Deepwater Horizon Oil Spill Disaster: Risk, Recovery, and Insurance Implications

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July 12, 2010

Congressional Research Service
7-5700
www.crs.gov
R41320

CRS Report for Congress
Prepared for Members and Committees of Congress

Summary

The April 2010 *Deepwater Horizon* oil spill disaster in the Gulf of Mexico is now being characterized as the largest spill to have occurred in U.S. waters. As efforts to contain the current spill proceed, the likely scale of clean-up costs and third-party damages has prompted congressional review of clean-up and damage compensation mechanisms, as well as of ways to facilitate future oil spill prevention, response, and recovery. A key element is the role of insurance in ensuring that costs of spills can be financed, while at the same time enabling the continued effective and responsible functioning of offshore energy exploration and production, as well as protecting related economic interests.

The United States has an explicit oil spill liability and insurance mechanism to address the *Deepwater Horizon* incident. In 1990, Congress enacted the Oil Pollution Act (OPA) to strengthen the safety and environmental practices in the offshore energy exploration and production business, to create a system of so-called "financial responsibility laws" and compulsory liability insurance combined with strict liability standards, and to place limitations on liability. Although liable for all removal costs, current law limits an offshore facility's liability for economic and natural resources damages to $75 million per incident. Damages in excess of the cap could be paid by the Oil Spill Liability Trust Fund, which is financed primarily through a fee on domestic and imported crude oil.

Lease holders of a covered offshore facility (COF) must demonstrate a minimum amount of oil spill financial responsibility (OSFR) of $35 million per 35,000 barrels of "worst case oil-spill discharge" up to a maximum of $150 million for COF located in the Outer Continental Shelf (OCS) and $10 million in state waters. OSFR can be demonstrated in various ways including surety bonds, guarantees, letters of credit, and in some cases self insurance, but the most common method is by means of an insurance certificate.

Legislative measures (S. 3305, H.R. 5214, H.R. 5629) currently seek to raise the limit of environmental liability on responsible parties from an oil spill from the current $75 million, in some cases abolishing the limit altogether. Concerns have been expressed that higher limits of liability will deter many smaller operators (in terms of net worth) and their investors, as they may not be able to meet significantly higher financial responsibility requirements because of limited offshore energy insurance capacity.

The offshore energy insurance market currently has a finite amount of liability insurance capacity, including coverage for offshore oil pollution spills in U.S. waters, somewhere in the range of $1.25 billion to $1.5 billion. Working capacity for OSFR certification is currently no more than $200 million—an amount that is likely to be far less than what the market will demand should Congress choose to increase the limit of liability on responsible parties to unlimited from the current $75 million. Members of Congress might consider ways to assist the development of alternative sources of insurance capacity for spreading oil spill financial risks. Some of the alternative risk transfer mechanisms include "reinsurance sidecars," catastrophe bonds, and derivative financial instruments that securitize insurance risk. These alternative risk transfer mechanisms turn an insurance policy or reinsurance contract into a financial security that is then transferred to investors in the capital markets. These risk financing options could in theory provide the added capital needed in the insurance marketplace to cover the higher liability and associated OSFR limits.

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Introduction

The April 20, 2010, *Deepwater Horizon* oil spill disaster in the Gulf of Mexico is now considered the largest spill within U.S. waters, eclipsing the 1989 *Exxon Valdez* spill several times over.[1] As efforts have proceeded to contain the current spill, the likely scale of clean-up costs and third-party bodily injury and property damages has prompted congressional consideration of (1) environmental damage; (2) the allocation of the cost of oil pollution clean-up; (3) disaster victim compensation; and (4) future oil spill prevention, response, and recovery.

A key element is the limit on liability for operators of offshore energy facilities and the amount of third-party liability insurance that is available from the commercial insurance market to meet operators' demand for coverage to satisfy existing governmental requirements. Without the ability to spread risk broadly through risk diversification (e.g., insurance or alternative risk transfer mechanisms such as risk securitization), the nation's supply of oil and gas, as well as U.S. government royalty payments from the sale of offshore oil and gas—an important source of revenue for the U.S. Treasury—could become impaired.

By statute, modern environmental policy has sought to control oil pollution discharge into navigable waters or upon adjoining shorelines.[2] Federal agencies implement these statutes or laws through regulations, rules, administrative orders, memoranda, and programs. Major oil spills in the past, including the supertanker *Torrey Canyon* (1967), the Santa Barbara channel oil spill off the California shore (1969), and the *Exxon Valdez* oil spill in Alaska (1989), have influenced the development of ocean energy policy and ultimately prompted the enactment of the Oil Pollution Act of 1990 (OPA).[3] OPA was designed to cope with spills similar to what have occurred historically, but is arguably not sufficient to address spills the size of *Deepwater Horizon*.

OPA established a comprehensive prevention, response, liability, and compensation regime to deal with oil pollution caused by vessels and offshore energy exploration and production facilities within U.S. navigable waters. The law strengthened the safety and environmental practices in the offshore energy exploration and production business, created a system of so-called "financial responsibility" requirements and compulsory liability insurance combined with strict liability standards, and placed limitations on liability. Although liable for all removal costs, current law limits an offshore facility's liability for economic and natural resources damages to $75 million per incident. Liability limits would not apply if the incident was "proximately caused by" the "gross negligence or willful misconduct of" or "the violation of an applicable Federal safety, construction, or operating regulation…."[4] If one of these circumstances is determined to have occurred, the liability would be unlimited.

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[1] Based on estimates from the National Incident Command's Flow Rate Technical Group (FRTG), which is led by the U.S. Geological Survey, the 2010 Gulf spill has become the largest oil spill in U.S. waters. See *Deepwater Horizon Unified Command*, "U.S. Scientific Team Draws on New Data, Multiple Scientific Methodologies to Reach Updated Estimate of Oil Flows from BP's Well," June 15, 2010, located at http://www.deepwaterhorizonresponse.com/go/doc/2931/661583.

[2] Some of the other water programs that are not addressed in this report include the regulation of the containment of wastes, covered by the Solid Waste Disposal and CERCLA Acts; the Federal Land Policy and Management Act; the Surface Mining Control and Reclamation Act; the Forest and Rangeland Renewable Resources Planning Act; the Coastal Zone Management Act; and the Marine Mammal Protection Act.

[3] P.L. 101-380; 104 Stat. 484.

[4] 33 U.S.C. § 2704(c).

Lease holders of a covered offshore facility (COF) must demonstrate a minimum amount of oil spill financial responsibility (OSFR) of $35 million per 35,000 barrels of "worst case oil-spill discharge" up to a maximum of $150 million for COF located in the OCS and $10 million in state waters. The OSFR is demonstrated in various ways, including surety bonds, guarantees, letters of credit, and self insurance, but the most common method is by means of an insurance certificate. Damages in excess of the cap could be paid by the Oil Spill Liability Trust Fund, which is financed primarily through a fee on domestic and imported crude oil.

One aspect of the public policy response to the Gulf oil spill incident has been the introduction of legislative measures (S. 3305, H.R. 5214, H.R. 5629) to remove the limit of oil pollution liability on responsible parties. But is there sufficient offshore energy insurance globally to allow operators to purchase sufficient amounts of insurance to meet their financial responsibility requirements associated with the higher liability limits for oil spills? Concerns have been expressed that higher limits of liability and corresponding higher financial responsibility (insurance) requirements in an environment of limited offshore energy insurance capacity will deter smaller companies from offshore oil and gas exploration and production.

