

An aerial view of a large offshore oil rig at sea. The rig is a complex of steel structures, including a tall derrick, various platforms, and ladders. The rig is painted in shades of blue and white. At the stern of the rig, there is a large, intense fire with bright orange and yellow flames and thick white smoke rising from it. The background is a vast expanse of blue ocean under a clear sky.

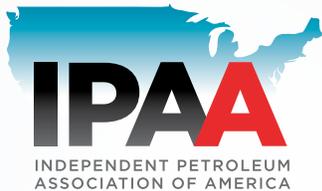
# INTERNATIONAL ACTIVITY SURVEY II

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## Weighing the Risks and Rewards

by Independent Petroleum Association of America

August 2012



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## Introduction

IPAA completed its last **International Activity Survey** in 2005: <http://www.ipaa.org/wp-content/uploads/downloads/2012/05/2008.NewSurveyOnIntlActivity.pdf>. Five years later, it is again time to reassess the extent of U.S. independent activity abroad and compare the evolving trends.

International access to oil reserves continues to become more restricted and competitive, but the data shows that American independents are increasing both the scope of their international activity as well as the range of countries in which they operate. There have been some shifts in the players in conjunction with the advent of tight rock plays and deepwater opportunity, but the key determining factor remains how individual companies balance risk versus reward in their utilization of capital. The international option remains on the table, but competition from domestic markets is growing.

While the U.S. economy exhibited a peak and valley path during this interlude, the shale revolution gathered major steam and the technological application spread from natural gas to liquids. Due to what IHS terms ‘the North American Revolution’ (shale gale and later tight oil), North America has seen an unprecedented rise in both liquids and natural gas production. Over the last three years tight oil has helped provide 1.7 mmb/d of new production and natural gas has grown around 10 bcf/d. As a result, the U.S. reserve and production map has been completely redefined with new plays and new approaches to older legacy plays. Along with this transformational shift in U.S. exploration and production (E&P), natural gas and oil prices became increasingly disconnected, with the comparable barrel of oil equivalent ratio going from 1:6 to 1:27. These dynamics play a pivotal role in the ongoing international debate.

In the **IPAA International Petroleum Taxation Survey** (<http://www.ipaa.org/wp-content/uploads/downloads/2011/12/InternatlPetroTaxSupp.pdf>): Daniel Johnston wrote, “compared to the petroleum industry in the United States, the international sector is characterized by (1) significantly greater geo-potential (than the super-mature U.S. basins), (2) various and diverse petroleum fiscal systems, and (3) diverse means by which governments allocate license rights to IOCs (International Oil Companies). The larger field-size distribution overseas is attractive, but many independent oil companies are hesitant to confront strange and complex fiscal systems and governmental relationships.” Since that supplement was written in 2008, the first of these assumptions has changed, but challenges still remain in operating overseas, both below ground and more importantly, above ground.

A major takeaway from both of these surveys is that a strong majority of IPAA members prefer to remain focused on



Jubilee First Oil in Ghana | Courtesy of Anadarko Petroleum Corporation

domestic E&P. This may be due to the faster project turnaround times, comparative rates of return and a higher comfort level with U.S. political and fiscal risk. However, it also may be due to the independents’ ownership of the ‘shale gale’ as a result of their decisive role in starting and proliferating the movement: “Although U.S. oil and gas production has started to rise because of improvements in the technologies of horizontal drilling and hydraulic fracturing that have opened previously non-commercial reserves, those techniques have been pioneered by smaller independents rather than the large groups.” (*Financial Times* 1/31/12).

## Executive Summary

Considerable changes have taken place in the international playing field since the 2005 survey. The playing field continues to evolve, but domestic developments have markedly impacted decision-making for the many companies that have chosen to focus on American shale or tight oil plays. Although the offshore, shale gas and enhanced oil recovery (EOR) will continue to offer international opportunities for independents, the costs, scalability, and financial and political barriers to entry will pose hurdles to overcome. Before delving into the more specific details of the survey results, a summary follows of some of the key factors making conditions abroad more challenging but potentially rewarding for independents:

### Competitive Advantage

Competitive Advantage is defined as the “strategic advantage one business entity has over its rival entities within its competitive industry.” Due to their smaller size, lower

cost thresholds and often more nimble corporate structure, independents will continue to find a niche overseas, despite increased activity by National Oil Companies (NOCs) and continued strength of the supermajors. The ability of independents to project their home-grown technological success in the shales and unconventional will give them (and the service companies) a seat at the table, especially considering their ability to take on smaller reserve-size targets than those typically targeted by the integrated companies.

