



cutting through complexity™

KPMG GLOBAL ENERGY INSTITUTE

# After the Gulf of Mexico Oil Spill: Recent developments in the oil and gas industry

KPMG INTERNATIONAL



A major historical event sometimes occurs that could be considered a “game changer” for an industry, an event so significant that it causes a basic reconsideration of the way business is conducted. The oil and gas industry found itself in the midst of such an event in 2010. As a result, oil and gas companies are conducting a close review of their operating models, contractor relationships, business risks and a number of new and proposed regulations.

After the oil spill in the Gulf of Mexico, the oil and gas industry entered a new era. Understanding this development and its implications for the industry begins with an overview of the oil spill itself.

On April 20, 2010, the Deepwater Horizon rig in the Gulf of Mexico exploded. According to US government estimates, 4.9 million barrels (648,000 tonnes) of oil spilled into the sea.<sup>1</sup> Because the leak was a mile below the surface of the ocean, efforts to stop the flow were repeatedly hampered by complications. After nearly three months, the blowout was finally capped.

The oil spill was the largest spill into marine waters, but it was not the largest accidental oil spill in history. California’s Lakeview Gusher in 1910 was greater both in volume (378 million gallons) and in duration (17 months).<sup>2</sup> However, the event might well be unique in terms of its environmental impact, since the Lakeview spill was inland and the oil spilled from the Deepwater Horizon went directly into the ocean.

The accident highlights that opportunities exist for the industry to improve its efforts even more as the complexity and challenges of meeting the world’s energy needs continue to increase.

This paper reviews the initial industry reaction and provides insights about the future impact of this spill.

<sup>1</sup> *Gulf Spill Is the Largest of Its Kind*, New York Times, August 2, 2010. See also *BP oil spill confirmed as ‘world’s worst*, Financial Times (FT), August 2, 2010

<sup>2</sup> *California’s legendary oil spill*, Los Angeles Times, June 13, 2010

# What we have seen so far

Following the oil spill, the industry has been faced with a number of challenges involving liability and insurance coverage, the optimal operating model, contractor relationships, existing risk management practices, and new regulations.

Recent and future developments in these areas have the potential of changing the business models, risk management strategies and growth potential of the industry, both in the US and worldwide.

## Rising insurance premiums

**Total energy losses vs global energy premium income, 1990–2009**



Source: *Energy market review*, Willis, March 2010 (figures include both insured and uninsured losses)

After the oil spill, the industry saw a sharp increase in insurance rates for companies in the oil industry. According to some estimates, insurance rates for rigs operating in shallow water had increased 15 to 25 percent by June 2010.<sup>3</sup> By September, the oil spill had inflated insurance premiums for deepwater oil operations by 25 to 30 percent, and for deepwater drilling by nearly 100 percent.<sup>4</sup>

Along with the perception of higher risk, the rise in premiums has been fuelled by regulators' moves to increase the

amount of insurance coverage required by oil and gas companies.

In July 2010, the US House of Representatives passed the CLEAR Act, H.R. 3534, taking several steps to prevent offshore drilling accidents in the future. Apart from mandating stronger safety standards for offshore drilling, the bill eliminates the liability and financial responsibility limits for offshore facilities. The proposed bill died with the conclusion of the 111th Congress. If it had been implemented, the bill might have had severe repercussions across the oil and gas industry.

<sup>3</sup> *BP spill losses hit reinsurers and premiums soar*, Reuters, June 3, 2010

<sup>4</sup> *Oil industry set for surge in insurance premiums after Deepwater disaster*, Guardian.co.uk, September 20, 2010

Significantly higher insurance premiums could force many companies to be self-insured, since it might be cost prohibitive to cover deepwater operations. Cash-rich oil companies will be able to insure themselves, but small to midsize companies might be squeezed out of the Gulf of Mexico and elsewhere due to a combination of unlimited liabilities and higher insurance premiums – or the inability to find adequate insurance. If these smaller companies are forced out of offshore drilling, this development might affect their stock market valuation and make them susceptible to acquisition by larger oil companies. As a result, offshore drilling and deep water drilling in particular might be limited to the larger companies that could assume the related risks.