The offshore energy insurance market currently has a finite amount of liability insurance capacity, including coverage for offshore oil pollution spills in U.S. waters, somewhere in the range of $1.25 billion to $1.5 billion.[5] Working capacity for OSFR insurance certification is no more than $200 million—an amount that is likely to be far less than what the market will demand should Congress choose to remove the limit of oil pollution liability.

Congress may wish to consider the feasibility of alternative sources of insurance capacity for spreading oil spill financial risks. Some of the alternative risk transfer mechanisms include "reinsurance sidecars," catastrophe bonds and derivative financial instruments that securitize insurance risk. These alternative risk transfer mechanisms turn an insurance policy or reinsurance contract into a financial security that is then transferred to investors in the capital markets. These risk financing options could in theory provide the added capital needed in the insurance marketplace to cover the higher liability and associated OSFR limits.

This report begins with a review of the *Deepwater Horizon* incident and identifies the limits of liability facing the operators of offshore oil rigs. The next two sections of the report examine risk management in the offshore energy exploration and production business, the scope of the oil spill financial responsibility and insurance requirements, and the marine insurance industry that offers specialized coverage for offshore oil and gas firms. The fourth section outlines the various approaches to compensating oil pollution victims, including compensation funds, commercial insurance, federal disaster assistance, and tort law. The report concludes with a discussion of four specific policy issue consideration for Congress, including new liability limits and insurance capacity, future insurability of offshore oil spill perils, availability of insurance, and the potential effects on domestic offshore energy production.

[5] Testimony of Ron Baron, executive vice president, Willis, Global Energy Practice, before the Senate Committee on Environment and Public Works, *S. 3305, The Big Oil Bailout Prevention Liability Act of 2010,* June 9, 2010, at http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=304d3142-8460-40e8-abd7-2f129285946b.

The Deepwater Horizon Oil Spill Incident

On April 20, 2010, the ultra-deepwater, semi-submersible mobile offshore oil rig *Deepwater Horizon* experienced an explosion and fire and sank in the Gulf of Mexico off the shores of Louisiana. The rig was owned and operated by Transocean, a Switzerland-based offshore drilling contractor, and leased to BP plc (BP), one of the world's largest oil companies. The explosion and fire, which resulted in 11 fatalities and several injuries, occurred in spite of specialized oil spill prevention equipment called a blowout preventer (BOP), designed to avert this type of disaster.[6] The failure of the BOP left the well unsecured and leaking from the marine riser. The amount of oil and gas escaping from the subsurface well is a matter of dispute, but an interagency federal panel of scientists led by the U.S. Geological Survey estimated the spill's size in the range of 35,000-60,000 barrels of oil a day, making the recent incident the largest oil spill in U.S. history.[7]

According to the American Petroleum Institute (API), there have been 17 marine well blowouts in the United Stated since 1964 for a total of 248,963 barrels spilled prior to April 2010.[8] The largest of these incidents occurred in January 1969 from Alpha Well 21 off Santa Barbara, California, which spilled an estimated 100,000 barrels. Two blowouts have occurred in state waters and account for 5% of the total spillage. The total amount of oil spilled into the Gulf of Mexico from the *Deepwater Horizon* incident is thought to exceed the total amount of oil spilled from blowouts in U.S. waters since 1964. The API reports further that the volume of U.S. well blowouts tends to be small, that is, 50% of the well blowouts involved 400 barrels of oil or less.[9]

Based on data shown in **Table 1,** the *Deepwater Horizon* oil spill incident would be the largest offshore platform oil spill in U.S. history, ahead of the Alpha Well 21, and the 1989 *Exxon Valdez* oil spill disaster when the ship ran aground in Prince William Sound in Alaska.[10] Prior to the *Deepwater Horizon* incident, the 1979 *Ixtoc I* oil spill, which released 3.5 million barrels into the Bay of Campeche in Mexico, was recognized as the largest offshore oil spill in the world. That incident did not result in significant onshore oil pollution damages.

[6] Blowouts occur during offshore drilling operations when pressure exceeds the weight of the drilling fluid in the well, which results in an uncontrolled flow of oil. The oil flow could result in loss of the property at the drill site.

[7] *Deepwater Horizon Unified Command*, "U.S. Scientific Team Draws on New Data, Multiple Scientific Methodologies to Reach Updated Estimate of Oil Flows from BP's Well," June 15, 2010, at http://www.deepwaterhorizonresponse.com/go/doc/2931/661583; see also Allison Winter, "USGS Director Quietly Wages Fearless War on Oil Spill," *The New York Times*, June 16, 2010, at http://www.nytimes.com/gwire/2010/06/16/16greenwire-usgs-director-quietly-wages-fearless-war-on-oi-83792.html.

[8] Dagmar Schmidt Etkin, *Analysis of U.S. Oil Spillage*, American Petroleum Institute, August 2009, p. 25, at http://www.api.org/Newsroom/safetyresponse/upload/Analysis_us_oil_spillage.pdf.

[9] Ibid.

[10] According to the International Tank Owners Pollution Federation (ITOPF), the clean-up costs alone totaled $2.5 billion, with fines and penalties adding at least another $1 billion. The ITOPF is an organization established on behalf of the world's shipowners to promote an effective response to marine spills oil, chemicals and other hazardous substances.

Table 1. Largest International Oil Well Blowouts by Volume

(as of May 5, 2010)

Date	Name of Platform	Location	Volume of Oil Released (Barrels)
June 1979 - April 1980	Ixtoc I	Bay of Campeche, Mexico	3,500,000
October 1986	Abkatun 91	Bay of Campeche, Mexico	247,000
April 1977	Ekofisk Bravo	North Sea, Norway	202,381
January 1980	Funiwa 5	Forcados, Nigeria	200,000
October 1980	Hasbah 6	Persian Gulf, Saudi Arabia	105,000
December 1971	Iran Marine intl.	Persian Gulf, Iran	100,000
January 1969	Alpha Well 21	Pacific, California, U.S.A.	100,000
March 1970	Main Pass Block 41	Gulf of Mexico	65,000
October 1987	Yum II/Zapoteca	Bay of Campeche, Mexico	58,643
December 1970	South Timbalier B-26	Gulf of Mexico, USA	53,095

Source: American Petroleum Institute, *Analysis of U.S. Oil Spillage*, August 2009, p. 26, at http://www.api.org/Newsroom/safetyresponse/upload/Analysis_us_oil_spillage.pdf.

Many expect the *Deepwater Horizon* offshore oil spill to cause unprecedented losses in the commercial fishing and tourism industries along the Gulf of Mexico, and seriously damage some of the delicate wetlands and intertidal zones along the coasts of Louisiana, Mississippi, Alabama, and Florida.[11] The final cost of the oil spill incident will depend on many factors, including the distance between the oil spill location and the potential impact sites along the Gulf Coast, the sea conditions, the sensitivity of affected locations to damage from oil and cleanup techniques, the availability and cost of cleanup labor, the ecosystem value attributed to the location, socioeconomic factors such as the economic value of activities affected by the spill, and the acceptability of residual level oil contamination.[12]

According to various media reports, BP has pledged to clean up the *Deepwater Horizon* oil spill in the Gulf of Mexico and to pay "all legitimate claims" arising from the spill. Limitations on liability for damages under OPA are determined on a per-responsible party and per-incident basis and the type of vessel or facility from which the discharge of oil flows. BP's liability is currently capped at $75 million and Transocean's at $65 million, but those limits of liability could be increased if the companies are ultimately found to have acted with gross negligence or to have broken the OPA rules, leading to the oil spill.[13]

BP is also potentially exposed to statutory liability pursuant to the Louisiana Oil Spill Prevention and Response Act (LOSPRA) that could hold parties responsible for up to $350 million in damages arising from the discharge and must pay all pollution removal costs and damages regardless of any defenses it may assert. Much of the BP's losses, however, will likely be paid

[11] Douglas Hanks, "Gulf Oil Spill's Economic Impact Will Be Long Term," *The Miami Herald*, June 17, 2010, at http://www.mcclatchydc.com/2010/05/28/94982/gulf-oil-spills-economic-impact.html.

