



NextGen Performance REALISED

Issue III - 2010

Technical and Commercial Due Diligence

Buy-Side and Sell-Side Considerations

As potential transaction activities increase in the refining sector and there is an anticipated changing of hands of various facilities, it is worth considering some technical and commercial due diligence perspectives. While it is critical for a buyer to understand the assets being acquired, the potential to create value, and the future investments required, it is also important for the seller to understand the potential value of the assets being divested to achieve the desired returns. For a seller, this often means disentangling



a refinery or group of refineries from its existing network (e.g. central engineering, information technology support, human resources including benefits, and other shared functions). The scope of these interdependencies need to be understood and addressed as part of the final purchase and sale agreement, since it is likely the seller will be required to provide certain levels of support under transition service agreements for some interim period.

Buy-Side Perspectives

In terms of a potential buyer, generally the competitiveness of the assets to

other refineries in the region should be understood along with any special niches, which can be exploited. The assets should be evaluated in terms of expected performance, actual throughput, capacity for designated crude oils, product pattern, on stream availability, remaining life, and future capital investment required. What becomes absolutely critical is a solid technical and mechanical assessment of the condition of the assets. For example, an operator may have significantly deferred maintenance expenditures due to severe margin pressures, which can adversely impact future reliability and near-term expenditures. This is the minimum base level of understanding required.

However, realising that the fundamental objective of the investor is to gain a return, the technical and commercial dimensions should be considering opportunities, which assist the investor in achieving this objective. These include most economic crude slate, most appropriate end products with the greatest return over the short- to mid-term horizon, and operational areas of the plant: steam, power, water, hydrogen, maintenance, and other areas which are the largest costs and could potentially gain the greatest returns.

The buyer should also consider the seller's original capital programme, which may have a bearing on the ultimate

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Emerging Challenges: The State of Water Globally

Historically, water has often been a poorly managed resource, due to its seemingly endless supply and low cost. Now, for various reasons and across the globe, there is increased interest in reduction, reuse, and recycling of water to achieve compliance, reduce cost, or both. Not only are water sources declining and becoming increasingly expensive, regulators are adding to the pressure: the United Nations, the European Union, and certain Asian governments are mandating water reductions.

Virtually every industrial process depends on water for washing, cooling, steam, etc. Yet, in our experience, few facilities properly manage their water systems. As KBC helps them with preparing and analysing water balances, we often find plants unable to account for large volumes of water, unnecessarily contaminating water, improperly treating waste streams and, as a result, failing to re-use water. Still, each situation we encounter has unique aspects.

Overleaf is a case study that illustrates some of the challenges. In this case, KBC carried out a water management review to identify improvement opportunities. Our three-pronged approach covers (a) reducing fresh water consumption in the

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In the current marketplace, navigating the challenges facing businesses today can be difficult. We collaborate with clients to create unique solutions to provide results now that will move them closer to NextGen Performance in the future. We offer:

Strategic Solutions • Capital Solutions • Operating Solutions • Organisational Solutions • Environmental Solutions



NextGen Performance

Technical and Commercial Due Diligence Continued from pg 1

valuation in light of the seller's actual plans. For example, in the case of one transaction, the seller had planned for a heavy crude unit upgrade. The successful buyer had planned for a comparable upgrade in another facility, something that could be avoided through the transaction and which allowed the buyer to make a higher (and ultimately successful) bid.

Working capital is another key consideration that may provide opportunities to unlock excess cash invested in the operations. Thus, tankage, supply chain issues, inventory holdings (such as crude, interim and finished products) all are worthy of comprehensive assessment. Opportunities to minimise inventories are also opportunities to improve working capital.

Environmental due diligence is important to determine if any compliance expenditures are required in the near-term or if the seller has deferred such expenditures; these would adversely impact future cash flow. This is above and beyond the typical groundwater, air emission, or other permitting issues that exist in connection with a refinery's operations.

While not specifically a financial statement line item, it is important for a potential buyer to carefully evaluate the seller's operating practises including safety performance. Poor operating standards can result in significant future liabilities and risk which can adversely impact future financial performance. In addition, if operating practises do not meet a certain threshold minimum, the seller could be required to make a large initial investment immediately in order to correct deficiencies and mitigate risk. It is better to know such issues upfront before making the final "go-go" decision related to a transaction.

If the assets to be acquired are part of the seller's broader organisation, key interdependencies need to be identified upfront in terms of both impact on historical stand-alone cost analysis and future operational implications. (Read the "Sell-Side Perspectives," below, for further discussion of the reciprocal issues.)

Purchase price allocations are also important to consider, because it can have a significant bearing on future tax rates, basis for depreciation, and even future refinancing of loans. Some of this revolves around differences in US and international accounting and reporting standards. In addition, credentialed appraisal and valuation knowledge could help identify opportunities to file for adjusted property valuations, resulting in significant future tax savings.

Accordingly, a comprehensive due diligence investigation over and above traditional financial due diligence allows a potential investor to have an accurate portrayal of the assets to be acquired, which will anchor the go-forward strategy for the new operations to generate the greatest possible return. In addition, comprehensive due diligence is designed to identify significant risks, which potentially jeopardises the realisation of value.