### Global Consumption Trends for Oil and Natural Gas

Despite the significant disparity between oil/liquids and the natural gas price in America, producers are often able to access a much stronger market based on comparative prices overseas for natural gas. In addition, global power demand forecasts give natural gas a stronger growth projection than oil going forward based on both developing and OECD country demand trends. The global liquefied natural gas (LNG) market is forecast to become more developed by 2015-2018 based on current project timelines. However, global access for natural gas remains much more open to new entrants when compared with oil, which is more restricted by NOCs and government-supported companies.

### Enhanced Oil Recovery (EOR)/Technology

As noted by Dr. Phillip H. “Pete” Stark, Bob Fryklund and others in an article written in the *American Oil and Gas Reporter*, “IHS CERA found that 75 percent of the mature fields are located onshore and that national oil companies operate 70 percent of the mature field oil

**Table 1: Top Oil and Natural Gas Discoveries for 2011 (Source: IHS)**

Rank	Region	Country	Basin	Discovery Name	On/Offshore	HC Type	Current Operators	Disc Date
1	Middle East	Iran	Iran Zagros Fold Belt (Zagros Prov.)	Madar 1	Onshore	Gas, condensate	National Iranian Oil Co (NIOC)	May 2011
2	Africa	Mozambique	Rovuma Basin	Mamba South 1	Offshore - deep	Gas	Eni East Africa SpA	Oct. 2011
3	Europe	Cyprus	Levantine Basin	Aphrodite 1	Offshore - deep	Gas	Noble Energy International Ltd	Dec. 2011
4	Africa	Mozambique	Rovuma Basin	Camrao 1	Offshore - deep	Gas	Anadarko Mozambique Area 1 Ltd	Oct. 2011
5	Latin America	French Guiana	Foz do Amazonas Basin	Zaedyus 1	Offshore - deep	Oil	Hardman Petroleum France SAS	Sept. 2011
6	CIS	Azerbaijan	South Caspian Deep Sea Basin (South Caspian Basin)	Absheron	Offshore - deep	Gas, condensate	Total E&P Azerbaijan	Sept. 2011
7	Far East	Indonesia	Bintuni Basin	Asap 1XST1	Onshore	Gas, condensate	Genting Oil Kasuri Pte Ltd	Feb. 2011
8	Latin America	Brazil	East Campos Sub-basin (Campos Basin)	1-GAVEA-001C-RJS	Offshore - deep	Oil, Gas	Repsol Sinopec Brasil SA	June 2011
9	Middle East	Iraq	North Iraq Zagros Fold Belt (Zagros Prov.)	Atrush 1	Onshore	Oil	General Exploration Partners Inc	April 2011
10	Europe	Norway	Tromso Sub-basin (West Barents Shelf Edge)	7220/07-01 (Havis)	Offshore - deep	Oil, Gas	Statoil Petroleum AS	Jan. 2012

productive capacity...The marked increase in field growth reflects that the re-engineering and enhanced recovery work initiated over the past decade in mature giant fields around the world is finally contributing to increased oil output. It took time for these redevelopment and waterflood projects to yield production responses, but it is clear that the investment in EOR in established oil fields is now generating measurable returns.” The authors hinted that synergies exist between the shale-experienced independent and the potential from overseas field redevelopment through EOR strategies in conventional reservoirs. Additionally, the North American successes in horizontal drilling, hydraulic fracturing and completion technology have considerable running room in overseas markets that have not yet fully modernized their E&P technological applications.

#### Offshore

Independents have been increasingly active in developing the international offshore, with notable recent highlights in West Africa and the Eastern Mediterranean. As you can see in Table 1, the majority of the new finds is offshore and discovered by independents. The time, scale and cost of these projects will generally limit involvement to the larger independents, but it remains a key opportunity going forward because the international onshore is more mature and restricted by way of access. As noted by the IHS team, “From 2005 to

2009, new reserves discovered in more than 400 meters of water equaled the total of all new onshore reserves discovered outside of North America. Almost one-quarter of the total new reserves added during these five years were in ultra-deep waters (greater than 1,500 meters). And when shallow-water fields in less than 400 meter depths are added, the offshore accounted for 60 percent of all oil and gas discoveries.”

#### Shale Gas, CBM & Tight Oil

The international potential of shale is considerable, but these projects take time, infrastructure and have many above ground challenges to overcome. Coalbed methane (CBM) development has been occurring over the past decade in Australia, China and Canada, but shale is at a very early stage by comparison. Some countries have banned development from the start, and others are reconsidering development plans involving hydraulic fracturing. It appears that Poland (along with a few other countries) may be one of the early movers internationally, but challenges may be more cumbersome above ground rather than below. The scalability issues may deter smaller independents and availability of key service-side components (such as trained labor, rigs, pumping equipment and frac truck fleets) is scarce. Based on EIA data, less than five percent of all shale gas is produced outside the United States, but as the map on the next page illustrates, the potential in this area is enormous based

on analogous geographic formations occurring in various regions around the world. In 2010, the World Energy Council noted that of a world global shale gas resource potential of over 16,000 trillion cubic feet (compared to over 6,600 tcf for conventional natural gas), almost 40 percent of this is economically recoverable (and 60 percent is located in the U.S. and CIS).