[12] For more information on estimating the cost of offshore oil spills, see Franklin E. Giles, "Factors in Estimating Potential Response Costs of Spills and Releases," *Environmental Claims Journal*, vol. 22, iss. 1 (January 2010), p. 29.

[13] For more information on this issue, see CRS Report R41262, *Deepwater Horizon Oil Spill: Selected Issues for Congress*, coordinated by Curry L. Hagerty and Jonathan L. Ramseur.

through self-insurance with high retention (deductible) reinsurance because BP does not purchase insurance. BP's two non-operating partners of the *Deepwater Horizon* project, however, are reportedly covered under various insurance policies and these insurers and their reinsurers have pollution liability cleanup exposures totaling about $1.4 billion in potential losses under business interruption, general liability, pollution liability, control-of-well, property and workers compensation coverage.

The next two major sections of this report examine the offshore energy exploration and production business in which the *Deepwater Horizon* operated and the offshore energy insurance market that offers protection against the various risks these firms face.

The Offshore Energy Exploration and Production Business

The oil and natural gas exploration and production industry plays an important role in the U.S. economy by providing energy sources for transportation and the production of other goods and services. The oil and gas business consists of three major segments:

- Exploration and production of oil and natural gas (the upstream);
- Transportation, storage, and trading of crude oil, refined products, and natural gas (the midstream); and
- Refining and marketing of crude oil (the downstream).

Table 2 shows the main types of oil and gas companies and what they do. [14]

Table 2. Main Types of Oil and Gas Companies

Types of Companies	What They Do?
International Integrated Companies	Involved in almost every aspect of the oil and natural gas business and also make and sell petrochemicals.
Major Integrated Companies	Firms with at lease $100 billion in market capitalization that engage in worldwide exploration but whose upstream and downstream operations are not integrated.
Independent Exploration and Production Companies	Engage in exploration, development, refining and marketing but whose upstream and downstream operations are not integrated.
Midstream Services Companies	Engage in the transportation, storage, and trading of oil, natural gas, and refined products.
Refining and Marketing Companies	Engage in the refining and selling of crude oil products such activities as gasoline, jet fuel, heating oil, motor oil, and various lubricants.

Source: Congressional Research Service.

[14] For more information on how the oil and gas industry is structured and operates, see *Standard & Poor's Industry Surveys*, "Oil & Gas: Production & Marketing," at http://www.netadvantage.standardandpoors.com/docs/indsur/// ogp_0310/ogp30310.htm.

The Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE)—the new name, as of June 18, for the U.S. Mineral Management Services (MMS)—uses auctions to allocate rights or leases for oil and gas exploration, drilling, and production on federally owned lands on the Outer Continental Shelf (OCS). Oil companies may enter into a joint venture or partnership with other firms for the purpose of applying for a license to explore for and develop oil and gas tracts on the seabed.

Risk Management and the Demand for Insurance

Offshore oil and gas exploration and production companies face a wide range of complex maritime perils and exposures, such as environmental uncertainty (e.g., hurricanes), adverse exposures in drilling and construction of offshore oil wells, performance of equipment, and defects in plans and specifications. Although these risks may not generally result in significant offshore oil spills, they do have the potential to generate significant first-and third-party claims for cleanup costs under state and federal laws. In the early 1960s, a specialty niche offshore energy insurance market emerged to offer pollution liability coverage for third-party property claims and cleanup and containment risks, oil well blowouts, and redrilling.

In the aftermath of the 1989 *Exxon Valdez* oil spill, Congress passed the Oil Pollution Act of 1990 (OPA) to shift the cost of oil pollution to the ledger of the polluter ("polluter pays"), establish statutory limitations concerning liability and liability insurance, and set in motion the Oil Spill Liability Trust Fund (OSLTF) as the explicit mechanism for compensating oil spill victims. The imposition of pollution liabilities meant oil and gas exploration and production firms would, in theory, have incentives to manage risks cost-effectively, inducing the polluter to take measures to reduce the probability of accidents or to reduce consequent damages at least up to the point where the marginal cost is equal to the expected marginal recovery paid to victims. Moreover, the insurance industry would play a major role in oil pollution risk analysis by applying its skills in actuarial science and safety engineering.

Oil Spill Financial Responsibility and Insurance Requirements

Congress passed the OPA to strengthen the safety and environmental practices in the oil and gas exploration and production business and to create a system of financial responsibility laws and compulsory liability insurance combined with strict liability standards. The financial responsibility and compulsory insurance requirements provide funds to pay for damages; the strict liability rules allow third-party claims to be made directly against the insurer, irrespective of negligence. This regulatory structure was designed to avoid time-consuming and costly litigation and the need for oil spill victims to prove negligence as the primary test of liability for oil pollution damage. Operators of offshore energy facilities are held strictly liable and thus cannot argue that disaster victims contributed to the injury by their own negligence. Strict liability theories eliminate the necessity of establishing intent. The presumption is that oil pollution victims are incapable of protecting themselves against exposure to oil pollution. Strict liability is therefore intended to distribute the economic burden of environmental-related damages while enhancing the speedy compensation of third-party oil pollution damages, property losses, and bodily injury irrespective of fault or the defendant's solvency.

Under Section 1016 of the OPA, oil and gas exploration and production (E&P) leases issued by the BOEMRE for operation in the Gulf of Mexico must establish and maintain OSFR capability to meet their liabilities for removal costs and damages caused by oil discharges from an offshore

facility and associated pipelines.[15] For offshore facilities, OPA established a $75 million cap on the responsible party(s) for economic and natural resource damages unless the damages were the result of acts of gross negligence or willful misconduct.[16] (Responsible parties of offshore facilities must pay for all cleanup costs.)

Lease holders of a covered offshore facility (COF) must demonstrate a minimum amount of OSFR of $35 million per 35,000 barrels of "worst case oil-spill discharge" up to a maximum of $150 million for COF located in the OCS and $10 million in state waters. As an illustration, a worst case oil-spill discharge volume of 35,000 barrels requires $35 million in OSFR while a volume of 35,001 barrels requires $70 million. The BOEMRE calculates the worst case oil-spill discharge volume for a facility. An exemption to the OSFR is provided for persons responsible for facilities having a potential worst case oil-spill discharge of 1,000 barrels or less. The OSFR is demonstrated in various ways including surety bonds, guarantees, letters of credit, and self insurance, but the most common method is by means of an insurance certificate. Claims above the current liability cap can be made to the Oil Spill Liability Trust Fund, which has about $1.6 billion that can be used for cleanup costs and bodily injuries and property damage to third parties. The fund is capitalized by a $.08 excise tax on every barrel of domestic and imported crude oil and petroleum products. The Fund is limited to payouts of $1 billion per incident and $500 million for natural resource damages.

