

President & CEO

Contents

Introduction 8

Contested Governance 8

Sanctions on Iran 11

Cybersecurity 13

Strategic Chokepoints 15

Mediterranean Natural Gas 18

Notes 21

Introduction

The Middle East has long been an area of key importance for the energy industry. Its massive hydrocarbon reserves have made it a region of crucial importance to the oil and gas sectors. At the

same time, events in the region have been a frequent complication to stable operations. The current year is likely to see questions of governance drive risk in the region, and the unique geography of the Middle East ensures that the security of key strategic chokepoints shall remain a serious risk. With these challenges in mind, Global Risk Intelligence believes that it is imperative to highlight some key selected operational risks that are likely to be of importance in 2019.

Contested Governance

Contested governance refers to situations in which either governance over a particular area is disputed or in which shifts in governance leave the dominant political entity on uncertain footing. Threats to stable governance remain a key driver of risk in the Middle East, and constitute an ever-present challenge to petroleum operations.

Egypt

In Egypt, political tensions in Egypt over the past decade have tended not to interfere with key economic sectors such as shipping through the Suez Canal. However, the rejection of democratic norms and the continued consolidation of power by President Sisi could imply future rejection of established protocol. Egypt has been increasing its production of natural gas to record levels, but it is unclear the degree to which this will aid global markets as opposed to shoring up Sisi's support at home. Attempts at autocratic behavior indicate that a leader will sacrifice much to retain domestic power, and Egypt has a past record of nationalizing industries. Attempts at further autocratic consolidation by Sisi should be a warning to companies looking to invest in drilling for Egyptian natural gas.

Syria

The civil conflict in Syria that has ravaged the country for the past 9 years looks to be concluding, which will allow the government of Bashar al-Assad to reinstitute control over the country. However, simmering tensions remain, and these struggles could prevent Syria from building new energy pipelines or joining the hunt for natural gas prospects in the Mediterranean. If internal dilemmas are resolved, Syria could begin to act as a stronger regional player in oil and gas transportation and development.

Iran

While these two cases illustrate the potential risks of regimes that are consolidating their power, risk can also come from the fall of a regime that loses power. Iran is a country of concern in this regard, as economic conditions are driving popular discontent. In addition to this, foreign countries are seeking to induce regime change by applying external pressure. The US in particular has stated a preference for an alternative regime in Tehran, and has adopted an aggressive foreign policy towards Iran in support of this goal. It has pulled out of the 2015 Iranian "Nuclear Deal" and has reimposed sanctions to increase economic pressure on Iran. If it succeeds in destabilizing the Iranian regime, the consequences could affect shipping in Persian Gulf and leave global oil and gas prices in a state of volatility until the situation is resolved.

Yemen

Yemen has been torn apart by ongoing fighting. The lack of stable governance has contributed to an ongoing humanitarian crisis. Houthi elements supported by Iran still hold large chunks of the country. This lack of unified political control has allowed Yemen to become a safe haven for organizations like Al-Qaeda, ISIS, and other terrorist organizations. These organizations are still seeking to commit acts of terror to achieve their goals, and the oil and gas industry remains a critical target.

Libya

Following the collapse of Colonel Muammar Gadhafi's rule, the country has been dealing with domestic upheaval and deep divisions. Rule of the country is divided between the House of Representatives government in the East and the General National Congress in the west. The ongoing division allows extremist fighters from terrorist organizations such as ISIS and Al-Qaeda to take refuge in the country, creating an source of potential security risk. The lack of stable governance is hampering the building of urgently needed development projects like the proposed Susah "mega port" and has limited Libyan oil exportation far below its potential. A workable political resolution in Libya would increase the country's level of oil exports, but continued turmoil will keep the situation unstable. The uncertainty surrounding the ongoing situation remains a risk factor for oil and gas market.

Sanctions on Iran

Ongoing political pressure on Iran will be a key risk factor for the oil and gas industry in 2019. The country is home to the world's fourth-largest reserves of oil and the second-largest reserves of natural gas, but hostility between it and the United States has kept it relatively isolated from global markets. The US is continuing its efforts to isolate Iran and will continue to seek regime change in the country in the coming year. This initiative will continue to be a source of potential disruption for the energy industry for as long as it lasts.

The Trump Administration has made combatting Iran one of its key foreign policy priorities. To this end it has sought to block out Iran completely from global energy markets. It has used sanctions to dissuade both foreign nations and foreign businesses from buying Iranian oil and gas. It has offered up its own burgeoning stores of natural gas as a market replacement and declared its eagerness to export natural gas to the world. It has pulled out of the Joint Comprehensive Plan of Action (JCPOA) in order to more freely utilize all available tools to put pressure on Iran. These efforts have had some success in isolating Iran from global oil markets, though many nations are seeking ways around them.