#### Infrastructure

With many of the above factors, a key missing ingredient is infrastructure, even in some of the most advanced energy producing countries. Whether involving accelerated natural gas development, EOR, offshore or unconventional, infrastructure will play a major role in future supply development. The lack of supporting infrastructure can easily double or triple the cost of a well compared to a similar type well drilled in the U.S. Many independents lack the capital to develop large scale infrastructure in new areas so they must wait until pipelines and processing facilities have been built. Infrastructure remains a critical issue in the U.S., showing that aging infrastructure is unable to keep pace with resurgent supply in both new and legacy areas. For offshore and natural gas projects, it remains particularly important as much of this requires greenfield development, especially for some of the larger LNG projects that would be required to liquefy and transport natural gas. The Gulf of Mexico and the North Sea took decades to develop,

## MAP 1

### A Global Playing Field

Some of the largest shale gas basins are found in countries not known as big energy producers. **Countries with the largest shale gas resources** (trillions of cubic feet).



and many of the U.S. shale and tight oil plays are still in the process of developing key midstream infrastructure to handle the increased production. The World Energy Council noted that existing infrastructure currently exists in only 32 of the existing 142 world basins (which contain more than 680 shales).

#### *Political Risk, Fiscal & Contract Terms*

As noted in the previous survey, political risk, fiscal and contract terms will dominate the above ground decision-making process for independents operating internationally. The good news is that more countries are opening up to American independents as the geographical frontiers shrink and engineering capabilities grow. However, there can be major divergence between countries regarding their fiscal, contractual and political terms and risks. Higher oil and natural gas prices can help mitigate some of these risks, but companies need to be prepared to deal with changing terms in already volatile countries and regions. Industry nationalization trends continue to crop up in countries near and far and the specter of expropriation is not a trend to take lightly for companies involved in less stable areas.

#### *U.S. in Relation to the Rest of the World in Your Portfolio*

All things considered, many independents will choose to remain in the U.S. given the many opportunities here at home in plays

that have witnessed exponential growth in more than 32 states across the country. More and more independents are using the lower-48 production renaissance as an opportunity to realign their portfolio with some completely exiting the offshore and international arenas in order to focus onshore in the U.S. Some companies are uncomfortable with escalating political risk experienced abroad and others found they were increasing production and reserves, but losing revenue based on fiscal, tax or currency issues. In addition, it should be stressed on the access issue that private mineral ownership rights in the U.S. remain a key factor that distinguishes our E&P from all other countries, putting more control (and potential return) in the hands of the individual property owner rather than the state. In addition to this unique facet of mineral ownership, the oil to gas ratio has added further incentives for companies that may have access to a more liquids-rich portfolio in one location compared to another.

#### **I. International Activity is Growing but at a Fraction Compared to Domestic Shale Activity**

In the 2005 survey, out of the 224 respondents, 21 percent were involved in international ventures. In the 2010 survey,

out of 63 respondents, almost 24 percent were active internationally. It is noteworthy that the smaller sample size for this survey was due to a more targeted group of membership in addition to the fact that we held the first survey open longer to generate more responses. Similar to other surveys, only the producer component of the membership was analyzed as we did not include service companies and other member groups. Our membership does not include all independent producers, but certainly the majority of both public and private producers. The share of companies who intended to pursue international opportunities in the future rose noticeably – from 26.7 percent to 37.6 percent. Chart 1 illustrates the generally rising trend of independents becoming more international in both activity and inclination (with the exception of 2000) throughout the past two decades of surveys conducted by IPAA.

#### **Oil as Key Attraction**

Increased globalization combined with rising oil prices over this timeframe, have historically encouraged U.S. independents to consider becoming more international in order to gain access to global oil reserves as conventional reserves dwindled at home. Between 1992 and 2010, the annual average price of crude rose from \$15.99 to \$74.71 (and the gap down in independents' activity in 1998-1999 may help explain the 2000 aberration to the trend).

## MAP 2 2005: E&P Frontiers for U.S. Independents

Size of name boxes is based on number of respondents.



A turnaround in U.S. crude and liquids production over the past three years may serve to reverse some of this activity as efforts accelerate in the Williston, Permian, Eagle Ford and other areas.

### New Natural Gas and Unconventional Opportunities

The increasing expertise of independents in the ‘unconventional’ arena has also begun to migrate overseas as international CBM development has been joined by global shale plays ranging from Australia to South Africa to Poland and Argentina. The fact that the average natural gas price overseas is much higher than Henry Hub in the U.S. also provides another incentive for American independents with unique experience in developing unconventional natural gas reserves, particularly in the offshore. Another key area to monitor is the potential of LNG exports over the coming decade with projects being planned or developed from Australia to North America.