Moreover, with increased costs for oil companies, energy return on investment (EROI) is expected to decrease in the Gulf, which would reduce oil extraction activities in the Gulf of Mexico at existing global oil prices. This possible development might affect the competitive posture of US oil companies since deepwater drilling is continuing at a rapid pace in other parts of the world, including Brazil, the Gulf of Guinea, the Mediterranean and the Turkish Black Sea.

The full impact of insurance premium hikes is expected to be felt in 2011, since most of the insurance business is typically done before the US wind storm season, which starts in June. Nearly 80 percent of the energy book had already been written when the oil spill occurred in April of 2010.<sup>5</sup>

## Changing relationships with contractors

The oil spill has led to a debate about whether major oil operators should retain more in-house skills and lessen their dependency on contractors. A number of questions have been raised, such as the following:

- Will we see a reverse trend in the contractor model?
- Do we need real-time monitoring?
- Are the right key performance indicators (KPIs) being used?
- Is there insufficient visibility on sub contractors hired by contractors?
- Should there be more upfront vetting of sub contractors?
- Is there a need for more granular controls over contractors?

It should also be noted that questions involving risk and responsibility have been voiced on both sides of the relationship between majors and contractors.

Essentially, the debate centers on whether or not spills are the responsibility of the oil company and not the contractors or subcontractors, since the oil company must supervise the design and other rig-related activities.<sup>6</sup> Oil companies reply that contractors should address all critical, safety-related items promptly.<sup>7</sup> However, the companies also admit the need to increase their control of operations on their own rigs and lessen their dependency on contractors or subcontractors to help avoid oil spills in the future.<sup>8</sup>

<sup>5</sup> Op. cit. *Oil industry set for surge in insurance premiums after Deepwater disaster*

<sup>6</sup> *BP oil spill: contractors singled out as report identifies eight key failings*, Telegraph.co.uk, September 9, 2010

<sup>7</sup> *BP listed 390 problems on Gulf rig*, FT, August 23, 2010

<sup>8</sup> *Industry can cut accident risks, says BP*, FT, June 3, 2010



One of the ways to increase this control is by forming joint ventures (JVs) with contractors. For instance, Royal Dutch Shell has entered into an agreement with Norway-based Frontier Drilling. Shell believes that through this JV it can exercise more direct control of operations and increase the adoption of new technology.

We expect the oil company-contractor relationship to continue to evolve over the coming year, including perhaps increased monitoring and reporting for the controls contractors have in place.

## Key changes in risk management practices

The Gulf oil spill has led major oil operators to develop risk mitigation strategies that include changes in the traditional integrated model in which exploration and production are combined with refining and marketing.

