The oil downstream: vertically challenged?
Introduction: the theory and the challenges

In this publication we look at the integrated operating model for oil companies, which has served the industry well and was the predominant and most successful operating model of the 20th century. However, recent industry developments are seeing that model come under challenge and new models emerging, with new players focusing on specific industry segments becoming more common.

The original logic for the integrated model was premised on the belief that it would provide a natural hedge, balanced funding and market access. Integration would allow a company to optimize the value chain and at the same time, the downstream could be seen as a source of long-term cash flow and financial stability, in contrast to more risky upstream activities. Integration enabled companies to balance their upstream and downstream activities, reducing risk and volatility.

But sharply higher oil prices have shifted value creation decidedly to the upstream, often leaving downstream with low (or even negative) margins and difficult, very competitive markets. In markets where petroleum product prices to consumers are controlled and/or subsidized (e.g., as in much of the Middle East and Asia) refiners have also been significantly challenged. Moreover, amid increasing macroeconomic uncertainty, as capital markets fail to recognize the value of integration, investors are increasingly anxious to see the gap between the value of the underlying assets and the market rating narrowed. And notably, equity markets have been increasingly discounting integrated companies below their absolute value.

Quite simply, economies of scale and access to technology and capital haven’t been enough. Recent challenges to the integrated models have come from both investors and from the structure of the downstream itself.
Investor appetites and preferences

On average over the last twelve years, non-integrated or independent/pure-play companies have generally delivered better returns than their larger, integrated competitors and they have generally shown higher valuation metrics. Investors have tended to believe that ‘specialist’ companies, particularly upstream-focused ones, are likely to have a greater potential to create shareholder value than do integrated ones.

Comparing valuation metrics (Enterprise Value in relation to Operating EBITDA) for two peer groups – the IHS Herold, Inc. group of 35 global integrated companies and the Herold group of the 45 largest international non-integrated companies, including independent E&P companies as well as independent refiners, marketing and transportation companies – shows generally higher valuations for the non-integrated companies in most years, particularly so in recent years with sharply higher oil prices.

Similarly, comparing Total Shareholder Returns for these two peer groups shows the sharp year-to-year volatility of returns, but on average, the non-integrated companies performed slightly better than the integrated companies.

These trends are broadly supported by data from analysts at Deutsche Bank Research for their group of 14 “global integrated oils.” The Deutsche Bank data show the significant differences in annual Returns on Average Capital Employed (ROACE) in the upstream and downstream segments. Total returns for integrated companies are therefore reduced by the relatively poorer downstream performance, and thus by implication, the companies could release value to shareholders by spinning off or divesting those activities with limited integration value.
Ample global refining capacity

A structural global refining surplus is re-emerging, with significant capacity growth expected over the next five years, particularly in Asia (China and India), the Middle East (Saudi Arabia and the United Arab Emirates), and in Latin America (especially Brazil). In general, on a global basis, the net impact will be reduced margins. Net capacity growth (additions less closures) over the next five years could be as much as 25-28 million barrels per day (b/d) or 25% - 30% higher than existing capacity, with a compound annual growth rate (CAGR) of more than 4% per year. However, not all of the planned expansions will be sanctioned, nor will they necessarily be completed on schedule.

Nevertheless, the key factors of this growth include:

- The vast majority of the planned expansions are national oil company (NOC) sponsored and thus less-sensitive to return pressures, with government-sponsored mandates with other objectives (e.g., increasing domestic employment and inward investment, import reduction, value-added capture and/or extended foreign policy reach).
- Much, if not most, of the new capacity will be greenfield mega-refineries, designed to capture economies of scale with high degrees of sophistication.
- Old refineries rarely die; rather than close, international oil company (IOC) owners tend to try to "wait it out" or will try to find new owners for marginal plants, or convert to terminals or storage facilities. In addition, particularly in Europe and America, environmental and social costs of closure can be very high.
- Other new owners may have strategies that sustain marginal plants. Depreciation will be reset, with different strategic objectives and time horizons, e.g., private equity that sees other option value. Similarly, some new market entrants may be existing refiners looking for access to new markets.
- Sluggish oil demand growth in developed economies will result in the marginalization of some Organisation for Economic Co-operation and Development (OECD) refining; there will be location advantages to refining in regions with strong demand growth.
- At the same time, alternative fuel substitution and/or refinery bypass is increasing, with more and more renewable fuels, biofuels, gas to liquids (GTLs) and natural gas liquids (NGLs) coming into the supply pool from non-refinery sources.
Location-disadvantaged capacity