An EU effort to develop a Special Purchase Vehicle is a notable example of this. The mechanism, known as INSTEX, is an effort to facilitate payment to Iran without relying on the SWIFT payment system, which succumbed to US pressure to refuse service to Iranian banks. Companies hoping to use INSTEX to engage in trade would not technically be violating US sanctions, but they nonetheless would be risking punishment such as fines or a denial of market access. In 2012, the British bank Standard Charted was forced to pay a $667 million fine as a result of violating US sanctions pertaining to business operations with Iran. Standard Chartered was then fined a further $300 million in 2014 for subsequent violations. The degree to which the US will employ similar tactics in the future is unclear, but its aggressive posture so far does not suggest that it will favor leniency in dealing with European countries that seek to avoid sanctions. Continued maneuvering with regard to the implementation of and avoidance of such sanctions will continue to be a key risk for the energy market in 2019.

Despite taking such a strong approach to isolating Iran, the US has granted waivers to certain countries to allow them to continue buying Iranian oil. However, the waivers granted to China, India, Italy, Greece, Japan, South Korea, Taiwan and Turkey covered only a 180-day time frame. They will expire in the Spring of 2019. It is not known whether the US will reissue similar waivers at that time, or whether it will adopt a more limited policy going forward. The uncertainty around this matter will be a key risk for energy markets in the next few months, and potentially again as the new terms are established.

Finally, it must be noted that the more success the Trump administration has in isolating Iran from global markets, the less incentive Iran has to comply with the terms of the JCPOA. Such an incentive structure could lead to a further deterioration in relations and a subsequent heightening of political tensions in the region. A poorer Iran with less to lose will be more willing to take desperate action to ensure the survival of the regime, increasing risk in the Middle East.

Cybersecurity

Cybersecurity remains a key area of concern for companies in the petroleum industry. Cyberattacks are an increasing threat to business operations in all sectors worldwide, and the damage from cyberattacks totaled in the hundreds of billions of dollars in 2018. The oil and gas industry in particular is a target for terrorist groups, state-sponsored organizations, and other actors seeking to do harm. Cyberattacks can be launched not only to disrupt operations and cripple infrastructure, but also to steal operational procedures and sensitive technical specifications. Previous cyberattacks on institutions such as Saudi Aramco have caused billions of dollars in damage and significantly crippled operations for weeks. Future cyberattacks of equal or greater magnitude are an ongoing risk and are universally considered to be a matter of "if", not "when".

State-sponsored cyberwarfare has been part of the Middle Eastern threat landscape for at least the past decade. The most notable example of this is the Stuxnet virus, which targeted Iranian nuclear facilities in an effort to slow the Iranian nuclear program. Subsequent attacks remain sporadic, and it is often difficult to tell which cyberattacks have state-backing. One example of this is the 2012 hacking of Saudi Aramco known as the "Shamoon" attack. The attack wiped servers all across Saudi Aramco and forced the energy giant to resort to non-digital means of managing its operations. The situation took weeks to fully resolve and the replacement of all the damaged equipment required

a purchasing of hard drives massive enough to shift the global price of hard drives. Only the internal communications networks were compromised, but oil production could have been halted if those operational networks had been penetrated as well. Cyberattacks continue against energy companies in the region. In January 2017, cyberattacks hit the National Industrialization Company, a privately-owned petrochemical firm in Saudi Arabia. These attacks wiped data and destroyed hard drives across the company. In August of that same year, a malware dubbed Triton attacked critical safety systems at Saudi Aramco with the goal of causing explosive damage. Only an error in the code prevented this form occurring. Triton was thought to have been developed with state help, and Iran and Russia were both considered as suspects at the time.

Concerns regarding cybersecurity need not directly focus on industry assets, however. Successful cyberattacks in sectors such as shipping or electricity would consequently impact the oil and gas industry. One particular illustrative example is the case of the NotPetya attack, a June 2017 cyberattack on Ukraine. The attack shut down computer systems all over the country and caused hundreds of millions of dollars in damage to international firms such as Maersk, FedEx, and Merck. Russian oil company Rosneft claimed that it too had been hit by the attack, but that oil production was not interrupted as production was switched over to process reserves.

The NotPetya attack was estimated by US Homeland Security to have caused roughly $10 billion in damage, though that figure is unlikely to include anywhere near the full array of indirect costs from delays, cancellations, and other denials of operation. A similar attack focused on the Middle East could have even more devastating consequences. It could shut down shipping into and out of the Persian Gulf, and if production systems were attacked, it could halt the ability of oil companies to produce and stockpile oil. This would have an enormous impact on the global oil trade, as it would monumentally curtail the ability of key producers like Saudi Arabia to supply global markets with oil and gas. The impact would be felt worldwide and reverberations could last for weeks, depending on the severity of the attack.