### II. Location, Location, Location is Key and They are Growing in Range and Diversity

The 2010 Survey shows an increasing diversity in regard to the target countries and regions for independent producers. The overarching similarity between the two surveys was that Canada, followed by Latin America, reigned supreme as the top E&P destinations. In the last survey, IPAA noticed a ‘hemispheric’ focus with U.S. independents: “the interest in South America is not surprising given its proximity to the U.S. and the prevalence of onshore and marginal plays...where opportunities are medium-sized, acreage turnover is good and fiscal terms are appropriate for the

opportunity set.” In South America, supermajors and the larger independents are fairly focused on shale plays (Argentina) and deepwater (Brazil and Trinidad), leaving ample room for smaller E&Ps.

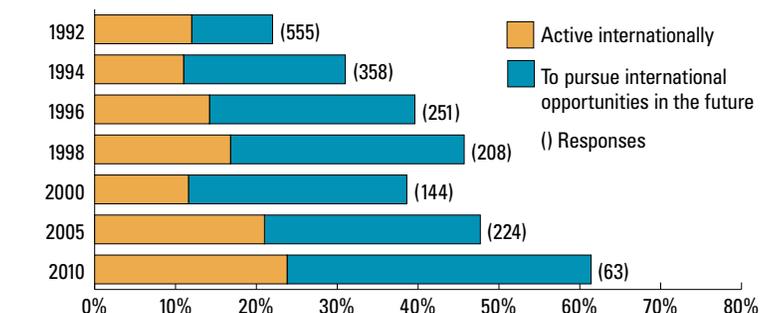
As the above map illustrations show, the E&P frontiers showed considerable growth between 2005 and 2010 as respondents listed almost 30 different countries in the recent survey compared to just nine countries in the earlier survey. Every region showed considerable growth: Middle East and North Africa – Algeria, Bahrain, Iraq, Libya, Oman, Qatar, U.A.E., Yemen, Tunisia, Africa – Ghana, Mozambique, Sierra Leone, Nigeria and Equatorial Guinea, Asia – Indonesia, Australia, China and Malaysia, Europe – United Kingdom, Norway, Poland and Russia and Latin America/Argentina – Brazil, Bolivia, Colombia and Argentina. In addition to those surveyed, other U.S. independents are active in Senegal, Guinea Bissou, the Republic of Guinea, Republic of Congo, South Africa, Italy, Brunei, Thailand, Egypt, Azerbaijan, the Eastern Mediterranean (Israel and Cyprus), France, Denmark, Peru and Nicaragua.

## Independents Playing Key Role in New International Discoveries and in Developing Reserves

It is interesting to look at these new and more far-flung destinations in light of where E&P companies have made some of the largest discoveries over the past few years. With data generously provided by IHS, one can match up some of the vectors in terms of hotspots and producer destinations. Independents continue to play the role of wildcatter and developer, filling a key niche in between the majors and the internationalizing NOCs. Given that much of the global resource base is off-limits to IOCs, it is apparent that independents have a demonstrable competitive advantage given their unique combination of technological expertise and more maneuverable and nimble size.

Map 3 (courtesy of IHS) on the following page ranks the top ten discoveries over the last year in order of 2P reserves discovered. Similar to the trend of growing international diversification by independents, there is a more diverse mix of locations and reserve type than in the previous five years which were dominated by Latin America and oil. Even though independents have slipped slightly in their wildcating dominance, they still drill the bulk of the new discoveries. The rise of Africa as a growing hub of oil and natural gas development is clearly apparent as well as an increasing focus on natural gas and the offshore. Independents, such as Anadarko Petroleum Corporation, Noble Energy, Inc. and Kosmos Energy Ltd., have been instrumental in driving offshore success stories in West Africa with the Jubilee and Alba Fields offshore Ghana and Equatorial Guinea. The notable Rovuma Basin discoveries have been followed by another natural gas discovery off Tanzania (in the Mafia Deep sub-basin) in addition to an onshore oil discovery in Kenya’s Turkana County with some parallels to the Lake Albert rift basin in Uganda. East Africa is an area to watch in regard to future activity as this developing frontier has steadily gained momentum over the past five years.

CHART 1 Rising trend of international activity and interest



### MAP 3

## 2011: E&P Frontiers for U.S. Independents

Numbered stars denote 2011 top discoveries from Table 1, and size of name boxes is based on number of respondents.



Source: IHS

### Is Shale the Next Stop Internationally?

It should not be a surprise that independents are active in an ever-expanding portfolio of countries as they deploy their geological skills in countries which typically have only seen more conventional E&P development. The ‘North American Revolution’ experienced uniquely by the U.S. is gradually gaining traction overseas. However, uncertainty remains about the quality and quantity of sweet spots and the openness of governments to the industry’s proven processes required to tap into this resource base (i.e. hydraulic fracturing and horizontal drilling).