As of 1 January 2011, the 10 largest integrated, international oil majors had more than 23 million barrels per day of refining capacity, with more than 70% of that capacity located in either the US or Europe,1 regions where oil demand is expected to grow minimally, if at all, over the next 20 to 25 years. In addition to increasing competition for local market share, US and European refiners will be further burdened by an aged infrastructure. Conversely, much of the capacity in the developing countries, where oil demand will grow relatively strongly, is newer, with much of the planned new capacity expected to be world-scale, both in terms of size and sophistication. At the same time, US and European refiners can expect to continue to face relatively high regulatory capex requirements related to tightening product specifications and operational/environmental constraints.

In addition, the attractiveness of the OECD-dominated refining portfolio to resource holders as a way to access the (then) dominant consumer energy markets has sharply declined, as those OECD markets matured and the non-OECD markets grew more strongly.

Summary

As noted in Petroleum Intelligence Weekly (PIW), the high levels of consolidation activity in the late 1990s/early 2000s was driven by a belief that size would offer a distinct advantage, particularly in terms of access to resources and in terms of the ability to finance and handle big projects. But a decade or so later, the supermajors face as many challenges as their smaller rivals. Size hasn’t protected against project management problems, nor has it solved the access puzzle. Higher prices have encouraged more resource nationalism, further limiting access to inexpensive, easy-to-develop resources in many countries. The supermajors have instead had to turn to megaprojects in remote/harsh locations, with demanding technological and/or environmental challenges, which have challenged the sector’s project management capability.2

Additionally, the supermajors have fallen out of favor with the stock market. They were established in an era of low prices and were seen as good defensive investments in the early years of the 2000s. But as prices have risen, investors have moved on, bypassing most of the biggest companies, often investing directly into commodities as an asset class. In broad terms, the higher the oil price, the more the share performance of the independents has outshone big companies, often investing directly into commodities as an asset class. In broad terms, the supermajors have instead had to turn to megaprojects in remote/harsh locations, with demanding technological and/or environmental challenges, which have challenged the sector’s project management capability.2

Despite the strategic drift away from refining, Asia is still seen as the one place ripe for downstream expansion. But increasing competition from strong regional NOCs and their aggressive refinery construction plans, as well as from the constraints on potential profitability from government-controlled retail prices in many markets, will make that strategy challenging. Several of the major integrated companies, including ExxonMobil, Shell, and Total SA, are planning or considering refining and/or petrochemical joint ventures with Chinese NOCs.

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1 “Worldwide Refining Survey,” Oil & Gas Journal, 6 December 2010; and company reports.
Emerging strategies: trends and implications

Integrated structure and strategies

The last decade and a half has been one of consolidation and retrenchment by the major IOCs, a period characterized by the megamerger era and the creation of the industry giants, and then by selling and/or closing refineries in low-growth (typically OECD) markets and looking to establish toeholds into heavily state-controlled, high-growth markets, typically in Asia.

Drawn from data published by PIW in its annual supplement on the Top 50 Companies, the chart below plots the structure of the industry by looking at refining capacity of the major companies in relation to their upstream oil production and their downstream product sales. In the chart, the data for the 11 largest international oil majors (ExxonMobil, Shell, BP, Chevron, ConocoPhillips, Total SA, Marathon, Hess, Eni, Repsol and Statoil) and their predecessor companies are aggregated, showing a gradually decreasing commitment to integration, both in terms of “refining cover” and “product cover.”

The current perspective for the major IOCs, using data as of the end of 2010, is depicted in the chart below. For eight of the 11 companies, refining capacity is greater than oil production, with only Hess, Eni and Statoil with refining capacity less than production. All but one company, Repsol, had total product sales greater than its refining capacity. Note that Marathon, historically one of the smaller integrated majors, has “de-integrated” in 2011, splitting into separate upstream and downstream companies. One of the supermajors, ConocoPhillips, has also split in 2012.