Offshore Energy Insurance Market

Prior to 1969, liability insurance was an internal matter of the companies that owned shipping vessels, including offshore energy facilities (oil rigs). Insuring potential liabilities facing mobile offshore drilling units (MODUs), a type of vessel, was not made compulsory until the advent of the 1969 International Convention on Civil Liability for Oil Pollution Damage.[17] The triggering event was the 1967 *Torrey Canyon* incident after which shipowners' liability insurance for oil pollution damage became commonplace. At about the same time, a specialty niche offshore oil and gas insurance market began offering insurance coverage for risks usually retained by the operator. Offshore international underwriting syndicates began offering expanded coverage for pollution liability resulting from blowouts, costs of well control, damage to underground resources, liability to the employees of the operator, loss or damage to equipment lost while actively in use, and loss to drilling and servicing equipment from corrosive elements.

The emergence of OSFR requirements and compulsory liability insurance combined with strict liability statutes occurred after the 1989 *Exxon Valdez* oil spill and the enactment of the OPA. The imposition of strict liability for large-scale oil spills dramatically increased demand for offshore energy facility liability insurance protection. Today, the offshore energy insurance market is well-syndicated, with the insured losses spread across a broad spectrum of global insurers and reinsurers based principally in London and Bermuda.

[15] This requirement applies to the Outer Continental Shelf (OCS), state waters, and certain coastal inland waters.

[16] CRS Report R41266, *Oil Pollution Act of 1990 (OPA): Liability of Responsible Parties*, by James E. Nichols.

[17] See *International Convention on Civil Liability for Oil Pollution Damage, 1969*, at http://www.imo.org/conventions/contents.asp?doc_id=660&topic_id=256.

The Marine Insurance Industry

The offshore energy insurance market is the generic name for a broad segment of the insurance market that provides coverage for offshore oil and gas exploration and production business operations. Because the offshore exploration business is conducted in bodies of water, the offshore energy insurance market is closely associated with the marine insurance industry. Marine insurance is therefore a component of the offshore energy insurance market.

Operators of vessels, including MODUs, like the *Deepwater Horizon* oil rig, face multiple property and liability loss exposures for which they use marine insurance to cover.

Marine insurance covers vessels and their cargoes for both property and liability risk exposures. In the United States, marine insurance consists of two distinct branches: (1) inland (or "dry") marine that includes exposures related to properties in transit such as mobile equipment and jewelry; and (2) ocean (or "wet") marine that includes hull and cargo coverage. Ocean marine means the same as marine insurance in the global insurance market. Because of their unique loss exposures, both ocean and inland marine insurance are exempt from state insurance rate and policy form filing requirements and state insurance premium tax. This allows a high degree of flexibility in modifying forms and rates to cover unique loss exposures. A vessel owner's legal liability is subject to a specialized branch of federal law known as admiralty or general maritime law.[18] This favorable regulatory treatment was designed to encourage the development of the U.S. ocean marine insurance industry that was being outcompeted by British marine insurers.

Marine insurance covers:

- Liability for bodily injury, illness, or death of
  - members of the vessel's crew
  - shore workers, passengers, or other persons on board
  - persons not on board the vessel
- Liability for property damage to (and resulting loss of use of)
  - other vessels, resulting from collision with the vessel
  - vessel owners' own vessel
  - cargo or other property on board other vessels
  - cargo or other property of others on board the at-fault vessel
  - bridges, piers, docks, navigational locks, and other structures
- Liability for environmental impairment resulting from oil spills or other pollution incidents.

[18] Admiralty law can be distinguished from common law that governs disputes and claims for other lines of business in that a marine dispute is tried before judges only rather than involving juries.

Structure and Performance of Offshore Energy Insurance Market

The offshore energy insurance market is one class of business (or subline) within the ocean marine insurance market. The sublines within ocean marine are cargo, hull, war, primary marine liabilities, excess liabilities, yacht, protection and indemnity (P&I), and offshore energy. Ocean marine insurance is typically purchased to cover risk exposures of shipowners (cargo and hull), marinas, wharves, ports, offshore oil and gas exploration and production firms, and onshore warehouse and retail establishments. Operators of offshore energy facilities typically self insure or purchase pollution liability coverage and excess liability limits in the surplus market or the international marine insurance market. Insurance sold in the surplus market is handled through specialized brokers.

Structure

The offshore energy insurance market is highly specialized and, because the limits of insurance are usually in excess of $1 billion, there is no single insurer who covers the entire risk exposure. Consequently, operators of offshore drilling units, production platforms, undersea pipelines and systems for loading oil onto vessels at offshore mooring points typically insure their property and liability risk exposures on a subscription basis through specialized brokers who negotiate with underwriters in the energy field. Most subscription transactions are negotiated and placed in the London and Bermuda insurance market through, for example, Lloyds of London and scores of global reinsurance companies and intermediaries.

In the past decade, the formal organizational structure of the ocean marine industry underwent a significant cultural and institutional transformation. According to Conning Research and Consulting, the ocean marine insurance market has become more concentrated with fewer, larger insurers due to overall insurance industry consolidation. In 2009, there were 106 groups underwriting ocean marine coverage compared with 189 in 1986.[19] Moreover, the size of the ocean marine insurance industry, as a proportion of the overall property and casualty (P&C) insurance industry, has declined from 3% of total P&C insurance premiums in 1989 to 0.7% of overall writings in 2009.[20]

An industry once dominated by individual freestanding monoline underwriters (i.e., managing agencies/pools) is reportedly now dominated by small marine underwriting units subsumed within multiline insurers, either in the commercial or speciality lines divisions. In addition, offshore energy insurers, who traditionally were defined by their willingness to assume risk without relying on technical analysis, now require professional engineers to evaluate risk and quantify exposures. Some claim that marine insurance underwriting is now guided not by experienced and knowledgeable underwriters but by computer simulation models and estimates of exposure promulgated by actuaries and quantitative approaches.[21]

[19] *Conning Research and Consulting Strategic Study Series*, "Ocean Marine Insurance: Entering New Waters: 2009," Hartford, Connecticut, p. 9.

[20] Ibid.

[21] Ibid.

Performance

Table 3 shows ocean marine global premiums by class for first-party physical damage coverage. Importantly, these figures do not include third-party liability coverage for bodily injury and property damages and clean up and containment of oil spills. These data are not readily available because the main market players are based principally in London and Bermuda and beyond the reach of state insurance regulators. Conversations with offshore energy insurance brokers suggest that the estimated total offshore energy property insurance premium is in the range of $3 billion to $3.5 billion annually. These sources estimate that there is an additional $500 million in third-party liability capacity. Most operators of MODUs typically carry about $300 billion to $500 million of operator extra expense insurance.

Table 3. Ocean Marine Global Insurance Premiums by Class

($ in millions)

	2006	2007
Global Hull	$5,282	$5,919
Transport/Cargo	$10,724	$11,958
Marine Liability	$1,381	$1,420
Offshore/Energy	$2,736	$2,806
Total	$20,124	$22,103

Source: International Union of Marine Insurance.

In 2009, the offshore energy insurance market experienced surplus capacity due to two main factors. First, MODUs rig utilization and, hence, demand for insurance declined sharply in all oil and gas exploration and production areas of the world, but particularly in the Gulf of Mexico because of heightened hurricane activity in 2004, 2005, and 2008. According to the International Union of Marine Insurance (IUMI), the worldwide rig capacity utilization rate stood at 75% in 2009, down from 88% in 2008.[22] The Gulf of Mexico rig utilization rate was 49%, off from 75% in 2008. Second, the demand for ocean marine insurance has been adversely affected by the global economic downturn and the decline in world trade and a decline in market price for oil and natural gas.