A recent IHS Herold report noted that international unconventional resource spending accounted for almost half (48 percent) of total 2011 worldwide upstream M&A spending and reached a record high of \$75 billion. Independents have been playing a key role in several of the larger shale plays overseas with EOG Resources, Inc. and Apache Corporation in Argentina; and Marathon Oil Corporation, Hess Corporation, Talisman Energy Inc. and several smaller private independents in Europe (Poland and France). Russia has initiated shale oil projects and is the largest holder of shale oil reserves in Europe. Recently, the Chinese government made shale gas a priority in their Twelfth Five-Year Plan (2011-2015) with a

goal of producing 6.5 billion cubic meters (almost 230 bcf) of shale gas by the end of 2015. Closer to home, North American independents have become more active in western Canada plays including the Horn River Basin (plus Liard and Cordova), the Montney (Duvernay), Exshaw and Cardium shales. Colombia and Argentina have become noticeably more active in the shale oil/tight oil arena and projects are planned as well for Brazil.

Location will continue to feature prominently in company decisions as existing geology unfolds around the world, thanks to the expanding array of seismic, drilling and completion technologies. Independents will be well-positioned to increase their involvement given their unique field experience in shale exploitation and development in both natural gas and liquids. Given that the independents possess the technological and managerial know-how and can work with a much smaller reserve base than the majors, opportunities abound as the ‘unconventional’ chapter unfolds internationally. But many companies will choose to stay focused on opportunities in the U.S. which will set a modest ceiling on the percentage of industry that will add international shale to their portfolio. It is clearly evident that significant shale projects are currently underway, and operators are more active purchasing licenses in additional producing provinces. Given the large scale of these projects, it bears monitoring to see how the playing field evolves between the NOCs, the supermajors and independents.

### III. Reasons To Stay Home

Many companies just ‘prefer to remain in the U.S.’ This catch-all inclination typically takes into consideration a whole list of deterring factors that are involved with working overseas. These include above ground reasons, such as political risk and security of personnel to familiarity with taxes, types and terms of contracts, foreign exchange rates and fiscal regimes, lack of supporting infrastructure or a lack of experience in dealing with other business cultures. The list may also include a lack of familiarity with geology and interestingly, this category saw the greatest rise between the two surveys. Our best guess is that the ‘shale gale’ in the U.S. provided a whole new slate of options for producers with new plays emerging around the country and a relative degree of comfort in dealing with U.S. political and fiscal policies. Why go abroad when so many new reserves have been found in areas that were considered depleted with more traditional technologies? At the same time, many of the international regions with oil and gas reserves were considered fraught with political risk, susceptible to local interruptions of service, and other serious operational hazards. Domestic operations can offer much faster rates of development as companies continue to adapt technology toward more familiar geology. Also, the rates of return and project size are typically



WHPD2 in China | Courtesy of Newfield Exploration

more amenable to independents' business profile than overseas ventures.

### New World Order and New Political Risk

After the Cold War ended, Francis Fukuyama noted that we had arrived at 'the end of history.' But for many, it was the prospect of new territory for travel, business and relationship building. The glue that dissolved with the Cold War also had new foreign policy ramifications for the U.S. and the rise of transnational and intra-state issues such as terrorism brought many challenges for companies operating overseas. Some of the more specific categories that producers listed as reasons not to operate abroad typically remained similar to the previous survey. However, one area that increased was "security and political risk implications." Considering the evolving post-9/11 world stage with the Arab Spring and political tensions in the Middle East/North Africa region along with U.S. involvement in Iraq and Afghanistan, it is no surprise that producers are more cautious. A changing international reputation of the U.S. in particular regions and countries has certainly created additional burdens and costs for those doing business in less friendly countries. As noted by International Steering Committee Member, Dr. Al Boulos, in the IPAA *Political Risk primer*: "The political risk of kidnapping has become larger with the rise of terrorism. A practice of kidnapping for ransom has become greater than in the past. Kidnapping has become a

lucrative business and looks to increase in frequency and potential harm as terrorist organizations become more active and aggressive."

