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Change is the new constant

In an increasingly complex and uncertain environment, oil and gas companies worldwide are facing relentless pressure to improve returns even as they encounter strong headwinds stemming from challenges inherent to the industry and the return of pricing volatility.

Over the last several years, unprecedented events, including geopolitical upheaval and significant technological advances, have significantly altered oil and gas activity across the board. At the same time, many projects have struggled to get sanctioned or are still a long way from achieving full production. Amid all these factors, it is very difficult to predict the future state of the industry. This means that, in addition to every other optimization lens, it is even more important to have a flexible portfolio.

Transformational developments

- Emerging markets
- Technology opening new frontiers
- MENA turmoil
- New supply hotspots
- Climate change
- Macondo blowout
- US energy revolution
- Fukushima disaster
- Financial crisis
- NOCs internationalization

Predictions yet to materialize

- Golden age of gas
- Transformational growth in alternative fuels
- Shale boom outside North America
- Peak oil
- Sustainable high oil prices

Source: EY analysis

If the last six years have taught us anything, it is that the recovery from a financial crisis is long and highly unpredictable. And, just when you think nothing else can surprise you, the price of oil falls to near six-year lows after holding above the US$100 per barrel mark for more than three years. At its late-November meeting, OPEC decided to maintain the current production ceiling rather than cut production to support prices, signaling a new intention by the Saudi-led organization to prioritize market share over price maintenance. How long this current stance will last is itself highly uncertain.

Price volatility is likely to move to the top of the risk agenda in 2015. A prolonged lower price environment will have major implications on companies’ performance, especially for those highly leveraged companies with exposure to projects with a high break-even cost. Companies that are strong financially and able to readjust their business portfolio are more likely to “weather the storm” and thrive in any price environment.

In the short/medium term, during this period of low prices, these companies are able to take advantage of divestment and merger opportunities arising from companies that have been adversely impacted by the lower oil price, as they look to restructure and rebalance their portfolios and balance sheets.
Relentless focus on better returns

Improving return on capital (ROC) is becoming increasingly difficult, with volatility in the oil price outlook and concerns over the strength and sustainability of global economic growth. Even with active portfolio management our analysis reveals that the average ROC of the top 10 international oil companies (IOCs) has halved over the last 10 years (Figure 1). Part of the reason for this is capital project cost inflation and overruns, as highlighted in Spotlight on oil and gas megaprojects.

Stakeholders are pushing companies to improve return on investment and adopt stricter capital discipline, along with reducing risk exposure. This external pressure is causing companies to change their corporate structure and reshape their project portfolios. Many of them, either reactively or pre-emptively, have pulled back from some geographies, divested non-core assets, or shied away from riskier or more uncertain investments.

The need for optionality

In this dynamic environment, the pace at which businesses need to make changes in the course of their commercial life has accelerated, which is especially challenging for an industry with a long returns cycle. It is why we are increasingly thinking about resilience: how companies can build flexibility and adaptability into their operating and financial models, alongside commercial and operational excellence, to help them ride out the storms and make the most of calmer seas. Now, more than ever, it is critical that companies carefully select the most appropriate projects, as these projects are now so large that they can have a significant positive or negative impact on a portfolio and a company’s success. Not only must the projects themselves align with an organization’s short- and long-term objectives, the structure, financing and execution models must also align.

Critical factors in defining corporate success:

- Speed at which a business can identify and initiate a response to both opportunities and threats
- A portfolio with sufficient built-in flexibility that allows quick responses to be implemented

By building and preserving optionality throughout an organization, companies can:

- Manage risks and redeploy resources to create and maintain their competitive edge
- Bridge the mismatch between the industry’s long-term investment horizon and sudden and/or transformational changes in the market
What does optionality really mean for oil and gas companies?

Simply put, a company has optionality if it can quickly, effectively and efficiently shift its focus from underperforming businesses, assets and projects to better-performing ones that fit with its current strategy and enhance the overall value of the portfolio.