Big oil’s commitment to integration

Source: Ernst & Young calculations from Energy Intelligence Group, Petroleum Intelligence Weekly data.
The industry had in fact witnessed an earlier disintegration or de-integration wave in the 1980s and 1990s.

- Occidental Petroleum was briefly fully integrated, owning the Cities Service refining and marketing assets from 1982 to 1983. (OXY is still a somewhat hybrid integrated company; while dominated by its independent international E&P portfolio, it also operates some chemical production assets.)

- Sun and Diamond Shamrock both split off their upstream and downstream operations into separate companies in the late 1980s. (In Sun’s case, the upstream company became Oryx Energy and the downstream company became Sunoco; Diamond Shamrock’s upstream company became Maxus Energy, while the downstream briefly retained the Diamond Shamrock name before its merger with Ultramar Petroleum and its acquisition by Valero.)

- California mini-major Unocal was fully integrated before selling off its refining and marketing assets in 1987.

- Tesoro was historically a small integrated player, before finally selling its small E&P portfolio in 1999 to become an independent refiner/marketer.

**Major integrateds: refining in context – 2010**

(Circle size = relative capacity)

Source: Ernst & Young calculations from Energy Intelligence Group, Petroleum Intelligence Weekly data.
Notable among the major integrated companies, Royal Dutch Shell has reduced its global refining capacity by almost one-third since 2002, through divestitures and closures. BP is shifting its downstream focus to Eastern Hemisphere growth markets and is de-emphasizing US refining due to poor integration opportunities; two of its largest US refineries are up for sale. Both Total SA and Chevron are undertaking selective divestitures and are geographically refocusing, notably de-emphasizing activities in Europe. Smaller integrated player Murphy Oil has sold its two US refineries and looks to dispose of its UK refinery and thus become a pure-play independent E&P company.

While both ExxonMobil and Shell are divesting non-core refining, they both remain adamantly committed to large-scale refining/petrochemical integration, where they look to optimize production in order to capture the highest value output, while realizing lower costs through feedstock flexibility and sharing of infrastructure, as well as the optimization of marketing assets.

In late-2011, it appeared that three Philadelphia-area refineries, one owned by ConocoPhillips and two owned by Sunoco, would shut down, closing almost 700,000 b/d of crude distillation unit or CDU capacity. Closing that much capacity would mean that essentially 50% of total East Coast refinery operating capacity would be lost – according to the Oil & Gas Journal, total East Coast CDU capacity as of 1 January 2012 was 1,399,700 b/d – putting upward pressure on regional refined product prices in order to draw sufficient supplies from Gulf Coast suppliers, given some pipeline and shipping constraints, and/or from imports.

However, in early-2012, in a deal that surprised many industry veterans and observers, Delta Airlines, one of the world’s largest airlines, announced that it would purchase the idled Trainer refinery from ConocoPhillips/Phillips 66, thereby integrating back up its critical jet fuel supply chain. A few months later, Sunoco reached an agreement to continue to jointly operate its big, beleaguered Philadelphia refinery with the Carlyle Group, one of the largest diversified private equity (PE) firms.

**Downstream M&A activity**

Over the period 2001–2011, reported downstream M&A transaction value averaged about US$22 billion per year, with almost half of that in the refining subsegment. The number of downstream deals averaged about 150 per year over the period, with deal activity ramping up sharply in the 2006–2008 period before falling back.³ (Notably, biofuels transactions became more fully covered by IHS Herold starting in 2006.)

Integrated buyers and sellers have accounted for a relatively small portion of the downstream transactions, with integrated companies more likely to have been sellers than buyers.

Downstream oil transactions
(Reported deal value)

Source: Ernst & Young calculations from IHS Herold data.

Downstream oil transactions
(Number of deals, including deals without reported value)

Source: Ernst & Young calculations from IHS Herold data.
Increasing role of financial players

Financial players, notably investment banks and private equity (PE) firms, have played a tangential role in the downstream for a long time, but their presence has been increasing in recent years. Goldman Sachs, through its J. Aron subsidiary, has long taken an interest in “hard” refining assets to leverage some of its commodity trading activities. Louis Dreyfus and Morgan Stanley have similarly taken smaller interests. Major global commodity trading firms, such as Vitol and Glencore, have also held small refining assets/interests as leverage for their trading operations.