Besides security/political risk implications, the other top category was a "lack of understanding or comfort level with foreign markets, tax and fiscal regimes." IPAA has worked with various authors to publish primers on *International Political Risk* (<http://www.ipaa.org/wp-content/uploads/downloads/2011/12/PoliticalRisk.pdf>), *International Taxation* (<http://www.ipaa.org/wp-content/uploads/downloads/2011/12/InternatPetroTaxSupp.pdf>) and *International Dispute Resolution* (<http://www.ipaa.org/wp-content/uploads/downloads/2011/12/>

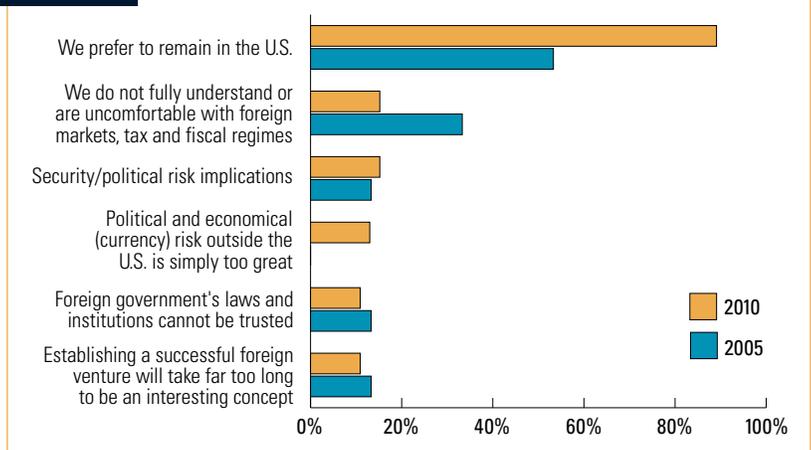
*IPAA\_DisputeResolution2011.pdf*) because members consistently seek updated resources and information about these issues. Especially within the context of the global recession and the evolving role played by oil and gas development in countries seeking to balance economic growth potential with political expectations, these factors are important to consider. This category did show the greatest reduction since the last survey, and it could be that many of these respondents checked 'political and economic (currency) risk outside the U.S. is simply too great' as a substitute.

Why go abroad if you have oil and gas in your backyard? North America is truly experiencing a transformation as a result of shale and tight reservoirs, and this presents a marked departure from the days of "peak oil," growing LNG imports and increased dependency on imports from the Persian Gulf. There is a relatively large international presence of non-U.S. independents which makes sense considering the more limited E&P opportunities (thus far) for these players in their home countries as compared to the U.S. Growing geological opportunities at home and the transforming image of the U.S. abroad may influence the international decision-making process. For some companies, though, being a first mover in a challenging region can offer enough of an incentive to proceed.

### IV. Top International Play Targets For Independents – Oily But Getting More Gassy

There are key similarities and differences between the specific types of plays that independents are targeting abroad. In our 2005 survey, we saw a primary focus on onshore oil plays. Unsurprisingly, given the large gap between oil and natural gas prices, this trend continues to grow. However, more and more traditional oil reserves are off-limits to U.S. companies. Over 90 percent of world oil reserves are

CHART 2 Top reasons not to be involved in an international venture



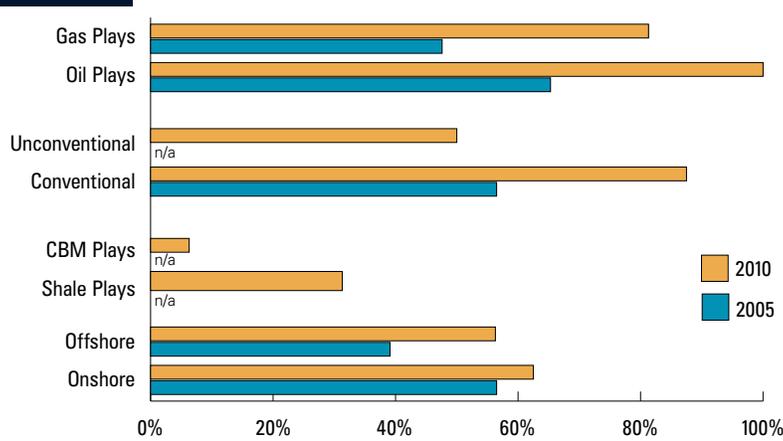
controlled by national oil companies or restricted by state 'private' companies (such as Russia). Independents typically target prospects from 50 million to one billion barrels commensurate with their size. A strong niche exists for those independents that are targeting prospects less than 150 million barrels of oil equivalent (MMboe) based on data from our earlier survey. They may have more 'access' and success than a larger company looking for giant field targets. In fact, only five percent of all the 250 MMboe prospects drilled over the last three years actually achieved their objectives. Considering that the available conventional oil reserves are highly competitive and more mature as a resource base, there are interesting contrasts from our last activity survey.