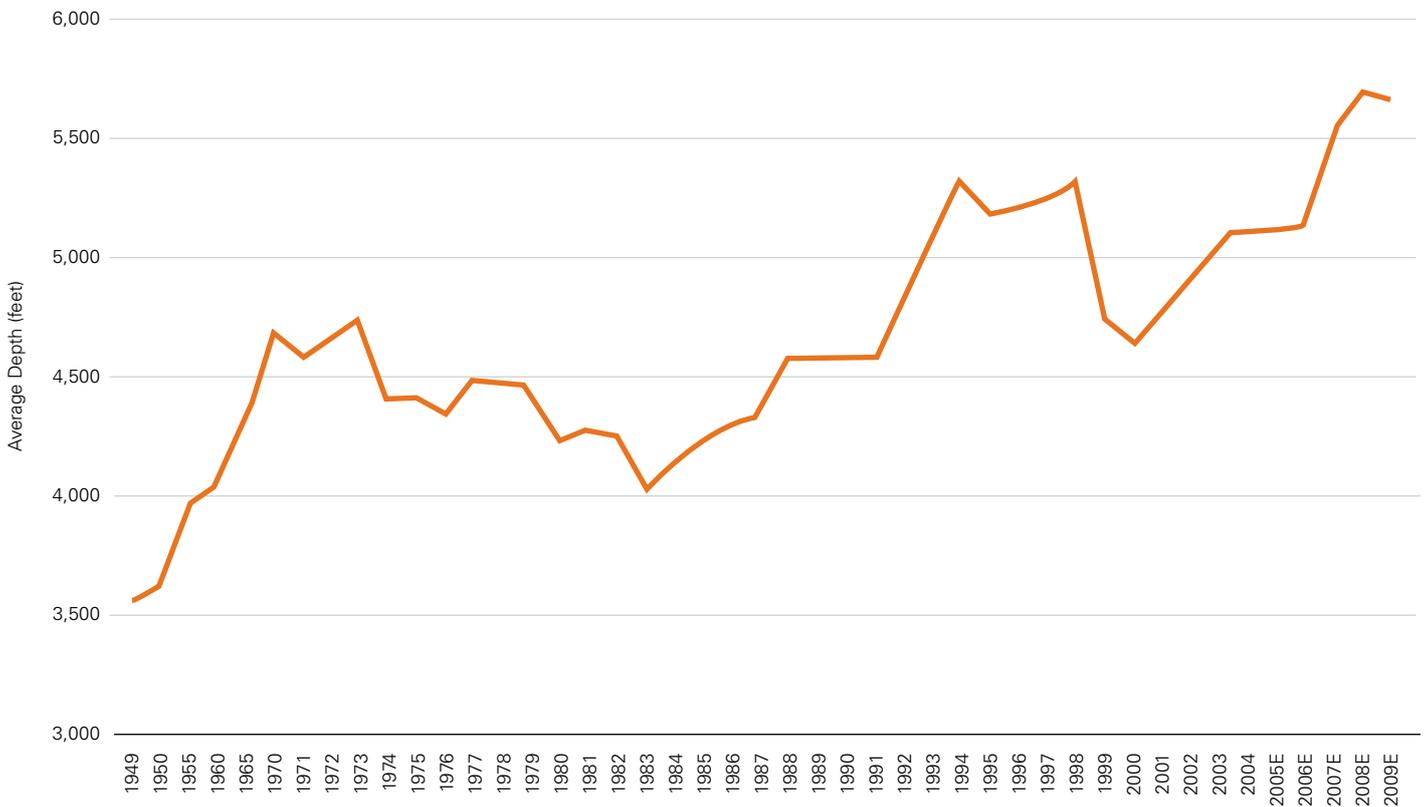
BP has announced the creation of a new division to oversee and audit its global operations. The Safety & Operational Risk division will be responsible for ensuring that all operations are carried out under common standards, and audit compliance with those standards. BP has also announced that it is splitting its upstream business into three main

divisions – Exploration, Development and Production – to strengthen its focus on each business division.

Shell recognized in 2009 the need for enhancing the focus on safety performance by making organizational changes. It established a new business unit – Projects & Technology – which combines all of Shell's major project delivery, technical services and technology capabilities covering both upstream and downstream. It also oversees Shell's safety and environment performance.

## Operational risk mitigation

### Average depth – crude oil and natural gas exploratory and development wells, 1949–2009



Source: Annual Energy Review 2009, Energy Information Administration, August 2010

Extracting oil from the ground or the sea has always been a complex process with plenty of inherent risks. Industry trends over the past few years have added to the risk, as relatively easily accessible and productive oil fields are now being operated by the national oil companies (NOCs). This has forced international oil companies to look for higher-risk, more remote and more difficult-to-reach sources.