Sell-Side Perspectives

There are several reasons why a potential seller should also perform a certain level of technical and commercial due diligence, in particular leveraging an independent, third-party. The first is to gain relevant inputs for a proper valuation of the assets to be divested and potential issues that may arise during buy-side due diligence. The second is that having all the data required by potential buyers accelerates the process and improves the prospects of an attractive offer. The third is that the technical assessments from a third-party source can potentially be included in the seller's confidential information memorandum (CIM). The seller now has the flexibility to entertain multiple prospective buyers at the same time (even an auction, if desired), reducing the amount of due diligence (and elapsed time) required by several buyers essentially repeating the same due diligence procedures.

Finally, the interdependencies between the seller's organisation and the assets to be sold need to be clearly understood. As an example, assume a large integrated refining company desires to sell two of its refineries. The first step, function-by-

function, is to identify all the relationships between the selling organisation and these two refineries and consider in advance how these will be addressed. Note that these interdependencies impact both historical standalone cost and cash flow information as well as prospectively how the assets will function immediately after the closing of the sale and during some pre-defined transition period.

Sample interdependencies include central engineering services, information systems, finance and accounting, insurance and risk management, procurement, supply chain, logistics, and human resources. Interdependencies can also include the way operations within the seller's organisation are currently integrated. For example, an organisation desired to sell its refinery but did not include the adjacent major product terminal. This meant that the future buyer would be perpetually dependent on the seller's terminal. (Ultimately, all the potential buyers for the refinery withdrew because of this issue.)

From an operational basis, the seller can determine what transition support, if any, will be required by a buyer post-closing, the scope of such services, a fee for such services commensurate with the cost to provide the services, and the length of time for which such interim support will be provided (with the rule of thumb being the shorter the better). If the seller is proactive in this regard, it can significantly reduce the length of time for negotiations and allows more effective control over the overall process.

KBC has years of experience in technical and commercial due diligence, including sector economic analysis for crude supplies and attractiveness of end product markets, mechanical integrity and fitness, optimisation opportunity identification (operations and working capital), workforce and operating practise assessment, tax appraisal support, and environmental due diligence. Services have been performed for operators, financial investors, and banking institutions across the globe. Recently, KBC was the technical advisor to Essar Energy for its successful flotation (IPO) on the London Stock Exchange, providing technical and market analysis which was included in the prospectus.



KBC and Hyperion at RAMC 2010

Following the signing of an exclusive multi-year reseller agreement with Hyperion Systems to resell our Petro-SIM™ and KBC SIM reactor simulation models, both teams attended the RAMC event in Moscow at the end of April. KBC presented "Enhanced Decision Making by Leveraging Real-time Performance Data." For more information on upcoming KBC training, seminars, events, and conference participation, please visit our website at: <http://www.kbc.com/Events>.

The State of Water Globally Story - Continued from pg 1

process and utility units, (b) reducing water contamination (oil losses), and (c) maximising effectiveness of wastewater treatment (WWT) to allow reuse of treated water. KBC has developed software, used by our consultants and licensors, to analyse water balances and consider scenarios that will give sustained benefits:

- WaterTracker is dedicated to developing reconciled site-wide water and contaminant balances.
- WaterPinch™ optimises water networks toward minimal operating costs, taking into account operating data, constraints in the network, geography, and economics.

These can be key tools for identifying the most cost-effective ways to increase social responsibility and compliance, reduce water purchases and consumption, reduce effluent discharge costs, and balance the loads on internal WWT facilities.

Case Study: Southern European Refinery in Water-Stressed Area

For several reasons, such as the processing of heavy sour crudes, this complex 100,000 b/d refinery had relatively high water consumption. It used mainly regional sources for water supply, but had to reduce its dependency on these as authorities were planning to reserve more water for municipal and agricultural users. Once-through seawater is used for cooling and was excluded from the analysis. First, a water balance model of the site and its regional sources was

prepared, which helped to identify the main water-related problems; low efficiency of the demineralisation plant, lack of re-use of treated wastewater, excessive use of high-quality demineralised water in operations, and large losses of steam and condensate around the site. These are fairly common issues in a refinery of this size and age. The water balance showed an average water consumption of 1.46 m₃ per ton of crude processed; more than twice the amount KBC would expect for such a refinery in a water-stressed region. Based on our experience, two water efficiency targets were suggested:

- Stage 1) Short- to medium-term: <0.8 m₃/ton – without investment in WWT
- Stage 2) Long-term: <0.6 m₃/ton – with additional effluent treatment and re-use