### Big Gains for International Natural Gas

Based on the data, international natural gas and unconventional plays are becoming much more popular for independents. The amount of independents involved in natural gas plays has almost doubled from 47 percent to 81 percent over the last five years. More natural gas infrastructure is being built and natural gas has shown strong growth rates globally given the increase in power demand in both developed and developing countries. Also, the price for natural gas overseas is much higher than the price attained in the U.S. The Energy Information Administration's **2011 Annual Energy Outlook (AEO)** shows world natural gas consumption growing at a rate of 1.6 percent per year through 2035 (compared to 1 percent for liquids). This can also be seen in the considerable growth of worldwide LNG over the same time period, with particular growth in the Atlantic and Pacific markets (even though the U.S. has declined). In the last survey we wrote: "The increase in demand for natural gas will outpace growth in the demand for crude oil. This will be driven by the need to replace declining production in major gas consuming areas, increasing environmental concerns about carbon emissions, the current disconnect between oil and gas on an energy equivalent basis and construction of LNG receiving terminals in key markets." Of course, one of the missing words was "shale."

But the key advantage for U.S. independents is their considerable expertise in the area of unconventional resources. The latest survey shows considerable experience by independents in the areas of unconventional (50 percent), shale plays (31 percent) and CBM plays (six percent). This data was not available in the earlier survey, but the trends clearly indicate shale plays are gradually becoming more globalized. This is a key asset for U.S. independents because they possess experience second to none in regard to developing shale potential for

**CHART 3** International exploration focus of respondents



both natural gas and liquids. The EIA in the AEO projects that total unconventional production will grow at an impressive rate averaging 4.7 percent per year through 2035. Future international activity for U.S. independents could focus increasingly on natural gas based on the convenient intersection of their natural gas E&P experience and growing global natural gas consumption.

### Offshore Activity Rising

The offshore component grew by more than 17 percent compared to six percent for onshore activity. More than 100 U.S. independents are active in the Gulf of Mexico (GOM). Independents are leveraging this experience overseas as they become more experienced in deepwater and ultra-deepwater discoveries. Most recently, international activity increased

as a result of U.S. offshore policy changes when companies redeployed people and assets from the GOM to international waters. A look at the discovery record over the last five years shows strong results by independents offshore East and West Africa, the Falklands and the Mediterranean. One of the more heralded discoveries has been Noble Energy's offshore success in the Eastern Mediterranean with the Tamar and Leviathan discoveries (among others) offshore Israel and Cyprus. The offshore is a key growth area for independents although the lengthy time from discovery to first production, high upfront costs and corresponding time to payout, make this arena more challenging for many independents. The exodus of some of the super-independents from this sector was a result of this relative capital intensity and payback time compared to onshore prospects.



## V. Stronger Geological Knowledge and Need for More Country Expertise & Relationship Building

Similar to the last survey, the independents' main strength lies in geological and engineering knowledge, especially the application of new technologies. This category rose from around 74 percent in 2005 to almost 94 percent in 2010. This area is likely to remain a forte for independents, especially given their early adaptation and increased utilization of key technologies such as hydraulic fracturing and horizontal drilling which ignited the new shale and unconventional plays. In addition, there has been an increasing shift toward flexibility and portability as companies move away from big main frame computer systems for interpretation toward PC-based operations which are cheaper to utilize and less IT intense. The study results indicate that their primary area of uncertainty has become more concentrated in the areas of country relationships and country expertise. As noted in the last survey:

*A successful growth strategy is becoming a partner of choice with host governments. If a company knows its market, honors its commitments and is culturally sensitive, it stands a much better chance of building a successful business. Operating internationally requires a different approach than the home market. Companies that recognize this and factor in local content appropriately in their program will have greater probability of success. A critical element in this regard is to hire, train and develop a national workforce than can be integrated with expatriate employees.*

Building country relationships and expertise takes time and money. For many independents, this can be a determining factor in the decision to stay home or explore abroad. This is a 'gray' area in the

**Table 2: Areas of strength vs. weakness in the international arena**

For the following Table, companies listed main areas that aided in their success or constituted key weaknesses related to doing business internationally. They were able to check multiple responses (in the areas listed below) and the table presents the total percentage of respondents ranked by identified areas.

	2005		2010	
	Strength	Weakness	Strength	Weakness
<b>Geological Knowledge</b>	73.9%	8.7%	93.8%	0.0%
<b>Relationships</b>	60.9%	4.4%	62.5%	40.0%
<b>Engineering Knowledge</b>	60.9%	13.0%	68.8%	20.0%
<b>Familiarity with Tax &amp; Take Systems</b>	30.4%	17.4%	43.8%	0.0%
<b>Country Expertise</b>	39.1%	21.7%	50.0%	40.0%

risk-reward relationship that will likely continue to be a challenge because new entrants will need to learn quickly and hire the right people to ensure success.

## VI. Critical Factors in International Exploration

Regarding critical factors, the 2010 survey shows large growth in the areas of tax/royalty structure as well as high geologic potential. Given the above information regarding the independents' strength in the area of geological knowledge, the Committee has focused its education efforts on tax/royalty structure and above ground operational issues. This is one of the chief reasons that IPAA produced the primer supplement on International Taxation (<http://www.ipaa.org/wp-content/uploads/downloads/2011/12/InternallPetroTaxSupp.pdf>).