There are various techniques and tools to analyze and optimize a portfolio at a given point in time. However, a project or portfolio may no longer be optimal when input assumptions (such as macroeconomics, demand, costs and pricing) change. A company will best leverage its optionality if it can:

- Proactively identify potential changes in its operating environment and review the impact of these changes on its project and portfolio
- Rapidly decide on a suitable course of action that would at the very least preserve, but ideally enhance, the value of its portfolio
- Act in a timely, cost-efficient and effective manner

How to build and preserve optionality

Oil and gas companies can use a variety of approaches to build and preserve optionality and, with discipline, keep them up-to-date by applying some core principles – for example, by having flexibility at different levels and making material business decisions in the context of the business as a whole rather than only at an asset level. There is no “one-size-fits-all” approach to maintaining optionality, different organizations can follow very different strategies.

Figure 2:
Building optionality at various levels

<table>
<thead>
<tr>
<th>Enabler</th>
<th>Examples in oil and gas</th>
</tr>
</thead>
</table>
| Corporate | ▪ Adaptable legal and capital structure  
▪ Strong balance sheet  
▪ Access to different sources and types of financing options  
▪ Governance and decision tools  
▪ Master limited partnerships (MLPs), joint ventures (JVs)  
▪ Diversity in geographical coverage, customer mix and contracting structures  
▪ Low leverage/high debt capacity  
▪ Bond finance, project finance, mezzanine finance, lending |
| Portfolio | ▪ Balanced projects portfolio  
▪ Build flexibility in talent pool  
▪ Leverage alliances to expand and diversify portfolio  
▪ Optimized and transparent portfolio performance  
▪ Diversified assets: geologic, geographic, technology and maturity stage plays  
▪ Non-operated assets  
▪ JVs, technological alliances  
▪ Portfolio optimization software using linear programming techniques |
| Project | ▪ Visibility over project timing and cost  
▪ Adaptable commercial and contractual structure  
▪ Acting early in the project life cycle, before funds are committed  
▪ Planning and reporting tools/technology  
▪ Contract change control and risk management  
▪ Project assurance/health checks |

Source: EY analysis
Maintaining optionality at the corporate level

Optionality at a corporate level is maximized when an organization has an adaptable legal and capital structure, a strong balance sheet, and access to a wide range of financing options.

**Capital structures**

Oil and gas companies often make long-term investment decisions that effectively “lock” capital into their legal entity structure. Conventional investment appraisal and portfolio optimization approaches typically do not account for structural constraints. As a result, decisions optimized at the project, asset or entity level may be suboptimal at the broader group level. Companies can limit vulnerability to swings in operating and capital expenditures by increasing diversity in geographical coverage, customer mix and contracting structures.

**Common barriers to building and preserving optionality at the corporate level include:**

- Cash traps
- Pre-emption rights
- Capital gains tax exposure

**It is therefore important to regularly:**

- Understand the medium-term cash position, dividend availability and debt capacity across the group
- Test to verify that acquisitions, disposals, investments and funding will not have material unintended consequences before committing capital
- Seek to retain decision-making flexibility when you make major decisions, confident that you are not locking yourself into a suboptimal outcome
Financing

Historically, bank financing has been the dominant form of external funding for the oil and gas industry. Most companies have a corporate revolving credit facility, which is often syndicated across a number of banks, for financial flexibility in day-to-day operations. However, with tightened access to capital (particularly for smaller, more-leveraged players) and the magnitude of the investment required by the industry, especially for large oil and gas capital projects, it is important for companies to strive for financial optionality. Supported by a strong balance sheet, companies could add optionality through access to different sources and types of finance of variable tenors and with terms and conditions that balance flexibility in use against the costs. Further, managing a portfolio to maintain a certain mix of assets or risk profile supports certain financing structures and makes the portfolio more finance friendly.

Figure 4 below shows the principal sources of oil and gas funding. For further information on the flexibility versus cost of different sources of debt finance, refer to EY’s report *Innovative financing solutions for oil and gas companies*.

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1 The International Energy Agency (IEA) estimates a cumulative investment of US$22.4t in the global oil and gas sector between 2014 and 2035, equivalent to an average annual spend of more than US$1t.
In capital-intensive industries, high leverage could have an impact on a company’s credit rating, weakening its ability to raise new debt to invest in capital projects or acquisitions to grow its portfolios. The impact on the credit rating may also be driven by a reaction to the underlying volatility of oil and gas prices. Companies that enter price discussion with lower leverage obviously have more room to maneuver.