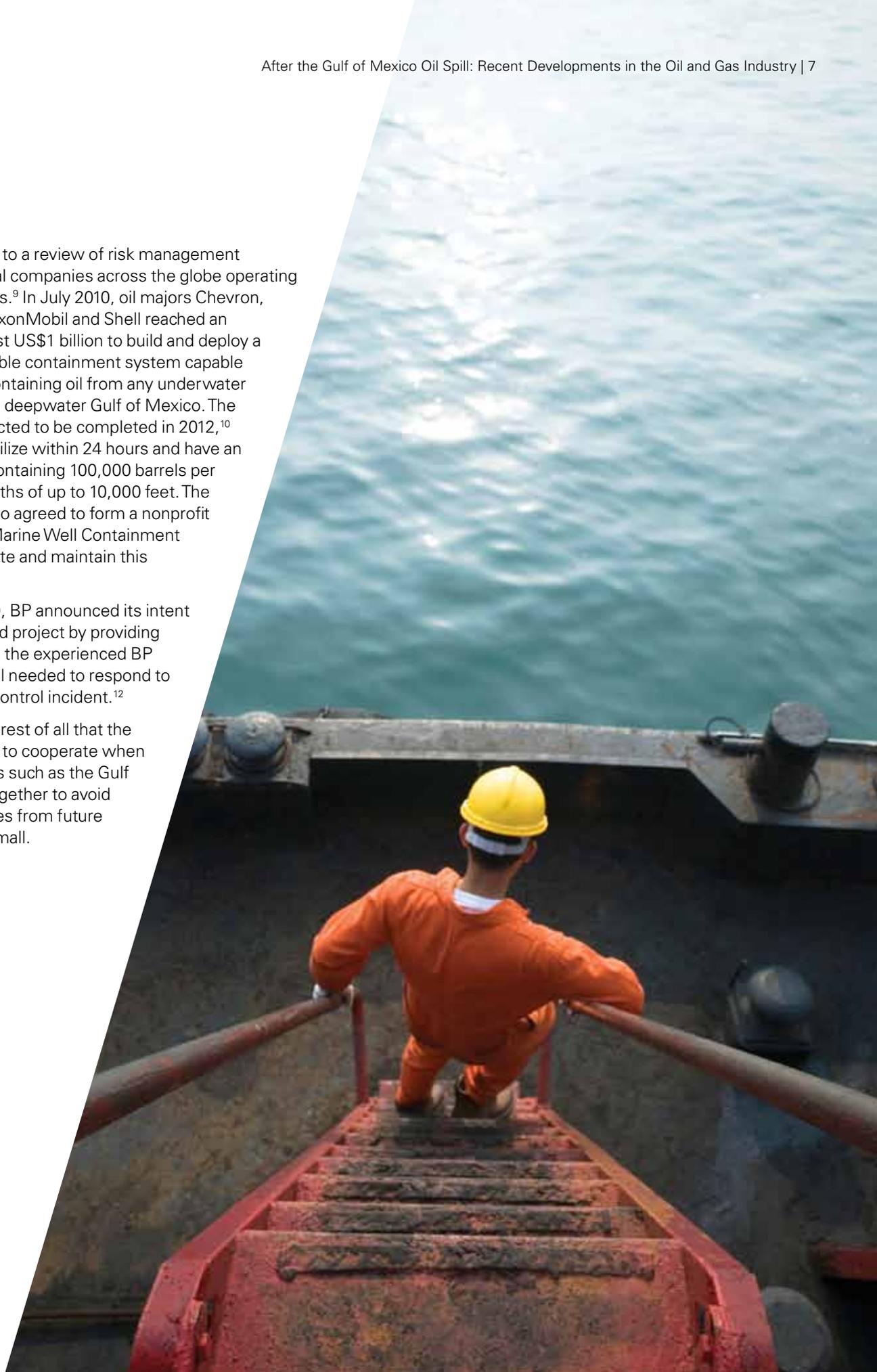
Prior to the Gulf spill, oil companies managed the risks of challenging drilling environments in two ways:

- Companies minimized unsafe practices by implementing a series of checks and balances.
- Some companies adopted “mitigation-style” practices, where they managed risk within their cost constraints and time pressures, allowing frontline contractors or managers to make the necessary trade-offs for each situation as it arose.