As noted in the previous survey and included in its conclusion – "The Playing Field Ahead", changing fiscal terms

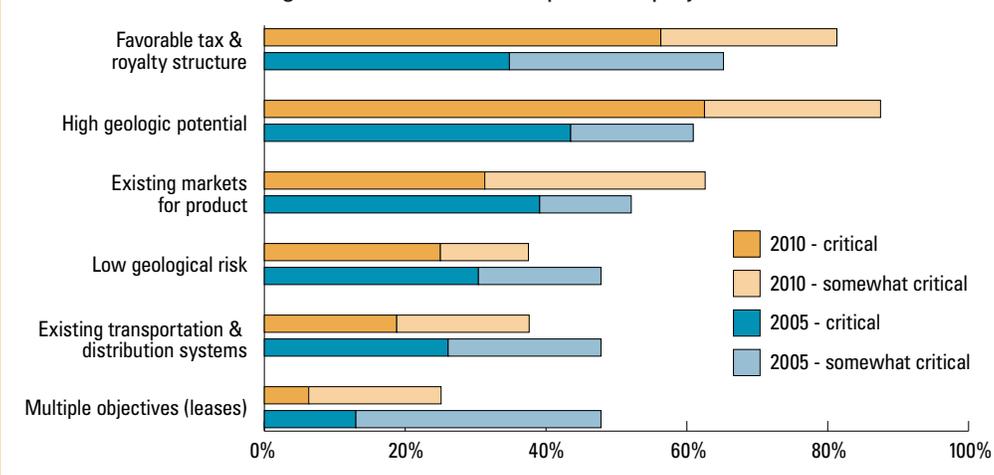
represented a key forward-looking dynamic for international operators: "Increasing government take through higher taxes, modified fiscal terms or increased government participation are a fact of life in the current high price environment. Some of this impact is offset however with fiscal incentives for development of unconventional resources and for frontier exploration."

IPAA will continue to provide additional resources in some of these areas through the International Primer Supplements as we delineate additional areas of importance for independents. Some of these include the issue of international compliance (i.e. Foreign Corrupt Practices Act), the use and impact of international sanctions and export controls and the issues pertaining to human rights, sustainability and other socio-economic areas. Beyond that, there is a litany of fiscal, investment and accounting issues to explore as they relate to the business practices of independent producers.

## VII. Conclusion

Hallmarks of today's American independent are flexibility and the ability to maintain an adaptive posture in an ever-changing business. Independents look to have options available to them both domestically and internationally, but weighing the below ground opportunity with the above ground hurdles will remain a key determinant in their decision-making. This includes the home front as well as international destinations. Certainly the political and fiscal terms for the U.S. are also far from static and require constant monitoring and feedback based on actions from legislation and regulations by our own federal and state lawmakers. New technology has opened up vast geological opportunity for all types of producers and if history is any guide, the U.S. independent will be at the forefront of tomorrow's upstream trendline, both domestically and internationally.

**CHART 4** Main factors management considers as critical or somewhat critical when looking for an international exploration project



# Thank You.

IPAA would like to extend its gratitude to its membership for responding to the International Survey that was sent out in 2010. Without your assistance, we would not be able to track the activity level of independents overseas. Given the global nature of the energy market and the rise of activity in the U.S. associated with shales and tight oil, the International Committee aims to keep track of the operational geography of its membership and the role they play in exporting key E&P trends overseas.

IPAA would also like to thank the members of its International Committee for all their help in putting this document together. Special thanks to the Committee Chairwoman, Tara Lewis, and former chairman, Bill Schneider, for their stewardship of this project, which started with the first International Activity Survey conducted in 2005-2006: [http://www.ipaa.org/wp-content/uploads/downloads/2012/05/2008\\_Ne\\_w\\_Survey\\_On\\_Intl\\_Activity.pdf](http://www.ipaa.org/wp-content/uploads/downloads/2012/05/2008_Ne_w_Survey_On_Intl_Activity.pdf). IPAA would also like to thank Bob Fryklund and Pete Stark of IHS for their helpful editing and wide-ranging experience in the area of international E&P. Photos were generously provided by Anadarko Petroleum Corporation, Newfield Exploration Company and Noble Energy, Inc.

One of the missions of the IPAA International Committee is to “be the focal point of the opportunity between independents and international exploration and production ventures and to provide educational and information resources to IPAA members engaged in or interested in international business opportunities.” If you have suggestions on how IPAA can improve its services to membership on international issues, please feel free to contact us.

Please visit our website for additional activities of the International Committee, and thank you for your continued interest and support: <http://www.ipaa.org/economics-analysis-international/international/>.

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Cover photo : Deepwater Millennium in Mozambique  
Courtesy of Anadarko Petroleum Corporation.