Figure 5 compares leverage (as measured by debt capacity) across a sample of leading companies in the oil and gas and power and utilities (P&U) sector.

The leading companies in both the sectors have a greater reliance on non-bank financing (see Figure 6). The majority of companies in the sample hold significant cash balances and short-term investments to provide further liquidity and strengthen their balance sheets. The flexibility in short-term financing is provided by a range of short-term instruments, such as foreign debt issuances, and medium-term notes that are included under the heading “general/other borrowings.”

The range of cash balances as a percentage of debt varies from 20% to 60% in the O&G sector and from 5% to 38% in the P&U sector (ignoring the outliers in both sectors).

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**Figure 5:**
Leverage of leading companies in the O&G and P&U sector

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**Figure 6:**
Varying means of debt financing

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2 IOC: integrated oil companies; NOC: national oil companies.
Maintaining optionality at the portfolio level

Optionality is enhanced if decisions on projects and assets at the portfolio level are considered using the following lenses:

- In both absolute and relative terms against specific criteria (hurdles) and against each other (ranking)
- On a stand-alone and aggregated level, including what the portfolio will look like after a planned project, acquisition or divestment
- At the corporate level, to understand the impact on the company’s resources and optionality

Maintaining optionality in an upstream business

A sustainable upstream business generally requires a portfolio of production, development and exploration licenses supported by a targeted production level. The appropriate mix of assets in the explore, grow and harvest stages in a company’s portfolio will vary depending on the company’s strategy, maturity of the business, preferred resource themes, appetite for risk and access to capital.

Figure 7 shows the upstream value cycle through the different stages of project and basin maturation.

Figure 7: Upstream value cycle

Source: EY analysis
It takes time to build a balanced portfolio of assets that can be flexed to changing circumstances. Without producing assets, companies could be hindered by capital or resource constraints — this has become more apparent with the drop in oil prices with anecdotal evidence suggesting lenders are being more lenient in their facility agreement negotiations with those clients with producing assets. Companies may need to divest development-phase assets and acquire producing assets and non-core assets may need to be identified for sale or farm out to reduce short-term capital demand. At the other end of the spectrum, identification of late-life assets for divestment could help to mitigate decommissioning liabilities.

Building and preserving optionality is a continual process. The parameters many companies use to evaluate the relative attractiveness of different basins when building its portfolio can be grouped into three main categories: prospectivity, commerciality and flexibility (Figure 8).

**Figure 8: Parameters to assess relative attractiveness of specific locations**

<table>
<thead>
<tr>
<th><strong>Prospectivity</strong></th>
<th><strong>Flexibility</strong></th>
<th><strong>Commerciality</strong></th>
</tr>
</thead>
</table>
| Companies are typically looking to secure quality acreage with high resource potential. Key factors to assess a basin’s prospectivity include:  
  - Estimates of potential or yet to find resources  
  - Total reserves by type and stage  
  - Total remaining reserves, which could indicate a basin’s maturity  
  - Forecast oil, liquids and gas production  
  - The success of previous exploration activity  
  - Geological risks | The opportunity to acquire leases and the ease of buying and selling assets are key considerations when assessing the flexibility of entering or exiting a basin.  
Key factors include:  
  - A regular flow of licensing rounds: accessibility of acreage particularly for foreign/private players  
  - Competition for assets, based on recent M&A activity  
  - Demographic of current players and potential buyers  
  - NOC pre-emption rights  
  - Capital gains tax rates and applicability to foreign players  
  - Ease of exiting or divesting assets | Various factors, many of which are outside a company’s direct control, influence the economics of a project. Key factors to evaluate the commercial aspects of a basin include:  
  - Fiscal regime (stability is pivotal)  
  - Government take  
  - Investment environment in the host country  
  - Development and operating costs  
  - Presence and maturity of local markets (including infrastructure, particularly for gas)  
  - Spare capacity in existing infrastructure and third-party access rights |

Balancing the flexibility provided by a project with its returns and growth prospects is essential. Along with diversity, flexibility in assets or projects is a critical enabler to embed optionality in a portfolio. It helps in retaining strategic choices (such as divest, bring in new partner, and wait and watch) that can be exercised according to the changing market conditions.