Strategic Chokepoints

By virtue of its geography, the Middle East contains a number of strategic choke points that are enduring vulnerabilities for global shipping and trade. The Strait of Hormuz, the Suez Canal, and the Bab al-Mandeb are crucial junctures for maritime transportation, and each choke point has key risks that could threaten not just regional operations, but the global economy as a whole.

The Strait of Hormuz

The Strait of Hormuz, located on the Persian Gulf between the United Arab Emirates and Iran, is frequently cited as potential area of disruption. It is the only maritime passageway by which the Persian Gulf connects to the global oceanic system, and roughly 20% of all oil traded worldwide passes through it. Any closure or denial of the strait would significantly impede the ability of Persian Gulf countries such as Saudi Arabia to export oil and gas and would wreak havoc on not just on global oil markets, but on the global economy as a whole.

Iran has threatened such a closure of the strait multiple times. It is unlikely to do so except as an act of desperation, but nonetheless such an event is not impossible. Military attacks on Iranian nuclear facilities could lead to such an action, for example. A severe shock to the Iranian regime could lead elements of the state apparatus to engage in unauthorized actions that hamper trade in the Persian Gulf. Furthermore, the US is likely to continue increasing its pressure on Iran and will likely seek to eliminate Iran's oil exports all together. With Iranian President Hassan Rouhani's December declaration that, "If one day they want to prevent the export of Iran's oil, then no oil will be exported from the Persian Gulf", it is clear that tensions around the Strait of Hormuz remain a key risk factor for the oil and gas industry.

Suez Canal

Additionally, the Suez Canal is also a potential flashpoint for serious economic disruption. As the key route to avoid shipping maritime cargo around the African continent, the canal is a key economic artery for global transportation. It's importance means that any deviation from ongoing operations will have spillover effects on various economic industries all across the world.

A previous closure of the canal to outside powers lead to the Suez Crisis in the early 1950s, and while there is little sign that a similar series of events will happen in 2019, other circumstances could arise that would threaten continued operations. It must be noted that Egyptian President Abdel Fattah el-Sisi is consolidating power and seeks to extend his tenure in office until at least 2034. While such autocratic reforms are unlikely to significantly affect canal operations in the immediate-term, future behavior in this vein casts doubt as to ongoing support for established norms. The Suez Canal is ordained by international law to be open to any country not at war with Egypt, but a breakdown of democratic norms within the country and a decline of international institutions threatens the potential enforcement of that convention.

More pressingly, a terrorist attack could significantly impede operations in the canal. The canal has been a target of foiled attacks in previous years, and the possibility of a successful one remains an ongoing risk. A volley of rocket-propelled grenade attacks or a small number of suicide bombers that resulted in the sinking of a large tanker in the canal would cease transportation for some time.

Bab el-Mandeb

Finally, the Bab e-Mandeb presents the final critical chokepoint in the Middle East. Located north of Djibouti and south of Yemen, the strait separates the Gulf of Aden from the Red Sea. Most of the traffic that flows through the Suez Canal also flows the Bab el-Mandeb, giving it a relatively equivalent significance.

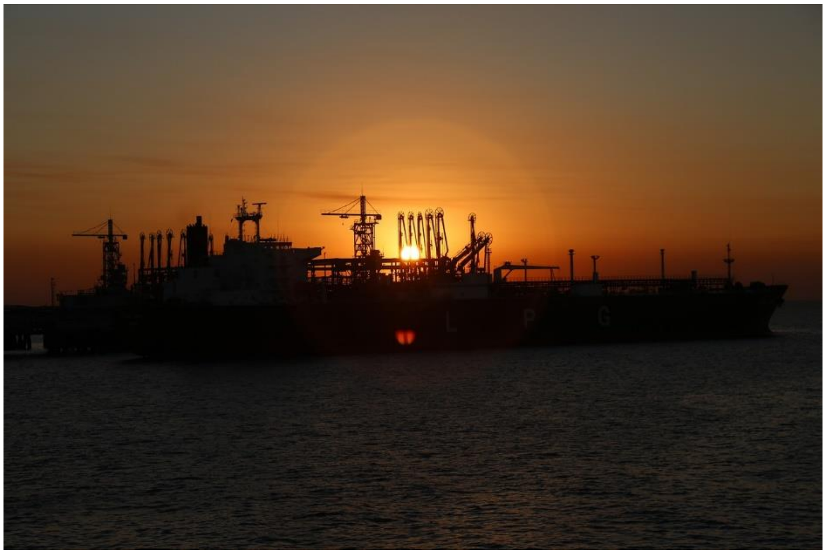
The Bab el-Mandeb is of unique concern given its proximity to the ongoing conflict in Yemen. While the nearest parts of Yemen to the strait remain under the Hadi government, much of the eastern coast is under the control of the Houthis. Continued tensions in Yemen are a source of potential risk for ships passing through the area. Maritime routes through the area have shifted further away from Yemen in response to this but the narrowness of the Bab el-Mandeb makes it impossible to move too far away from the contested space.