More recently, several PE firms have taken more substantial interests in refining and marketing assets. These have included:

- A consortium led by Riverstone and Carlyle acquiring three refineries from European independent refiner, Petroplus
- Backed by Blackstone and First Reserve, the creation of a new large US independent refiner, with three refineries, known as PBF Energy
- Klesche & Co.’s purchase of Shell’s Heide (Germany) refinery

Downstream oil transactions
(Deals with selected buyers/sellers)

Source: Ernst & Young calculations from IHS Herold data.
Logistics linkages and MLPs

Over the last decade, there has also been a substantial increase in the application of tax-advantaged corporate structures, known as Master Limited Partnerships (MLPs) in the midstream segments of the oil and gas business. The primary benefit of that business structure is that an MLP is able to pass through its net income to the limited partners or unit holders without paying federal or state income tax, thereby eliminating the double taxation of distributions, increasing free cash flow and lowering its cost of capital. The principal goal of an MLP is to maintain and/or increase cash distributions to unit holders. Therefore, the assets that make the most sense in the MLP structure are those that are relatively slow-growth, high-cash-flow-generating businesses that do not require significant maintenance capital. These broadly include fee-based businesses like oil and natural gas pipelines, natural gas processing plants, as well as some coal production and some long-lived crude oil or natural gas producing assets that are close to fully developed and/or in steady-state decline. Given the “cash flow stabilization” mantra of an MLP, rapidly depleting assets that require significant capex and whose value fluctuates with commodity prices are not ideal MLP candidates.

Notably, US independent refiners Holly, Tesoro, and Valero currently have midstream MLPs in their consolidated structure, with those MLPs typically holding crude oil and/or product storage and pipeline assets. Phillips 66, the new refining/marketing spin-off from ConocoPhillips, has interests in two MLPs, as part of its midstream joint venture with Spectra Energy, known as DCP Midstream. Newly-split Marathon Petroleum is planning a similar MLP move for its midstream assets.

Downstream oil transactions
(Includes deals without reported transaction values)

Source: Ernst & Young calculations from IHS Herold data.
**NOC objectives and strategies**

Downstream transaction activity by the NOCs increased sharply in the 2006-2008 period but has tapered off in the last few years.

In contrast to the IOCs, which are scaling back somewhat from refining and marketing, many of the largest NOCs are internationalizing and integrating. Several of these have been involved in international refining for a long time, but the veterans are expanding their presence and are increasingly joined by newcomers. The leading international integrated NOCs with refining interests outside their home country include:

- Saudi Aramco (Saudi Arabia): existing interests in US, Japan and South Korea; planned interest in China
- CNPC (China): existing interests in Algeria, Sudan, Singapore, Scotland, France, Japan and Kazakhstan; planned interests in Chad and Syria
- Sinopec (China): planned interest in Saudi Arabia
- Kuwait Petroleum (Kuwait): existing interests in Italy, Netherlands and India; planned interest in China
- PDVSA (Venezuela): existing interests in US, Jamaica, Dominican Republic, Curacao, Brazil and Sweden
- Pemex (Mexico): existing interest in US
- Petrobras (Brazil): existing interests in US and Argentina
- Petronas (Malaysia): existing interests in Italy and South Africa
- Rosneft (Russia): existing interests in Germany; planned interest in China

Beyond refining, most of these NOCs and many others are also involved with various wholesale and retail product marketing activities (including service station ownership and operation) outside their home country. Notably, Saudi Aramco, the world’s largest oil producer, has plans to dramatically increase its integrated footprint by expanding its refining capacity to almost 6 million b/d (from the current 4.2 million b/d) and its petrochemical capacity to more than 17 million tons/year (from the current 10 million tons/year). Like ExxonMobil and Shell, Saudi Aramco's long-term strategy is premised on large-scale refining and petrochemical integration.
Marketing and retail

The principal historic reason major oil companies integrated in the other direction as well—that is, by developing service station and retail marketing networks—was to secure access to the consumer market. This was in the days before global international trading markets had fully developed, and the major Western oil companies needed to secure outlets for their crude oil and refinery production. The control of the supply chain to the consumer gave oil companies the opportunity to develop brands with distinctive propositions, many of which remain the leading brands in today’s market.