We have analyzed a selection of established and emerging oil and gas basins and locations (categorized as geological plays, geographic regions, technological plays and mature regions) utilizing the three review parameters above, as reflected in Figure 8. The methodology used in this analysis is summarized on page 20.
There are only a few basins or locations that rank highly on all three parameters. The majority have a unique profile, each with its own set of benefits and challenges. Reviewing the entire portfolio using consistent parameters can help identify the value that exposure to a particular location could create for the portfolio, as well as the risks presented. Conversely, it could highlight assets that might be of greater value in another company's portfolio.

A go/no-go decision for an investment is relatively straightforward when each of the three parameters point in the same direction. However, it is more complex when they do not. For instance, a play may be highly prospective and commercial but less flexible, making it difficult to exit or bring in new partners. Applying an appropriate weighting to more qualitative and subjective parameters such as “flexibility” can be a challenge for technical and engineering-based organizations such as oil and gas companies. However, applying an appropriate weighting to this term can be just as big a determinant of long-term performance as “prospectivity” and “commerciality.”

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*Based on our methodology as set on page 20. It should be noted that any methodology is subjective.*
JVs and other alliances

JVs and other alliances allow greater optionality and are becoming increasingly common across the industry, especially on complex projects in challenging environments or in emerging markets. With the pooling of resources, assets, capital, expertise and labor, companies can diversify by spreading risk across a number of partners and projects. The right joint venture can optimize these to shape a dynamic growth strategy. They provide a way to access opportunities relatively quickly—for example, through access to technology or new geographies—while avoiding the economic or political risks associated with full organizational mergers or acquisitions.

The use of JVs to access or develop projects is one of the strategies that can help companies to build balanced portfolios, allowing the overall value of a portfolio to grow even though individual alliances may not always meet their objectives. However, it is important to consider the inherent limitations in flexibility from many JV structures and while joint ventures can be an effective tool for project financing, agreements can be complex and delivery issues may arise due to divergent objectives and tolerance for project risk.

Case study

A company has embedded optionality throughout the value chain of its liquefied natural gas (LNG) business. It constantly optimizes its portfolio by maintaining a diverse, flexible and competitively priced supply base, as well as access to high-value markets. This helps the company retain the flexibility to supply equity LNG to the most price-advantaged markets.

Case study

Aided by its strong balance sheet, a company has retained optionality in its business through a large, diverse and balanced projects portfolio. Based on expected market conditions, the company systematically reallocates resources to more profitable businesses.
Maintaining optionality at the asset or capital project level

Capital projects are complex, require significant investment and are challenging to manage. Oil and gas megaprojects have an especially long investment horizon, increasing the chances that the business environment will change, rendering a project uneconomic or suboptimal. Pricing assumptions may change as demonstrated by the recent drop in oil price, placing margins under increasing pressure, or there may be higher-return alternatives, made possible by advances in technology. Add in the oil and gas industry’s poor track record for delivering projects on time and within approved budgets, and risk increases even more.

Therefore, companies must aim for commercial and contractual structures that allow for optionality when needed at the outset. This may include timely exit at optimum cost or amendment to the project to improve the profitability of the investment. This flex was demonstrated when overall capital expenditure in the industry fell between 2008 and 2011 as projects were downsized or deferred in response to weakening oil prices and the global downturn. Anecdotal evidence suggests that this is happening again with the recent drop in oil prices.

It would be possible to downsize or defer a project only if the contractual and financial structures allowed for it. Examples of how optionality can be built into projects include:

- Embedding an effective performance management system into the project. This could include a clear cross-stakeholder governance program with clear trigger points for intervention.
- Thinking about what the alternative actions should be, given a set of circumstances. For example, replacement of a trade supplier or contractor if agreed-upon targets are not met.
- It is foreseeable that a change in scope may be required during the project development lifecycle. Scenario planning the various options/outcomes and, in advance, negotiating the terms and conditions for this (as far as is reasonably possible) will save time and help avoid conflict.
- Having committed funds in place if a change in scope is anticipated, or at the very least a financing structure that allows funds to be redirected efficiently with clear stakeholder approval.
- Incorporating clear termination provisions, including trigger events, compensation terms, processes and procedures into the contracting management systems.
- Having partners that are clear about the JV dissolution strategy and possible options, whether proactively on reaching a planned milestone or reactively in response to changing circumstances and partner priorities (for example, the global fall in oil prices).
- Delaying major decisions or the award of main contracts to allow for greater front-end investment and certainty of scope; maintain competitive tension, increase understanding of scope and forecasts and keeping key options open.