Typical Offshore Energy Insurance Coverage

The main types of insurance coverage commonly used in the offshore energy insurance market that are relevant to the *Deepwater Horizon* incident include (1) offshore physical damage coverage for physical damage or loss to offshore fixed platforms, pipelines, and production and accommodation facilities;[23] (2) Operator's Extra Expense (OEE); (3) Excess Liability insurance; (4) business interruption; and (5) workers' compensation. Another type of insurance coverage that provides third-party liability protection for owners and operators of vessels is Protection and

[22] International Union of Marine Insurance, "Sharp Drop in Offshore Rig Operation in 2009," press release, March 31, 2010, at http://www.iumi.com/index.cfm?id=7198.

[23] ISO Commercial Property, *Causes of Loss – Special Form*, CP 10 30 04 02, at http://www.endlar.com/Documents/Policy_Forms/Arbella%20CP1030%20Special%20Cause%20of%20Loss%20Form.pdf.

Indemnity (P&I) insurance sold by P&I clubs, which are mutual associations of vessel owners. However, P&I policies sold by conventional insurers explicitly do not offer coverage to indemnify offshore energy facilities for oil pollution damages and supplemental pollution liability insurance must be obtained under a separate marine policy.[24]

- **Offshore Physical Damage.** This coverage provides post-loss financing for any direct physical loss of or damage to fixed offshore drilling, production, and accommodation facilities, including (1) offshore energy drilling, production, and accommodation facilities;[25] (2) pipelines; (3) subsea equipment; and (4) offshore loading. All risks are covered unless specifically excluded, but such risks are covered in OEE policies. For example, oil wells and regaining control of the well after a blowout and redrilling expenses are typically excluded.

- **Operator's Extra Expense (OEE)/Energy Exploration and Development (EED) Coverage.** This covers the costs of well blowout and indemnifies the offshore facility operator for third-party bodily injury claims, damage to and loss of third-party property, and the cost of clean up and legal defense expenses as a result of a blowout. OEE covers evacuation expenses, the removal of wreckage and making wells safe, and the property of others in the insured's care custody and control. Coverage may also include the redrilling of a well after a blowout to the original depth and comparable condition prior to the loss, as well as the legal expenses emanating from an incident such as the sinking of a rig or an oil spill. The oil pollution incident must be sudden and accidental and the occurrence must have taken place during the period when insurance coverage is in force. Also, the incident must become known to the insured within 90 days and the insured must report the claim to the underwriter within 180 days. OEE is sold as a "Combined Single Limit of Liability" and covers actual costs or expenses incurred in regaining control of an unintended subsurface flow of oil. The operator is responsible for damage to drilling equipment as determined by the "Operating Agreement" between the operator of the rig and the drilling contractor listing the risks the operator will cover. Under these

[24] In the 19th century, shipowners banded together in mutual underwriting clubs to form shipowners' Protection and Indemnity (P&I) clubs to cover shipowners' third-party liabilities and expenses arising from the owning or operation of their ships. There are 13 separate and independent principal clubs that form the International Group of P&I Clubs. Some of these clubs have affiliated and reinsured subsidiary associations. The American Steamship Owners Mutual Protection and Indemnity Association, Inc., established in New York in 1917, is the only mutual P&I club domiciled in the United States. It is a member of the International Group of P&I Clubs, a collective of 13 mutuals that together provide P&I insurance for some 90% of all world shipping. Members of the clubs are generally levied an initial sum that is used to purchase reinsurance to cover their mutual liability risks. If a club experiences unfavorable losses, the members are assessed a supplementary premium. The club attempts to build up loss reserves.

[25] It is important to distinguish between a mobile offshore drilling unit (MODU), such as the *Deepwater Horizon*, and a well drilled from a MODU. A MODU is classified as a vessel and well drilling from a MODU is classified as a covered offshore facility (COF) under the OPA. The Secretary of Transportation has authority for vessel oil pollution financial responsibility and the U.S. Coast Guard regulates the oil-spill financial responsibility program for vessels. Offshore drilling rigs are classified into two categories: mobile offshore drilling units and fixed units. MODUs are classified in terms of bottom-supported (shallow water) rigs and floating (deepwater) rigs. In bottom-supported units, the rig is in contact with the seafloor during drilling, while a floating rig floats over the site while it drills, held in position by anchors or equipped with thrusters to be dynamically positioned. Both units float when moved from one site to another. Bottom-supported units include jack ups, tenders, submersibles, and barges. Floating units include semi-submersibles and drillships. Fixed units (or platform rigs) are drilling units that are placed upon a platform or other structures. Subsea floating production systems are employed in deeper water. The Deepwater Horizon was a floating production system (FPS) or vessel that was connected to a subsea pipeline, while a floating, production, storage, and offloading vessel (FPSO) processed and stored oil on board a vessel prior to being offloaded into shuttle tankers.

Agreements the drilling contractor is typically held harmless with respect to pollution liability for underground resources and liability for damage to operator's property or injury to operator's personnel arising out of the employee/employer relationship.

- **Excess Liability Insurance.** This coverage is purchased in layers that attach excess of a certain dollar limit. A typical operator would have many layers of excess liability that adds up to a certain aggregate level of protection. Although excess liability coverage is purchased as an additional layer of coverage in excess of the OEE policy it is subject to its own terms and conditions. Thus, whereas OEE covers pollution-related third-party bodily injury and third-party property loss or damage or loss of use on a strict liability basis, the excess liability insurance policy excludes pollution from wells. The policy generally has a limited "buy back," which requires the pollution event to be sudden, accidental and unintended and subject to strict discovery and reporting requirements. The offshore energy facility operator must purchase specific "pollution endorsements" that overrides the pollution exclusion provision in the excess liability policy. A point of note is that the use of pollution endorsements could have the effect of reducing overall insurance capacity for clean up of pollution from wells because the insurer is potentially liable for higher levels of third-party liability on each policy.

- **Business Interruption (BI)/Loss of Production Income (LOPI).** This coverage indemnifies the insured for lost net income that would have been earned had the damage not occurred, as well as for refunding fixed expenses incurred during the period of indemnity. Contingent business insurance coverage provides payments for damages based upon loss income due to damage to upstream facilities such as processing plants, trunklines, and refineries owned by third parties but upon which the insured's income depended. This coverage is usually written in conjunction with offshore physical damage coverage on standardized forms published by Insurance Services Office, Inc. or those that resemble the ISO form.[26] Because of the standardization in contract language there tends to be more predictability in claim payments and, therefore, reduced potential litigation over contract interpretation. Companies filing a business interruption insurance claim must show that their business operation sustained actual direct physical loss of or damage to the insured property. Without this proof, the BI claim could be denied because, as many experts agree, the consequences of oil spill can be far reaching without any need for the oil itself to actually reach those affected.

- **Workers Compensation/Employers' Liability.** This provides coverage for claims arising out of employee injuries or deaths incurred while the employees are in the line of duty.

Compensating Oil Pollution Victims

The offshore oil and gas exploration and production industry faces many operating hazards, such as blowouts, explosions, oil spills, and fires, as well as hazards associated with marine operation, such as collision, grounding, and damage or loss from severe weather. These hazards can cause personal injury and loss of life, damage to and destruction of property and equipment, pollution

[26] *ISO Form CP 0030.*

or environmental damage, and suspension of operation. Liability for marine oil pollution is governed by the OPA and by any number of stricter statutes in individual states. The main sources of funds for compensating victims of offshore oil pollution damages include (1) oil pollution compensation funds, (2) commercial insurance, (3) federal disaster insurance, and (4) tort law.