The oil spill has led to a review of risk management practices by several companies across the globe operating in various industries.<sup>9</sup> In July 2010, oil majors Chevron, ConocoPhillips, ExxonMobil and Shell reached an agreement to invest US\$1 billion to build and deploy a flexible and adaptable containment system capable of capturing and containing oil from any underwater well blowout in the deepwater Gulf of Mexico. The new system, expected to be completed in 2012,<sup>10</sup> will be able to mobilize within 24 hours and have an initial capacity of containing 100,000 barrels per day working at depths of up to 10,000 feet. The four companies also agreed to form a nonprofit organization, the Marine Well Containment Company, to operate and maintain this system.<sup>11</sup>

In September 2010, BP announced its intent to join the proposed project by providing the equipment and the experienced BP technical personnel needed to respond to a deepwater well control incident.<sup>12</sup>

It is in the best interest of all that the industry continues to cooperate when dealing with events such as the Gulf crisis and works together to avoid or mitigate damages from future events – large or small.



<sup>9</sup> *BP crisis delivers wake-up call to British boardrooms*, Factiva, November 1, 2010

<sup>10</sup> Marine Well Containment Company, [marinewellcontainment.com/progress.php](http://marinewellcontainment.com/progress.php)

<sup>11</sup> *New oil spill containment system*, Shell, July 22, 2010

<sup>12</sup> *BP Announces Intent to Join Marine Well Containment Company, Providing Experience and Equipment*, BP website, September 20, 2010

## Risk management in other industries

The oil and gas industry is not the first industry to face the type of challenges that resulted from the Gulf spill. Regardless of the industry, best practices are often developed as a result of disasters. In addition, best practices in one industry are often leveraged by other industries, including the development of new and better technology.

The US National Aeronautics and Space Administration (NASA) can point to an impressive safety record including hundreds of successful flights in its 53-year history. However, this history also includes the explosions of two space shuttles: the Challenger in 1986 and the Columbia in 2003. In response to these events, NASA oversaw a rigorous reassessment of safety, reliability, and quality assurance issues in both organizational and functional terms. Actions included:

- The suspension of flights for almost three years after the Challenger accident and two years after the Columbia accident while investigations took place and NASA undertook technical and management reviews, changes, and preparations for future flights.
- The expansion of risk management software solutions to improve communication and encourage collaboration across departments and with outside suppliers.
- Increased use and refinement of Probabilistic Risk Assessment (PRA) procedures designed to identify and assess risks in complex technological systems

for the purpose of cost-effectively improving their safety and performance.

The US Nuclear Regulatory Commission (NRC) also made significant changes after an industry accident. In 1979, equipment malfunctions, design-related problems and worker errors led to a partial meltdown of one of the reactors at the Three-Mile Island facility in Pennsylvania. Only a small amount of radiation was released, but the NRC took a number of steps to strengthen regulations and oversight.<sup>13</sup> Their response included:

- Tougher regulations over emergency response planning, reactor operator training, radiation protection, and many other areas.
- Regular analysis of plant performance by senior NRC managers who identify those plants needing additional regulatory attention.
- The establishment of the Institute of Nuclear Power Operations (INPO), the industry's own "policing" group, and formation of the Nuclear Energy Institute to provide a unified industry approach to generic nuclear regulatory issues.
- Expansion of the NRC's international activities to share enhanced knowledge of nuclear safety with other countries in a number of important technical areas.

Similar steps are being taken in the oil and gas industry as a result of the Gulf of Mexico situation.