Common barriers to building and preserving optionality at the project level include cultural norms, lack of thorough understanding of project requirements and risks, lack of information, inadequately aligned corporate policies and procedures and previous experiences and history.
Leveraging optionality through active portfolio management

Active business and portfolio management is a critical link connecting corporate strategy, capital allocation, portfolio management and project implementation. Frequent and effective reviews help companies identify possible symptoms of portfolio inertia early and correct them before they significantly hinder business performance.

- Lack of alignment between capital allocation and the strategic value of portfolio components
- Neglect of market trends, which result in investment gaps and missed opportunities
- Reactive approaches, which result in low-quality investment options and wasted effort in evaluating non-strategic options

We have identified the following leading practices that could help companies conduct more effective business and portfolio reviews.4

### Figure 10: Leading practices to effectively manage business and portfolio

<table>
<thead>
<tr>
<th>Know your business</th>
<th>Make better-informed decisions</th>
<th>Take action</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Define your core business</td>
<td>▪ Use key historical and forecast financial metrics, including performance relative to other business units and industry benchmarks</td>
<td>▪ Be prepared to take bold and affirmative decisions, if required</td>
</tr>
<tr>
<td>▪ Update your operational model regularly</td>
<td>▪ Recruit portfolio review staff with strategic, financial, operational and sales skill sets</td>
<td>▪ Be prepared to take action in a timely manner</td>
</tr>
<tr>
<td>▪ Involve senior leadership early in the portfolio review process</td>
<td>▪ Ensure effective capital allocation</td>
<td></td>
</tr>
<tr>
<td>▪ Analyze assets/projects/businesses for their strategic fit</td>
<td>▪ Review portfolio frequently</td>
<td></td>
</tr>
</tbody>
</table>

4 Based on our Global Corporate Divestment Study: strategic divestments drive value in 2014. The results are based on interviews of 720 executives, including 107 oil and gas respondents.

### Case study

A company maintains an optimal portfolio of businesses: a mix of mature businesses that could help it maintain strong financial performance and cash flows, as well as future opportunities, which can drive growth in the medium to long term. The company regularly evaluates its projects/businesses on parameters such as attractiveness and resilience, and in view of prevailing market conditions, takes necessary action to retain optionality:
Know your core business

Companies must be clear about their core operating model and key differentiators. They need to review the model regularly and frequently in view of market changes. This should be followed up by redefining or updating the model, when required. Many oil and gas companies are still relying on outdated definitions of their core businesses. Many oil and gas companies are still relying on outdated definitions of their core businesses. As the industry transforms going forward, innovation will continue to change companies' relative competitive advantages. It is essential that this is taken into account.

Involving senior leadership early in the process is critical to shape the direction of portfolio review. The executive board should be setting the objectives and agenda for a portfolio review.

Make better-informed decisions

Changes in the external environment often alter the assumptions or forecasts guiding the approval and/or development of a project. To anticipate such changes, corporate development and other functional teams need to know the “market pulse.” For this, they require access to high-quality, timely and analytical market information. They also need access to robust historical and forecast business unit performance data and industry benchmarks, relative to their review agenda. It is equally important to assess if capital allocations are effective and aligned to changing needs. Companies must be considerate of the fact that any changes in capital allocation will have a ripple effect on the portfolio. Having the right data, tools and techniques is important when making informed decisions and looking to optimize opportunities.

Forty-one percent of oil and gas companies we surveyed believe that having a dedicated team would make portfolio review more effective. Teams with a diverse skill set could help gather and interpret market, financial, operational and stakeholder data easily and efficiently. This, in turn, would help identify risks and opportunities earlier, as well as more options to deal with risks or optimize opportunities.