Reflective of the strait's importance, the US, Japan, and China all have bases in the region. Political tensions between China and the US thus pose a risk factor for operations in the area. US soldiers have claimed that the Chinese have attempted to blind them using lasers. Any heightening of political tensions between the two countries could spill over and affect continued operations.

Fortunately, international efforts to eliminate piracy in the Horn of Africa region means that piracy has become an infrequent occurrence in the area.

Mediterranean Natural Gas

While the Middle East has long been known for the rich hydrocarbon reserves under its sands, the waters surrounding the region are also rich in energy resources. The Persian Gulf is filled with natural gas deposits such as the South Pars field, and recent finds have indicated that the Eastern Mediterranean is also rich in natural gas. Developments over the past few years have highlighted this potential, but this newfound wealth is stoking tensions among countries in the region.



Development of Mediterranean gas deposits is proceeding at a rapid pace. Egypt has rapidly built up infrastructure to exploit the Zohr gas field in its northern waters and is looking to explore future prospects as well. The Zohr field is expected to produce record amounts of gas in 2019, and additional finds will further cement Egypt's new role as a regional energy powerhouse. This success has other countries are looking to follow suit, but this is leading to new problems.

Israel has followed Egypt in its efforts to develop Mediterranean natural gas. Current efforts are focused on the Leviathan natural gas field located some 80 miles off the Israeli coast. The field contains enough gas to keep Israel powered for decades, but Israel also views it as a means to improve its relationships with neighboring countries. It began shipping natural gas to Jordan in 2017 and has been building up export volume since then. It has even laid the groundwork for natural gas exportation to Egypt, whose own natural gas production still struggles to keep pace with domestic demand. Talks of a proposed pipeline to Turkey were once considered, but such plans have now been pushed aside in favor of a pipeline with Greece and Cyprus that could in the long-run also be connected to Italy.

Israel's efforts have not gone unchallenged. In early February, the Speaker of the Parliament of Lebanon, Nabih Berri, stated that Israeli efforts to begin prospecting in the waters near the maritime border of the two countries constituted an attempt to suck Lebanon's wealth dry before the Lebanese could themselves exploit it. Furthermore, as the conflict in Syria resolves, Syria will be able to turn its attention to the role that it might play in drilling for natural gas. The addition of yet another actor into the race for gas will further complicate maneuvering in the region.

However, the most contested effort so far has been an initiative called the "Energy Triangle". This agreement among Cyprus, Israel, and Greece is an extraction plan focusing on the Aphrodite, Leviathan, and Tamar gas fields, which in total hold roughly 40 trillion cubic feet of gas. Exploitation of this field would be a significant boon for each of these countries. However, Turkey also has a keen interest in these fields. Turkey can only provide for roughly a quarter of its annual energy usage with domestic sources. Access to Mediterranean natural gas resources is thus of vital importance to the country. However, Turkey has been fairly limited in its access to reserves. Tensions have recently came to a head with the Cypriot leasing of several exploration blocks that Turkey claims are in disputed waters. Turkey has announced naval war games in the region as a response and it is thought that these games are a demonstration of Turkey's intent to press its claims.

Overall, development of natural gas in the Mediterranean is shaping up to be a key area of growth for the oil and gas industry, but it is exacerbating certain political tensions. These tensions are a serious risk factor for continued developments in this sector.

Contact **Global Risk Intelligence**

To discuss values, explore options, or obtain additional reports, please contact us at our Washington, D.C. or Arlington location:

Jennifer Hoffman
Senior Vice President, Business Development
jhoffman@globalriskintel.com

1717 Pennsylvania Ave. NW	1220 N. Fillmore Street
Suite 1025	Suite 400
Washington, D.C.	Arlington, VA
Tel: +1 (202) 981 – 5972	Tel: +1 (703) 988 – 5954 Ext. 5905

For further information visit www.globalriskintel.com.

americas@globalriskintel.com	**europe@globalriskintel.com**	**asia@globalriskintel.com**
Washington, D.C.	**London**	**Singapore**

Notes

GLOBAL RISK INTEL

www.globalriskintel.com