<sup>13</sup> *Backgrounder on the Three Mile Island Accident*, NRC, [www.nrc.gov](http://www.nrc.gov)

## Changes in US offshore drilling regulations

After the Gulf spill, the US government tightened the regulatory overview mechanism by restructuring the federal regulatory agency responsible for monitoring offshore drilling. The Minerals Management Service has been renamed the Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE). It has been split into two divisions – one that issues drilling leases and one that regulates offshore drilling activities.

Before receiving deep-water drilling permits, companies will have to prove to the BOEMRE that they have enough oil spill containment equipment to respond to a worst-case discharge scenario.<sup>14</sup> The BOEMRE will also conduct surprise oil rig inspections. In addition to the physical monitoring of facilities, the regulator will remotely monitor data such as pressure readings, fluid levels and other data from offshore wells on a real-time basis.<sup>15</sup>

On September 30, 2010, the BOEMRE issued the “The Drilling Safety Rule” and “The Workplace Safety Rule” to enhance the safety of oil and gas drilling operations and to promote human safety and environmental protection.<sup>16</sup>

### Drilling Safety Rule<sup>17</sup>

- The rule sets standards to improve the safety of oil and gas drilling activities on the US Outer Continental Shelf (OCF).
- It covers wellbore integrity and well control equipment and procedures. Detailed procedures for cementing, casing and drilling fluid are laid out to maintain wellbore integrity.

- It also strengthens the oversight of equipment such as blowout preventers.

### Workplace Safety Rule<sup>18</sup>

- Under this rule, operators will have to conduct comprehensive safety and environmental impact assessments to minimize errors that cause accidents and spills.
- The Safety and Environmental Management System (SEMS) program, once voluntary, has now been made mandatory.

Imposed after the oil spill, an offshore drilling ban ended on October 12, 2010. In December 2010, however, the Obama administration announced that it would not allow drilling off the Atlantic coast and in the eastern Gulf of Mexico near Florida.<sup>19</sup>

Regardless of future directions taken by the government, there are fears that the new regulations may have a severe impact on the industry in a number of areas:

### Increased cost pressures and project delays –

The tighter regulations will require companies to have their blowout preventers (BOPs) and other equipment certified by external auditors. Moreover, federal regulators will have a greater say in the drilling and testing of wells, and the CEOs of companies will have to certify that their operations comply with the new standards. This may lead to cost overruns and project delays. The time required for deepwater drilling could increase 20 to 25 percent with the new regulations, according to David Williams, CEO of Noble Corporation.<sup>20</sup>

<sup>14</sup> *Regulatory shoals have slowed oil drilling in the deep*, Fuel Fix, October 19, 2010

<sup>15</sup> *Agency weighs remote focus on wells*, Houston Chronicle, October 23, 2010

<sup>16</sup> *Government to conduct surprise oil rig inspections*, Reuters, October 14, 2010. See also *Interior Issues New Offshore Drilling Rules, Holds Firm on Moratorium*, New York Times, September 30, 2010

<sup>17</sup> *Drilling safety rule*, DOI, September 30, 2010

<sup>18</sup> *Workplace safety rule*, DOI, September 30, 2010

<sup>19</sup> *Offshore Drilling Curbed Again*, Wall Street Journal, December 2, 2010

<sup>20</sup> *Oil Industry Not Celebrating Yet*, Wall Street Journal, October 23, 2010

Further, the tighter regulations could cost the industry up to US\$183 million per year. The new regulations are also expected to add US\$1.4 million to the cost of each new deepwater well and US\$90,000 to that of each shallow-water well. Overall, the number of rigs in operation is expected to fall to 15 percent, down from 35 to 45 percent before the accident, due to increased liabilities, tighter operating standards and higher costs.<sup>21</sup>

**Slowdown in issuance of drilling permits** – The oil spill has adversely affected the exploration and expansion programs of many oil companies. Shell estimates that it will take much longer than 30 days, the usual time period required before the spill between submitting the application and the start of drilling.