Take action

Leading companies ensure they act on their portfolio review findings in a timely manner. Companies that fail to translate recommendations into actions lose out on potential value. Our survey results highlighted that almost a third of oil and gas companies continue to keep their resources locked in unattractive businesses, even after a portfolio review indicates it is not strategic. Although oil and gas companies are more likely to divest a non-core business as compared to other sectors, an overall low percentage indicates a strong potential for improvement.
Figure 11: Five-step approach for managing portfolio

1. Regular decision to divest, invest or retain
2. Evaluate portfolio decisions in both absolute and relative terms; and on a stand-alone and aggregated level
3. Retain decision-making flexibility while taking major decisions
4. Ensure speedy and flexible decision-making
5. Be prepared to make tough decisions

For each asset, project and business unit (individually or at a group level), make a regular decision whether to divest, invest or retain. In this, “retain” should be a conscious, and not convenient, decision. Doing nothing is often a higher-risk strategy.

Evaluate portfolio decisions in both absolute and relative terms. For example, against specific criteria (hurdles) and against each other (ranking). Similarly, consider these decisions on a stand-alone and aggregated level.

Focus on retaining optionality when making major decisions to limit the possibility of a suboptimal outcome.

Ensure speedy and flexible decision-making. For this, one should have options or alternative strategies in place, or at least a fast process for developing and approving them, when required.

Be prepared to take the necessary actions while keeping the wider portfolio in mind. For instance, be ready to shut down or significantly amend a project or business unit that does not meet portfolio objectives, even if it has substantial sunk costs.
Companies need to respond to the changing landscape flexibly, proactively and competitively by incorporating and preserving optionality in their portfolios.
Oil and gas is a continually evolving sector, requiring players to grapple with rapid changes that were not foreseen or seemed remote when company strategies were last developed, portfolios last reviewed and megaprojects achieved the last approval hurdle. Companies need to respond to the changing landscape flexibly, proactively and competitively by incorporating and preserving optionality in their portfolios.

Through our closely linked transactions advisory, tax and advisory service teams, coupled with our global team of 10,000+ industry professionals, EY is equipped to provide independent, whole-life support and advice to our clients to enable their growth in a changing landscape. We have proven industry skills covering the entire breadth and depth of our oil and gas clients’ businesses, ranging from strategy to portfolio review, as well as optimization and management to execution, including:

- **Corporate development advisory** – company, portfolio and asset evaluations, review of internal decision support models, identification of options to address gaps in portfolios and to maintain or create clients’ competitive edge
- **Transaction execution** – advising on mergers, acquisitions, divestments and carve-outs, joint ventures and alliances, as well as undertaking buy- and sell-side due diligence
- **Integration** – determining and analyzing post-acquisition and merger integration and portfolio realignment
- **Capital agenda** – optimizing capital needs at the corporate, portfolio, asset, project and business unit levels, including working capital, cash flow improvements, and debt and equity raising and/or refinancing
- **Tax advisory** – advising on country fiscal regimes, tax structuring, transaction planning, and impact of alternative energy, as well as managing international assignments for key employees and understanding tax considerations in expanding operations to new countries
- **Performance improvement** – advising on supply chain improvements in procurement, logistics, engineering, field operations, manufacturing and distribution; improving work processes; identifying key risks to ensure successful delivery of major capital projects; improving overall financial and management reporting; enabling key business and operations improvements by effectively deploying information technology
- **Risk management services** – advising on business risks and developing plans to accept, manage or capitalize on them, including assessments (assessing risk potential and processes), improvement (designing and assisting with implementation of improvements to achieve business objectives) and monitoring (evaluating if processes, initiatives and functions are operating as expected), as well as undertaking internal audit programs to augment clients’ internal capabilities
- **Fraud Investigation & Dispute Services** – assisting companies manage risk, investigate alleged misconduct and measure the financial impact implications of disputes. Areas of focus include anti-fraud, corporate compliance, dispute services, forensic technology and discovery services and fraud investigations.
EY’s portfolio optimization approach

EY’s portfolio optimization approach drives closer alignment between your strategic objectives and assets.