In many European countries, this integration may have come as part of the domestic monopoly or oligopoly enjoyed by a state-owned national oil company, with security of supply being a primary concern of national governments.

The growth of international trade and the development of modern trading markets have created a degree of transparency in the global supply chain that was not evident a generation ago. Yet many oil companies remain integrated across the downstream supply chain. Fuels marketing businesses can be highly valuable parts of the portfolio, so they may remain in an oil company’s portfolio in some countries simply because they are good, profitable businesses. However, the development of an independent refining sector challenges the need for full integration. In the US in particular, the independent refining and marketing segment has long had an important role, and with the expected changes in the refining landscape, should soon surpass the integrated firms in terms of total refining capacity.

One of the arguments sometimes put forward for refining-marketing integration is the margin hedging effect, i.e., when refining margins are squeezed, marketing margins rise, and vice versa. So being integrated provides stability of cash flows. When the crack spread spikes, the retail margin typically falls sharply. Hence an integrated player should be, to some extent, insulated from market fluctuations. However, as Wood Mackenzie4 notes, the key phrase is “to some extent,” because refining margins are much more volatile than marketing margins, and this volatility has increased since 2004. This means that the inverse relationship of the refining margin and marketing margin will not be enough to smooth out the overall integrated margin. So while hedging as a justification for integration has always been a relatively weak argument, this has become even more the case since 2004.

### “Best-in-class” downstream: key competitive advantages for acceptable returns

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<th>Retailing</th>
<th>Lubricants</th>
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<tr>
<td>• Scale: &gt;150 kb/d</td>
<td>• Respected brand: customer loyalty</td>
<td>• Established brand: customer loyalty</td>
</tr>
<tr>
<td>• Complexity: feedstock and output flexibility</td>
<td>• Incumbency: ideally top three</td>
<td>• Brand support: effective advertising</td>
</tr>
<tr>
<td>• Location: access and infrastructure (water, pipelines, terminals, storage)</td>
<td>• Location: high throughput</td>
<td>• Streamlined product suite: capture trade-up potential</td>
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<tr>
<td>• Location: low-cost labor, tax concessions</td>
<td>• Location: real estate optionality</td>
<td>• Synthetic lube offering: premium market</td>
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<tr>
<td>• Location: close to demand centers</td>
<td>• Market dynamic: fuel demand growth</td>
<td>• Global reach: scale economies</td>
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<tr>
<td>• Market dynamic: product deficit</td>
<td>• Differentiated fuels: premium pricing</td>
<td>• R&amp;D program: sustained product development</td>
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<tr>
<td>• Construction cycle timing: cycle bottom</td>
<td>• Non-petroleum sales: high margin, low tax</td>
<td>• Original equipment manufacturer (OEM) relationships: first fill value, OEM endorsement</td>
</tr>
<tr>
<td>• Asset integrity and reliability: maximized availability</td>
<td>• Ownership: dealer rather than company-owned</td>
<td>• Blending capacity</td>
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<tr>
<td>• Petrochemical integration: feedstock and infrastructure</td>
<td>• Regulation: no pricing controls</td>
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<tr>
<td>• Strong trading function: maximize feedstock/product arbitrage, routing and placement</td>
<td>• Planning controls: barriers to entry</td>
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<tr>
<td>• Energy intensity: cogeneration capacity</td>
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<td>• Emissions footprint: minimized</td>
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#### Corporate

- Best people: incentivized for operational and health, safety and environment (HSE) excellence
- Best contractors: incentivized for operational excellence; adequately supervised with clear policies and procedures
- Asset control: exercised efficiently
- Corporate planning: long-term horizon; staying power
- Ownership flexibility: optimize capital redeployment across cycle

Source: J.P. Morgan
Rather, as further noted by Wood Mackenzie, it is the relative stability of cash flows from retail service station networks that act as the key attraction for integrated companies, rather than their ability to hedge refining margin volatility. And this is where scale remains particularly important, with those companies achieving market leadership positions benefiting from lower unit costs as well as material, relatively stable cash flows. The default position for a refiner should be to own its own retail marketing assets, only where it has a large scale and profitable stand-alone business, with clear, sustainable, competitive advantages. From a retail perspective, there is little rationale for a marketing company to integrate back into refining. Delta Airline’s venture into petroleum refining will of course test the strategic logic of hedging your largest variable cost (i.e., jet fuel) through ownership of assets to produce the fuel.