Further, the uncertainty and lack of clarity regarding the new regulations have led to a slowdown in the issuance of permits for even shallow water drilling. Between the explosion on April 20, 2010 and October 18, 2010, federal regulators gave approval to only 12 shallow water wells. This is well below the approval levels of 2008, when the government was permitting an average of 16.8 wells per month, and the 2009 levels of 8.5 per month. In the first quarter of 2010, about 10 wells were approved every month.<sup>22</sup>

**Idling of rigs** – The resulting slowdown has led to idling of rigs and job losses. With daily carrying costs of US\$3,000 to US\$4,000 to maintain idle rigs, many companies are exploring the idea of selling their rigs.<sup>23</sup> The slowdown is putting pressure on oilfield service companies that had large operations in the Gulf. For example, Seahawk recently filed for bankruptcy.<sup>24</sup>

With operators not being able to execute their deepwater drilling plans and drilling contractors not working on their deepwater rigs, many of them are considering leaving the US Gulf. In November 2010, day rates and the utilization of deepwater supply vessel operators fell sharply. In addition to utilization falling from 89 percent in October to 81 percent, day rates declined from an average US\$14,787 a day in October to US\$11,500 in November.<sup>25</sup>

**Decrease in oil production** – Oil production of up to 400,000 barrels per day could be affected, according to a Shell estimate.<sup>26</sup> In November 2010, the International Energy Agency (IEA) estimated oil production in the Gulf to be 60,000 barrels of oil equivalent per day (boe/d) and 100,000 boe/d in 2011, lower than its earlier forecasts.<sup>27</sup>

<sup>21</sup> *Government to conduct surprise oil rig inspections*, Reuters, October 14, 2010. See also *Ban Lifted, But Gloom Persists in US Gulf*, Factiva, October 18, 2010

<sup>22</sup> *All dressed up, nowhere to go*, Houston Chronicle, October 18, 2010. See also *Shell: Drilling Ban Fallout Will Endure*, Wall Street Journal, October 28, 2010

<sup>23</sup> *Ibid.*

<sup>24</sup> *Seahawk Drilling Files for Bankruptcy, to Sell Assets*, Bloomberg, February 12, 2011

<sup>25</sup> *Still no deepwater drilling permits*, Workboat.com, December 13, 2010

<sup>26</sup> *Musings: Future of the Gulf of Mexico Oil & Gas Industry*, Rigzone, November 12, 2010

<sup>27</sup> *IEA Says Drilling Requests for Gulf of Mexico Are Picking Up*, Bloomberg, November 12, 2010





## Differences between US and Norwegian regulatory regimes

The Norwegian regulatory regime can be compared to the US regulatory regime as a way to identify better practices for adoption in the US. Several companies that currently operate in the Gulf of Mexico also operate offshore

Norway and are already operating within the Norwegian rules. In addition to Norway's Statoil, these include Total, ConocoPhillips, ExxonMobil, BP, Marathon and Chevron.

US	Norway
Regulations are primarily prescriptive. Laws and regulations are used to define the structures, technical equipment and operations to minimize operational hazards. The regulator checks if the operator is in compliance with the rules.	Regulations are mainly performance-based, with supplementary prescriptive requirements, and regulators define the safety standards that companies must meet. Companies are free to select optimum solutions that fulfill official requirements.
Companies are not required to systematically identify and mitigate risks.	Regulations are risk-based. Regulatory requirements are based on specific risks faced by the individual players.
The US has a complex regulatory structure with several regulators; i.e., the regulatory bodies for resource management and for Health, Safety and Environment (HSE) management are distinct.	All parties involved in petroleum are handled by the same authority, making for a much simpler structure.
The responsibility to follow safe operational processes is shared by the operator and authorities through prescriptive requirements and authority approvals.	The operators are responsible for following safe operational processes that are in line with prevalent regulations.