Oil Pollution Compensation Funds

In the aftermath of the 1967 *Torrey Canyon* grounding and oil spill, the International Tanker Owners Pollution Federation (ITOPF) was established to administer a voluntary fund that offers compensation to parties affected by oil spills. The United States is not a party to the ITOPF. Oil spills that occur in the United States are covered under the OPA. In the event claims for oil spill and related damages are not paid by the responsible party the claimant may file a claim directly to the Oil Spill Liability Trust Fund (OSLTF) or file a lawsuit in court. The fund is currently authorized to provide up to $1 billion per oil pollution incident.

If offshore energy insurance capacity is scarce or expensive, the government could create mandatory insurance pooling arrangements to which all participants in drilling activities contributed in proportion to their involvement in drilling activities. Operators who benefit from oil and gas exploration and production would bear risk and implement stronger safety and environmental controls to reduce losses.

Commercial Insurance

The offshore oil and gas exploration and production business has the potential to affect third parties who may be physically injured or whose property may be damaged or both. A third-party (liability) insurance policy protects the insured (the first party) against being sued for negligence brought in a lawsuit by another person or company (the third party) that alleges the covered person caused an injury or financial loss. Liability insurance does not protect against liability resulting from crimes or intentional torts committed by the insured.

The most prompt and effective compensation for pollution victims is thought to be compulsory insurance on a strict liability basis. Given the high level of risk associated with oil and gas exploration and limited insurance and reinsurance capacity for these risks, oil companies usually join together, pool their financial resources, and establish a wholly owned affiliate company called a captive insurance company that is establish to exclusively underwrite the risks of the parent company or group of companies in an industry or trade association.

Federal Disaster Assistance

In theory, the Robert T. Stafford Disaster Relief and Emergency Assistance Act[27] should offer several options for compensating oil spill disaster victims. Pursuant to an emergency declaration or a major disaster declaration under the Stafford Act, the Federal Emergency Management Agency (FEMA) has the authority to provide disaster assistance to compensate disaster victims. FEMA assistance can be rapid and flexible, but it is usually carefully delineated to avoid duplication of benefits.

[27] P.L. 93-288, 42 U.S.C. 5192.

There is not, however, a precedent for providing federal disaster assistance under the Stafford Act for oil spills. Following the 1989 *Exxon Valdez* oil spill incident, the President turned down two requests from the governor of Alaska for an emergency declaration based on the rationale that a declaration by the President would hinder the government's litigation against Exxon that promised substantial compensation for the incident.[28]

Tort Law

Another way to compensate for damage caused by offshore oil pollution is through state tort liability—that is, through a private lawsuit brought by an injured part against the entity proximately causing the injury. Torts that are potentially implicated by such damage include negligence, trespass, private nuisance, and perhaps strict liability for abnormally dangerous activities (breach of contract is a separate area of law; a breach of contract is not a tort). Liability insurance may be used to distribute the costs imposed under the tort (or other) liability system when a court determines that an entity is liable.

Although the compensation of an injured party pursuant to a court judgment may not reverse the environmental damage done, or even completely redress the economic harm, it can play four important roles in mitigation future offshore oil and gas pollution damages.

- Compensate disaster victims (e.g., commercial fisherman, shrimpers, seafood processors, property owners and tourism-related businesses);
- Cause the oil industry to improve their safety procedures;
- Reduce the risk of another costly oil spill that reduces company profits;
- Spur regulatory action, which can prevent these disasters from occurring in the future.

Many lawsuits have been brought in connection with the *Deepwater Horizon* incident.[29] Most allege damage to real or personal property, but others are based on personal injury, economic loss, products liability, or loss of stock value (in suits brought by investors in the company). The fact that BP has taken responsibility for all "legitimate claims" (which it defines as those claims recognized by the Oil Pollution Act) does not, however, mean that it has accepted liability for the above torts. The investor's lawsuits allege that company executives lobbied state and federal agencies to remove or decrease the extent of safety and maintenance regulation of the company's Gulf operation, claiming that volunteer compliance would suffice to address safety and environmental concerns.[30] Meanwhile, officials for BP requested that all lawsuits over economic and environmental damages as a result of the oil spill be combined in a federal court in Houston. The multidistrict-litigation panel has agreed to hear arguments on this request in July 2010.

[28] For more information, see CRS Report R41234, *Potential Stafford Act Declarations for the Gulf Coast Oil Spill: Issues for Congress*, by Francis X. McCarthy.

[29] For more information on legal activity surrounding the *Deepwater Horizon* incident, see Robert Meltz in American Law Division of the Congressional Research Service. Also, see CRS Report R41266, *Oil Pollution Act of 1990 (OPA): Liability of Responsible Parties*, by James E. Nichols.

[30] *Firpo v. Hayward et al*, 2:10-cv-01430, U.S. District Court, Eastern District of Louisiana (New Orleans).

Policy Issue Considerations for Congress

In the aftermath of the *Deepwater Horizon* incident, one issue that Congress may wish to consider is the willingness of the global offshore energy insurance market to participate in the OSFR program. Commercial insurance companies might be concerned about the proposed change to remove the liability limits under OPA and also the proposal to increase the OSFR requirement to some higher level that is yet to be determined. If insurers were willing to continue to participate, another question might be whether the new limit of liability is supported by the availability of insurance coverage on adequate terms and conditions in the global commercial insurance market for offshore energy facilities given (1) the insurability of future offshore oil spill hazards; and (2) the impact of the global financial market crisis on insurance market's capacity for underwriting "catastrophe" or "peak" risks, including oil spill damages.

New Liability Limits and Insurance Capacity

Congress has been called upon to reconcile two policy issues: (1) the desire to remove the limitations of liability for operators of offshore energy facilities for economic losses caused by oil pollution damage and raise the criteria for demonstrating OSFR; and (2) the limited capacity of offshore energy insurance and reinsurance to cover loss of well control, cost to redrill a blowout well, and pollution liability facing operators of offshore energy facilities.

Several congressional hearings were held to consider these issues and to determine whether offshore energy facility operators of any size will be able to obtain sufficient amounts of insurance at acceptable prices to demonstrate evidence of financial responsibility under new, yet to be proposed, OPA insurance requirements. Concerns have been expressed that the higher limits of liability on responsible parties for oil spills and the corresponding insurance requirement could lead to the domination of drilling activity by major oil companies, if many smaller oil firms and their investors are not able or willing to expose themselves to such liability.

It would appear that the energy insurance market currently has a finite amount of available insurance, including coverage for offshore oil pollution spill in U.S. waters, which now stands in the range of $1.25 billion to $1.5 billion.[31] The "working capacity" or the dollar amount that an insurer will typically commit to any single risk, for control of well (COW) risks is in the range of $600 million to $750 million on a stand alone basis.[32] The working capacity for Oil Spill Financial Responsibility Certification is allegedly no more than $200 million.[33]

Future Insurability of Offshore Oil Spill Perils

Large-scale disasters, such as Hurricane Katrina, may prove instructive. As a major source of post-disaster recovery financing, commercial insurance companies have been called upon to pay

[31] Testimony of Ron Baron, executive vice president, Willis, Global Energy Practice, before the Senate Committee on Environment and Public Works, *S. 3305, The Big Oil Bailout Prevention Liability Act of 2010*, June 9, 2010, at http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=304d3142-8460-40e8-abd7-2f129285946b.