In addition, the growing contribution from non-oil income in the service station network is taking the fuels retailing business further away from many oil companies’ traditional core competencies. At the same time the integrated model is being challenged in many developed economies, the retail fuels business continues to move away from the traditional oil company competencies as non-oil income becomes ever more important.

Should the service station network or retail business actually be part of the oil business at all? Should it really be seen as a real estate business, with the aim being to use the plot of land to maximize revenues regardless of the actual products sold? Or should it be seen as a utility business, with some classes of retail assets simply providing services to customers (e.g., highway or motorway services areas), or seen as simply “infrastructure,” just providing staple needs to a large and secure customer base?

Again, as Wood Mackenzie suggests, the combination of these trends – an unbundling of the supply chain and continued growth of convenience retailing – could be leading to a “third age” of petroleum retailing, which will be characterized by the appearance of new investors, new brands or brand partnerships, and less direct involvement by integrated oil companies. 1 The development of brand licensing concepts will most likely play a growing role in this “third age.” Although oil companies are not as protective of their brands as they historically were, there is still significant value in many traditional fuel brands. In addition, large oil companies can support significant research and development programs that smaller marketing companies or jobbers cannot. Therefore, oil companies that are willing to license their brand to independent operators may be able to continue to capture some of the retail margin, and secure the supply chain to the end consumer, without the need to invest their own capital. This is particularly true in the US, where refiner ownership of retail outlets has been in sharp decline while motor fuel sales remain overwhelmingly branded.

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In this “third age,” there are different considerations for the various participants:

- In developed markets, the IOCs should identify which of their networks are world-class assets that can consistently meet internal return on capital employed (ROCE) targets. Otherwise, they should be looking to shift to a jobber type model, consider brand partnerships or exit, with the possibility of brand licensing. However, in developing markets, application of first-world retailing techniques can be the basis of a market entry strategy, especially if refining opportunities are currently limited.

- Meanwhile, many NOCs are increasingly becoming interested in developing international refining opportunities and need to decide which fit their criteria. They need to justify why an integrated approach should be adopted. Retail marketing does not provide a simple hedge to refining, so some NOCs may buy service station assets only to make money, not as an adjunct to a refining operation.

- On the other hand, PE investors will look to identify retail assets that may have utility or infrastructure characteristics, or have potential to extract hidden value from control over the real estate. Highway or motorway outlets are the classic example, but other asset classes may be identified. For example, it would be possible to identify potential carve-outs from existing IOC retail networks.

- Hypermarkets and grocery retailers can be expected to expand their market reach as long as supply can be obtained and permits/land to build on can be secured. In any case, they will be a significant player in the third age. In addition, development of independent European jobbers akin to the US market is increasingly probable. Wood Mackenzie sees the emergence of large scale jobber networks in Europe as IOC’s increasingly focus their capital toward the upstream, creating opportunities for others with specialist skills and experience in convenience retailing and/or property development.

- In the US, refiners have been gradually withdrawing from retail oil markets as is shown in the chart below.

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**US refiner sales of products to end-users**

(Retail sales as % of total sales)

*Source: Ernst & Young calculations from US Department of Energy/Energy Information Administration (EIA) data.*

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Our perspective going forward

As a result of these trends and developments, we see continuing pressures on the sector’s existing integrated model, with those pressures arising from:

- Scale needed for meaningful growth, in contrast to the scarcity of cheap, easy oil and gas, and the push to the frontier and to the unconventional
- Sustained and sustainable energy demand growth in the developing world but not in the advanced countries; thus, a geographic shift in demand
- Volatile and higher prices; increasing consumer sensitivity to higher prices
- Implicit or explicit retail price controls in many developing countries, spurring demand growth
- Tighter product specifications and mandated fuel efficiencies, reducing demand growth
- Rising maintenance and environmental costs; potentially high carbon constraint and/or avoidance costs
- Rising power of the NOCs, both in terms of resource nationalism from the “resource keepers” and international competition from the “resource seekers,” with a resulting need for new IOC/NOC partnership models and, notably, a need to recognize some NOCs as new international, integrated companies
- Aggressive NOC capacity expansion and slow IOC closure of marginal capacity
- Advantaged new refining capacity – closer to demand centers (cheaper to ship crude than products, more responsive to seasonal demand shifts), often built with key economic incentives of cheaper labor, tax considerations and lower environmental costs and constraints
- Growing supply of non-refinery-based liquid fuels, some mandated or incentivized
- Heightened risk profiles, both upstream and downstream; the need for focused risk management

The risk profile of the oil and gas sector is on an upward trajectory, both from an upstream and downstream perspective, with financial, environmental and operational safety implications of more challenging activities and locations; resources that are more difficult to extract and/or process; higher government and public expectations related to environmental and operational performance; increasing competition from and substitution by other energy sources; and frequent geopolitical and fiscal instability.\(^7\)

\(^7\) A.T. Kearney, “Challenging the Integrated Oil and Gas Model,” unspecified date 2010.
However, the old model is not likely to be jettisoned but rather adapted, as companies look for more creative ways to unlock value. We are seeing some radical restructuring – for example, with ConocoPhillips and Marathon – a path that some others may also follow. Nevertheless, we do expect further portfolio optimization or rightsizing, as companies take a more rigorous view of core/non-core activities and look to reduce their exposure to lower-return assets. And similarly, we can expect to see continuing focus on innovation and operational excellence, and clearly the NOC/IOC partnership model will likely dominate the downstream in much of the growth markets.

Thus, we can outline a “new” yet “old” case for integration, based on the following:

- **Competition** – a broader array of competencies and operational strengths
- **Innovation** – technological leadership and access to larger R&D resource capabilities – key for alternative and unconventional energy development and monetizing opportunities
- **Control** – the ability to develop the entire value chain enables a level of control that helps in delivering economic returns
- **Capital** – particularly given the risks in upstream (unconventional, frontier, leading-edge technologies), access to capital is crucial
Ernst & Young capabilities

Ernst & Young has a long track record of:

- Assisting clients to achieve a smooth exit from non-core businesses within the oil and gas sector
- Supporting buyers with acquisitions and managing the challenges of operating and integrating the acquired company

Clients benefit from:

- Our breadth of experience within the oil and gas sector – our professionals have worked with many of the leading and emerging organizations around the world and across the upstream, midstream, downstream and oilfield services sectors
- Our broad range of service offerings across the sales and asset separation process
- Our geographic coverage – Ernst & Young has more than 9,200 oil and gas professionals dedicated to serving our clients in more than 100 countries
- The strength and breadth of our client relationships across the sector

We support clients through the divestment or acquisition process with subject matter resource and first-hand experience across a broad range of issues.

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<td>• Financial and business modeling</td>
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<tr>
<td>• Sales execution</td>
<td>• Pre-acquisition buy-side due diligence services</td>
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<td>• Completion</td>
<td>• Organization and governance advisory</td>
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<td>• Post-acquisition integration</td>
<td>• Debt and capital advisory</td>
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<td>• Post-acquisition rationalization</td>
<td>• Financial, operational, pensions, HR, IT, real estate, due diligence</td>
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<td>• Finance transformation and consolidation</td>
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<td>• Financial reporting and IT advisory</td>
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<td>• Financial reporting valuations</td>
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<td>• SOX/JSOX/Accounting controls advisory</td>
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<td>• Supply chain optimization</td>
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<td>• Statutory audit and reporting</td>
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<td>• Tax structuring</td>
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<td>• Tax compliance and advisory</td>
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<td>• Internal audit</td>
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<td>• Supply chain and tax efficiency</td>
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<td>• Shared services planning</td>
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<td>• Performance management</td>
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<td>• Restructuring and legal entity rationalization services</td>
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<td></td>
<td>• Working capital services</td>
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</table>
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