Source: *Summary of differences between offshore drilling regulations in Norway and U.S. Gulf of Mexico*, DNV, August 2010. Also US Offshore Regulations, FABIG, website accessed on December 2, 2010

The Obama administration is studying the “safety case” approach pioneered by Norway and the UK.<sup>28</sup> This approach is based on performance and risk management, with regulations that primarily specify the conditions or functions that must be achieved to be compliant. Within this framework,

companies have the freedom to choose practical solutions along with the responsibility to ensure compliance. According to a US Interior Department official, “Safety case is something we’ve committed to taking a look at and integrating into our regulations.”<sup>29</sup>

## Summary: possible long-term changes to the industry

The development of new energy sources always brings inherent risk. The Gulf oil spill has emphasized the importance of continual improvement in operational control and governance practices to reduce risk and minimize the impact of future incidents.

Possible changes might include the following:

- New and expanded regulations involving safety, monitoring and reporting requirements.
- Greater use in the US of regulatory methods proven successful in other countries.

- Readjustments in the contractor relationship model.
- Significant enhancements in proactive risk management practices.
- Greater cooperation among companies for new ways to manage operational risk and reduce future accidents.

Global energy demand is expected to grow by 35 percent over 2005 levels by 2030.<sup>30</sup> To help meet this demand, the public and private sector can work together to develop policies that mitigate environmental risk while supporting sustainable strategies for production and the stable growth of the industry.



<sup>28</sup> *U.S. looks to British model to improve offshore drilling safety*, LA Times, October 24, 2010

<sup>29</sup> *Ibid.*

<sup>30</sup> *The Outlook for Energy: A View to 2030*, ExxonMobil



## KPMG Global Energy Institute

Launched in 2007, the KPMG Global Energy Institute (GEI) has been designed to provide an open forum where industry financial officers, risk officers, internal audit directors, and tax executives can share knowledge, gain insights, and access thought leadership about key energy industry issues and emerging trends.

The GEI interacts with its members through a variety of channels, including audio and videocasts, podcasts, conferences, share forums, and a Web portal. The topics covered by the GEI include alternative and renewable energy, emerging smart grid technology issues related to energy policy and sustainability, as well as financial reporting and tax.

Members of the GEI also have access to the KPMG Institutes network, which includes institutes on topics that include: 404, audit, global enterprise, IFRS, and tax.

For more information about becoming a member of the KPMG Global Energy Institute, visit us online at [www.kpmgglobalenergyinstitute.com](http://www.kpmgglobalenergyinstitute.com).



**For more information on how the energy industry can improve control and governance practices, please contact:**

**Michiel Soeting**

**Global Chairman,  
Energy & Natural Resources  
KPMG in the UK**

**T:** +44 20 76943052

**E:** michiel.soeting@kpmg.co.uk

**Wayne Chodzicki**

**Global Head of Oil & Gas  
KPMG in Canada**

**T:** + 403 691 8004

**E:** wchodzicki@kpmg.ca

**John Kunasek**

**US Head of Energy & Natural  
Resources  
KPMG in the US**

**T:** + 713 319 3513

**E:** jkunasek@kpmg.com

**Pamela O'Leary**

**Global Executive,  
Energy & Natural Resources  
KPMG in the UK**

**T:** +44 20 73118438

**E:** pamela.o'leary@kpmg.co.uk

**[kpmgglobalenergyinstitute.com](http://kpmgglobalenergyinstitute.com)**

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

© 2011 KPMG International Cooperative ("KPMG International"), a Swiss entity. Member firms of the KPMG network of independent firms are affiliated with KPMG International. KPMG International provides no client services. No member firm has any authority to obligate or bind KPMG International or any other member firm vis-à-vis third parties, nor does KPMG International have any such authority to obligate or bind any member firm. All rights reserved.

The KPMG name, logo and "cutting through complexity" are registered trademarks or trademarks of KPMG International.

Designed by Evalueserve.

Publication name: After the Gulf of Mexico Oil Spill: Recent developments in the oil and gas industry

Publication number: 101104

Publication date: March 2011