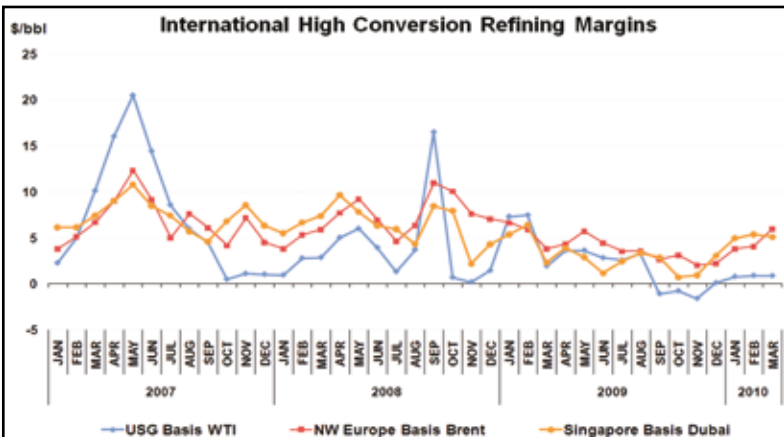
Forty opportunities for improvement were identified toward achieving these targets, many of which require low investment, while providing benefits at multiple levels (e.g. water savings, reduced fouling, and wastewater improvement). The largest savings would come from better steam condensate recovery, re-use of stripped sour water, and optimal use of WWT capacity. The key opportunities, excluding WWT investments, were conservatively estimated to reduce total water intake by 40%; enough to reach the stage-1 target. Additional re-use of treated effluent was made more difficult by the need to treat very saline “production water” from local oil wells. However, with proper investment in tertiary treatment (e.g. reverse osmosis), the stage-2 target is also considered realistic.

REFINING MARKET UPDATE

- Refinery margins in March were generally stable in Singapore to stronger in Europe and the US Gulf than in February. For the most part this extended the period of improved margins into a fourth consecutive month since the nadir of last November. Though margins in Singapore were quite buoyant compared to the woeful returns of October and November, it is perhaps surprising there was no improvement in March as Dubai weakened relative to Dated Brent by USD\$1.00/bbl compared to February.
- Margins continued to benefit from the progressive tightening of products inventories due to sustained discretionary cuts in crude runs since the fourth quarter. This has been the case in the US where products stocks have fallen progressively by almost 15% over the past six months. In the past couple of months, this has been assisted by seasonal refinery turnarounds on top of run cuts. Recurrent bouts of cold winter weather were also supportive in the US.
- Nevertheless, on a monthly average basis gas oil cracks in the US were slightly lower in March than February. This was in contrast to higher levels in both NW Europe and

Singapore, with cracks improving in both centres to little above USD\$10/bbl. However the main support for improved margins in the Atlantic Basin during March came from gasoline; with cracks in both the US and Europe increasing by USD\$3/bbl. Reduced levels of processing, refinery maintenance and the after-effect of disruptions to refinery operations in France were all supportive. However, the main driver of market sentiment appeared to be three consecutive weekly falls in US gasoline stocks amounting to 7.5 million barrels. Other supports to gasoline came from the additional demand in Chile and sharply lower exports from China.

- At the end of the northern hemisphere winter period, there is still more than 60 million barrels of middle distillates in floating storage, while stocks in both the US and EU, though declining, are still around or above their respective highs of the range for this time of the year. The fact that so much product remains in floating storage will remove the potential support this year from such an outlet for ‘unwanted’ refinery supplies. The US refining system is coming back up from maintenance and levels of gasoline production will soon move well above 9.0 million b/d. US gasoline inventories are still high despite very low recent import levels of just 0.6 million b/d. Although support remains for gasoline with imports to the Middle East, Latin America and West Africa, demand growth in the OECD countries still anaemic. It is likely that supply will comfortably outstrip demand as refinery maintenance winds down in Europe and Asia.



Multi-client Reports

With an influential, global client base representing such diverse energy market interests, KBC Energy Economics offers a wide range of reports to clients. Visit our website to see a sample of the reports. If you would like more information, contact us at answers@kbc.com



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LEAD STORY: Technical and Commercial Due Diligence - Buy-Side and Sell-Side Considerations



Where do You Want to be on the Performance Curve?

Your Company + KBC Produces NextGen Performance[®]

We collaborate with our clients to create unique solutions to their specific challenges. Some of these challenges may include:

- Strategic Challenges**
 - Creating Effective Business Strategy/Decisions
 - Increasing Return on Investments
 - Enhancing Returns on Acquisitions/Divestitures
 - Reducing Strategic/Capital/Market/Investment Risk
 - Enhancing Yields
 - Creating Effective Response to Crude/Feedstock/Product Markets
 - Improving Financial Performance
- Capital Challenges**
 - Increasing Return on Capital Investment
 - Rationalising/Optimising Environmental Compliance Capital Expenditures
 - Reducing Capital Risk
- Operating Challenges**
 - Improving Yield
 - Reducing Maintenance Costs
 - Implementing/Improving Behaviour-based Reliability
 - Improving Supply Chain Performance
 - Increasing Availability
 - Improving Safety Performance
 - Managing Operational Risk
- Organisational Challenges**
 - Increasing Organisational Effectiveness
 - Improving Employee Competency/Capability
 - Enhancing Employee Support Systems
 - Improving Shift Team Function
- Environmental Challenges**
 - Reducing Emissions
 - Reducing/Managing Environmental Liabilities
 - Rationalising Compliance Expenditures
 - Ensuring Compliance
 - Improving Energy Efficiency