[32] Ibid.

[33] Ibid.

for catastrophe-related losses; in some cases, beyond their contractual policy obligation. For example, after the September 11, 2001 terrorist attacks at the World Trade Center, insurers faced pressure to interpret policy language liberally with respect to war risk coverage and the number of occurrences. After some negotiation between private insurers and reinsurers, legislators, and other industry participants, which led to the passage of the Terrorism Risk Insurance Act (a pre-disaster risk financing scheme), insurers agreed to pay claims related to the 9/11 incident. Insurers did not charge an additional premium to cover that risk. Other notable examples include asbestos, Superfund environmental claims, and Hurricane Katrina. In particular, after Katrina, the courts reinterpreted some water exclusion provisions in homeowners' policies, resulting in expanded coverage for water damage. Consideration of coverage expansion through the reinterpretation of insurance contract language by the courts could affect the availability of insurance for offshore energy facilities going forward.

Availability of Offshore Energy Insurance for Oil Spills

In the aftermath of the *Deepwater Horizon* incident, offshore energy insurance underwriters have begun to reassess their risk exposures in response to newly perceived operational risks involving blowouts, fires, explosions, lost control of well and other non-hurricane risks. Insurance experts expect offshore energy insurance rates to increase in the short term as a result of the perception of greater potential risk exposure. Changes in the insurance market will likely not be driven by the operator's exposure to windstorm damages; rather, they will be driven by reassessments of operational risks. Coverage for drilling contractors and control-of-well expenses are the areas most likely to be targeted by underwriters for rate increases.

The proposed increase in the limit of liability required under OPA carries at least four consequences in the offshore energy insurance and reinsurance market. First, some insurance market experts have asserted that the global commercial insurance capacity for third-party liability insurance—Operators' Extra Expense (OEE) and Excess Liabilities coverage—that is currently available to meet OSFR requirements is approximately $1.5 billion. This amount is likely to be far below the OSFR associated with the new unlimited liability limits.

Insurers have pointed out that the strict liability standard with direct access to the insurer serves to further limit overall industry capacity. The reason is that the insurer cannot control claims payment with contract terms and conditions. Moreover, the OEE coverage as currently structured provides a combined single limit for well control, well redrilling after a blowout, and sudden and accidental seepage and pollution cleanup. This means prioritizing the single limit, for example, by first using the insurance proceeds to hire a well control expert to retake control of the well and, if necessary and funds remain, drill a new well, with the balance of the OEE insurance limits used for pollution cleanup and containment of oil spills.

Second, given basic economic supply-demand principles and the fallout from what may be characterized as the largest oil spill in U.S. history, most insurance market experts expect the supply of insurance coverage for the new OSFR to only be available at a high premium, if coverage is available at all. The imposition of higher strict liability limits for large-scale oil pollution could have the effect of greatly increasing the demand for liability insurance protection. This situation could multiply the challenges insurers might have in evaluating risk exposures, defining reasonable limits for the coverage and calculating insurance prices. Operators may find themselves assuming or retaining higher levels of self-insurance, which might affect the BOEMRE's offshore oil and gas lease bidding and ultimately the royalties earned for the U.S. Treasury.

Third, if the past is an indication of the future, private commercial insurers may be reluctant to commit financial capital in underwriting unknown new risks in the post-*Deepwater Horizon* environment until there is greater clarity on the legislative and legal climate. Insurers would want to collect the necessary data for evaluation of risks associated with certain severity of loss and insurability, recalculate rates, policy terms and conditions, and set limitations. Conduct of these normal activities, at least in the short term, will be affected by the uncertainty of the losses associated with the recent Gulf of Mexico oil spill.

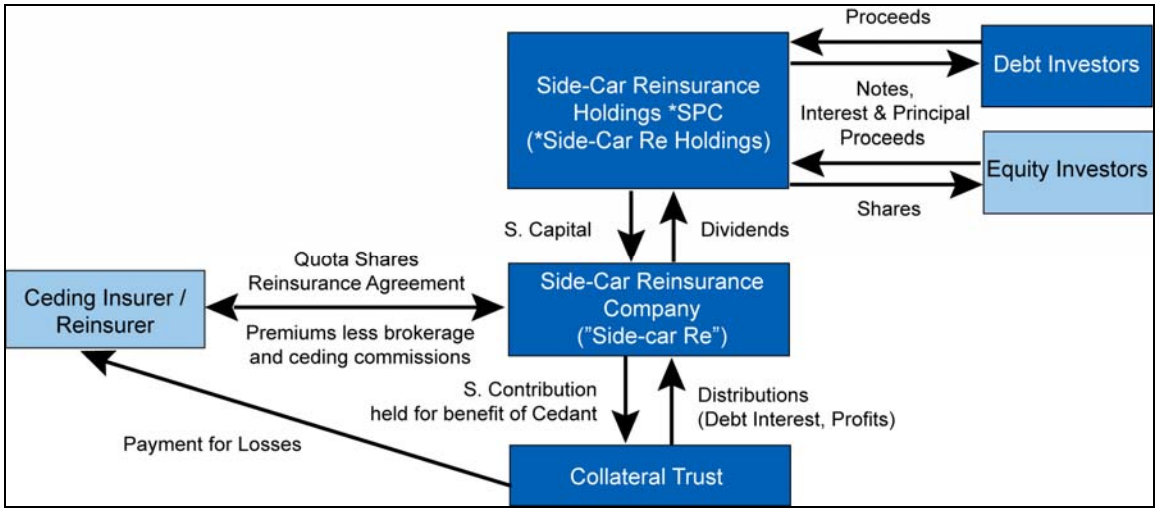
OPA's oil spill financial responsibility rule is a pre-disaster risk financing strategy that, in the wake of the *Deepwater Horizon* incident, could come under intense pressure because of capital shortages in the offshore energy insurance and reinsurance market. From an insurer's perspective, one issue that may arise is the potential for future massive environmental-related (strict liability) damages which leads to the question of whether offshore oil pollution will be insurable or insurable only with government support. Given the magnitude of losses and the uncertainty about future profitability in the energy insurance business, a "hard" energy insurance market—scarcity of coverage and high prices—may emerge following the *Deepwater Horizon* incident. Prior to this event, the third-party pollution liability market was thought to be in a "soft" phase where rates were low as a result of oversupply of capacity.[34]

Fourth, many insurance market experts would likely support a more efficient pre-disaster risk financing approach to managing and financing large-scale oil spill disasters. The availability of alternative sources of insurance capacity for spreading financial risks associated with oil spills, perhaps through "reinsurance sidecars," catastrophe bonds or energy insurance financial futures and options (i.e., derivative financial instruments that securitize insurance risk, turning an insurance policy or reinsurance contract into a security), could provide the added capital needed in the insurance marketplace to cover the higher liability and associated OSFR limits. For example, a reinsurance sidecar is a limited-life reinsurance company that is established to provide property catastrophe (quota-share) reinsurance for the upper layers of an insurance contract or the worst-case-oil-spill scenario event.

Figure 1 illustrates a typical reinsurance sidecar transaction created after Hurricane Katrina in 2005 to meet the catastrophe insurance risk financing needs of operators of offshore energy facilities. The sidecar allows a ceding insurer or reinsurer to transfer oil spill risks to a newly licensed reinsurance company that assumes risk, collects premiums, and pays claims losses to the ceding insurer or reinsurer via a reinsurance agreement.