**Building blocks of EY’s market differentiation**

- Global reach
- Specific oil and gas international insights
- Integrated execution and delivery
- Full suite of transaction services offerings
- Independent advice
- Track record
- Seamless teaming

**Portfolio management in oil and gas** Building and preserving optionality
EY’s strategic advisory and execution services

**Commercial advisory services**
- Market and industry research
- Validation of strategic assessments
- Corporate strategy assessment

**Transaction support**
- Assessment and analysis of financial profile
- GAAP and cash accounting differences
- Critique of forecast
- Identification of balance sheet exposures
- Sarbanes-Oxley Section 404 readiness assessment

**Working capital**
- Release cash trapped in working capital
- Advise on process improvements to attain sustainable adjustments in working capital investment
- Assess operating working capital needs

**Valuation and business modeling**
- Business valuation services
- Tangible and intangible assets valuation services
- Accreditation and dilution analysis
- Purchase price allocation
- Impairment analysis

**M&A**
- Deal execution: buy-side and sell-side advisory (transaction structuring, financial modeling, etc.)
- Strategic advisory (target/partner assessments, industry viewpoints, etc.)
- Capital advisory and restructuring

EY will harness the firm’s talent to provide a single constant partner from start to finish.
EY provides one of the only fully integrated transaction execution teams with expertise in each functional step of a transaction.

**Capital and debt advisory**
- Raise debt and equity
- Capital structure assessment and advisory
- Identification and implementation of financing and alternatives

**Transaction tax**
- Federal, state and international tax risk analyses
- Custom duties, VAT and other indirect tax assessments
- Evaluation of significant tax exposures
- Assessment of optimal transaction structure
- Identification of post-transaction tax minimization options

**Operational transaction services**
- Synergies analysis and investment requirements
- Assessment impact to forecast
- Assessment of integration
- Challenges, risks and resolution strategies
- Implementation of post-transaction operational integration/optimization
- Organization design and governance issues

**Divestiture advisory services**
- Reassess portfolio/business unit value and its contribution to the overall business
- Understanding seller’s tax position and tax structuring alternatives to increase after tax proceed
- Assist with preparation of financial, tax, HR and operational information
- Assist with technical carve-out financial statement matters, provide tactical execution assistance and support the audit process
- Assist with preparing for Day One readiness

**Transaction forensics**
- Pre-acquisition anticorruption due diligence
- Contractual language assessment
- Post-acquisition analysis and integration/forensic look back
- Portfolio company/subsidiary activities, including compliance review
Methodology

Assessing the relative attractiveness of major oil and gas locations

EY identified plays worldwide on the basis of quantitative factors (such as total oil and gas reserves) and qualitative factors (such as current interest levels of E&P firms). These plays were categorized as geological plays, technological plays, geographic regions or mature regions. The relative attractiveness of these plays was evaluated based on three main categories – prospectivity, commerciality and flexibility. The following qualitative and quantitative parameters were shortlisted to assess these three categories:

### Figure 12: Location analysis methodology

<table>
<thead>
<tr>
<th><strong>Prospectivity</strong></th>
<th><strong>Flexibility</strong></th>
<th><strong>Commerciality</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Remaining reserves</td>
<td>Government take</td>
<td>M&amp;A activity – deal volume and value</td>
</tr>
<tr>
<td>Yet to find resources</td>
<td>Local content</td>
<td>Licensing activity</td>
</tr>
<tr>
<td>Remaining production (years)</td>
<td>Capex ($/boe)</td>
<td>Number of players</td>
</tr>
<tr>
<td>2020 forecast production</td>
<td>Opex ($/boe)</td>
<td>Share of foreign companies as a % of total number of companies</td>
</tr>
<tr>
<td>Exploration success rate</td>
<td>Post-tax IRR</td>
<td>NOC pre-emption rights</td>
</tr>
<tr>
<td></td>
<td>Ease of marketing</td>
<td>Capital gains tax</td>
</tr>
<tr>
<td></td>
<td>Upstream country risk index</td>
<td></td>
</tr>
</tbody>
</table>

**Key sources used for collecting information on each play were**

- Wood Mackenzie
- Business Monitor International
- US Energy Information Administration (EIA)
- US Geological Survey
- 1Derrick
- Global oil and gas tax guide, EY, June 2014

Each of the parameters was given equal weighting to arrive at an overall assessment for prospectivity, commerciality and flexibility.

Note that this assessment was not intended to be exhaustive but indicative, and that different parameters and weightings would yield different results.
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