[34] *Willis Limited*, "Energy Market Review: On the Edge of an Abyss?," March 2010, at http://www.willis.com/Media_Room/Press_Releases_(Browse_All)/2010/20100324_Willis_Energy_Market_Review_24_March_2010.

Figure 1. Illustration of Alternative Risk Transfer Instrument Using a Reinsurance Sidecar Transaction



Source: Congressional Research Service.

The sidecar issues fully collateralized debt to its investors. Reinsurers typically create sidecars by transferring policies and premiums to a special purpose reinsurer (SPR) that uses them as collateral for bonds, loans, and equity. This allows the sidecar to diversify (or spread) individual reinsurers' risk among the global reinsurance marketplace. Proceeds from the security offering, as well as premium and investment income, are transferred to a collateral trust, which invests the proceeds and disburses funds to the ceding insurer or reinsurer on behalf of the sidecar to pay claims. Funds are also disbursed to the holding company, via the sidecar, to pay interest on debt and dividends, if any, to the shareholders. Sidecar payouts are determined via the reinsurance agreement contract between the ceding company and the sidecar, and are triggered by the loss experience of the ceding company.

Hedge funds, private equity investors, and other institutional investors provide the bulk of the funds via equity and debt financing to capitalize these unusual insurance investment vehicles. Thus, capital market investors were able to get into the lucrative post-Katrina reinsurance business without having any underwriting experience. Investors agree to invest the funds for two to three years and typically earned 20% to 30% or more return on their investment. The reinsurer receives a commission. Investors get interest and dividend payments from the collateral trust when the sidecar expires, assuming that all of the capital has not been used to meet claims.

Potential Effects on Domestic Offshore Energy Production[35]

The **Appendix** shows that there were a total of 3,583 offshore production facilities in federal waters in 2009, and that since 1989, both the East and West Coasts of the United States have been off limits to OCS leasing and development. The future of offshore oil and gas exploration and

[35] This section is based on the author's research and telephone discussions with economists Marshall Rose and Sam Fraser at BOEMRE and Marc Humphrey, analyst in Energy Economics, at the Congressional Research Service, Library of Congress, on May 21, 2010.

production in the Gulf of Mexico, an important source of energy for the nation, could be affected by the imposition of higher liability limits.

Some maintain that quantifying the impact of OPA's higher liability limit requires a rigorous analysis due to the many variables that affect the economics of offshore oil and gas development, such as price/demand of oil and natural gas, rig availability, discoveries, regulatory requirements, and capital availability for the Gulf of Mexico, among other things. Increasing the liability cap for oil spills may change the landscape of offshore leasing activity.[36] Arguments have been made that if a new cap were applied retroactively, it might cause current operators who are unable or unwilling to meet the new insurance requirements to relinquish their leases. This may cause a sharp decline in shallow water production since smaller operators operate in such conditions. In the deepwater regions that are already dominated by the majors or large-scale independents, production could be affected if those lessees could not find buyers in the lease resale market after they have optimized their production.[37] If there are no qualified buyers, the initial lease holder may relinquish the lease early.

With a higher oil spill liability cap, at the lease sale level, one would likely expect to have fewer bidders and less competitive lease sales, which could result in lower "bonus bids" offered for the leases, according to economists at the BOEMRE. Small independent involvement in the OCS allegedly declined after the 2005 hurricane season because of the higher costs to operate in the OCS.[38] As costs get higher and as shallow water offers fewer opportunities, small-scale independent involvement may continue to decline unless the small operators are willing and able to take equity positions in the larger and more expensive deepwater operations.

[36] According to BOEMRE, U.S. offshore production in 2009 accounted for 27% of all U.S. crude oil production and 11% of natural gas production. The Gulf of Mexico (GOM) accounts for about 95% of U.S. offshore production while the deepwater regions (1,000 feet and above) of the GOM account for 74% of oil and 43% of natural gas production. Out of the 6,619 offshore leases, 4,204 were in deepwater—about half of the deepwater leases are in water depths of 1,500-4,999 feet.

[37] Discussion with BOEMRE economists, Marshall Rose and Sam Fraser, May 21, 2010.

[38] Upstream Insight, *Deepwater Horizon Tragedy: Near-Term and Long-Term Implications in Deepwater Gulf of Mexico*, Woods-Mackenzie, May, 2010.

Appendix. Total Number of Offshore Production Facilities in Federal Waters: 1959-2009

Installations, Removals, and Cumulative Totals of Offshore Production Facilities in Federal Waters: 1959-2010

[There have not been any production facilities installed on the Atlantic or Alaska OCS]

Year	Gulf of Mexico OCS			Pacific OCS			Cumulative Total
	Installations	Removals	Net Change	Installations	Removals	Net Change	
1942-58	269	0	269	0	0	0	269
1959	85	0	85	0	0	0	354
1960	111	0	111	0	0	0	465
1961	109	0	109	0	0	0	574
1962	128	0	128	0	0	0	702
1963	91	0	91	0	0	0	793
1964	131	0	131	0	0	0	924
1965	130	0	130	0	0	0	1,054
1966	119	0	119	0	0	0	1,173
1967	134	0	134	1	0	1	1,308
1968	112	0	112	3	0	3	1,423
1969	113	0	113	1	0	1	1,537
1970	119	0	119	0	0	0	1,656
1971	103	0	103	0	0	0	1,759
1972	144	0	144	0	0	0	1,903
1973	96	1	95	0	0	0	1,998
1974	59	5	54	0	0	0	2,052
1975	102	36	66	0	0	0	2,118
1976	117	29	88	1	0	1	2,207
1977	112	17	95	1	0	1	2,303
1978	168	26	142	0	0	0	2,445
1979	175	35	140	2	0	2	2,587
1980	174	36	138	3	0	3	2,728
1981	169	24	145	3	0	3	2,876
1982	195	15	180	0	0	0	3,056
1983	173	38	135	1	0	1	3,192
1984	227	53	174	1	0	1	3,367
1985	215	55	160	3	0	3	3,530
1986	111	34	77	1	0	1	3,608
1987	116	23	93	1	0	1	3,702
1988	170	100	70	0	0	0	3,772
1989	197	94	103	2	0	2	3,877
1990	174	108	66	0	0	0	3,943
1991	156	117	39	0	0	0	3,982
1992	89	105	(16)	0	0	0	3,966
1993	123	172	(49)	0	0	0	3,917
1994	176	125	51	0	1	(1)	3,967
1995	132	118	14	0	0	0	3,981
1996	153	120	33	0	0	0	4,014
1997	147	178	(31)	0	0	0	3,983
1998	148	76	72	0	0	0	4,055
1999	106	145	(39)	0	0	0	4,016
2000	146	142	4	0	0	0	4,020
2001	161	109	52	0	0	0	4,072
2002	102	121	(19)	0	0	0	4,053
2003	121	169	(48)	0	0	0	4,005
2004	124	194	(70)	0	0	0	3,935
2005	100	124	(24)	0	0	0	3,911
2006	111	108	3	0	0	0	3,914
2007	82	157	(75)	0	0	0	3,839
2008	72	150	(78)	0	0	0	3,761
2009	28	206	(178)	0	0	0	3,583
Total	**6,925**	**3,365**	**3,560**	**24**	**1**	**23**	**3,583**

SOURCE: TIMS/Regional Quarterly Report February 2010

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