MARSH

Rethinking Business Interruption Risks in an Optimized Oil and Gas Industry

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EXECUTIVE SUMMARY

Since 2014, the sustained lower oil price environment has been applying pressure to the oil and gas sector. State-sponsored feedstock subsidies are being swiftly eradicated, and, at the same time, shareholders are demanding more efficient returns on existing capital deployed. In this increasingly competitive environment, industry players are seeking new ways to save costs.

Integration and consolidation is becoming a leading development in driving optimization and increasing business profitability in the oil and gas industry. These actions will introduce a new level of challenging contingent business interruption (CBI) exposures, as redundancy is rationalized and operators become less resilient to respond and mitigate unplanned losses.

Business interruption (BI) losses are likely to increase over the next decade unless greater consideration is given to how an event could affect supply chains that are more integrated, interdependent, and streamlined.

INDUSTRY STRIVES FOR FINANCIAL OPTIMIZATION IN CHALLENGING ENVIRONMENT

There are several major industrial zones in the Middle East, each made up of multiple affiliates that function and report as standalone businesses. These independent operators of energy industry facilities need to evolve in order to compete with the growing global over-capacity of manufactured oil and gas derivatives. This involves a strategic focus on identifying ways to lower plant operating costs, integrating value chains, and maximizing returns on existing assets.

Amid this challenging backdrop, many operators are responding through two methods:

INTEGRATION:

- Creating value chains between multiple process affiliates in order to synchronize operating strategies.
- Sharing central utilities, support, and logistics facilities.
- Retaining advantaged raw materials valuations using adaptable transfer price mechanisms.

CONSOLIDATION:

- Assessment of existing infrastructure to minimize excess un-utilized capacity.
- Rationalization of the least profitable assets to improve site and supply chain profitability.

As businesses focus on the financial benefits of consolidating operations, they should keep in mind that this can weaken business resilience and redundancy levels, and new single critical points of failure can arise. With optimization raising the complexity of existing assets and consolidation growing the supply chain profitability, CBI exposures may increase. These newly configured plants have the potential for risk exposures to multiply in relation to consequential property damage and supply chain disruption.

BI exposures are under increasing scrutiny from insurers. This is due to a significant proportion of insurance claims in the oil and gas sector in which BI losses have exceeded property damage or machinery breakdown losses. As the complexity of optimization increases, the energy industry needs to develop its understanding of BI risks to make sure risk transfers to the insurance market are managed accurately.

BI risk assessments need to adapt to:

- Establish integrated operations and identify where earnings are generated within the supply value chain.
- Recognize flexibility and business resilience.
- Understand market re-instatement times for specialty product grades.
- Evaluate customer and supplier loss exposures for both direct and indirect dependency relationships.

CREATING VALUE CHAINS

VALUE INTEGRATION AND CONSOLIDATION ACROSS SUPPLY CHAINS IS KEY TO NEW OPERATIONAL EFFICIENCIES

Many global operators in the energy sector are using integration and consolidation as a way to deliver more efficient shareholder returns in an increasingly competitive market. One method of delivering this competitive advantage comes from production clustering. This is where companies, within, for example, a major industrial zone, coordinate to optimize operations on a general interest basis to maximize total economic value. The cluster will consider new strategies of operation in which one or more of the affiliates may see a reduction in their individual profitability; however, when taking the overall performance of the whole supply chain into consideration, the total profitability of the cluster has increased, providing a general interest optimization for the group.

Under this method, the physical characteristics of transfer streams between affiliates can prove to be more critical than volumetric throughput. This type of behavior drives the cluster to signal to upstream producers to optimize transfer stream qualities towards an economically justified and cluster-synchronized production target. This exchange of intermediates and products between companies becomes an optimization opportunity to economically enhance multiple affiliates. Advantaged transfer prices are then used to appropriately allocate these benefits between businesses. Furthermore, explaining the concept of full value integration inspires the process operators to prioritize and remove constraints in the most efficient manner for the businesses as a whole.

The development of new integrated value chains creates the opportunity to rationalize the least profitable and any redundant operating assets. Process equipment at a supplier site can be reconfigured to design downstream molecules that are more economically beneficial to the co-optimized customer plant, resulting in an overall margin gain across the two affiliates.

Marsh expects that integration and consolidation will generate a natural move away from bulk storage and transport facilities, with multiple plants directly depending on each other and fewer intermediates being exported. The opportunities to lower fixed product inventory, marine terminal occupancy, and the cash costs to operate and maintain such equipment are likely to be seen as financial benefits in the challenging environment. However, the rationalization of storage further adds to the burden of how to mitigate the impact of unplanned losses. With fewer backups in place and an increased dependency on fewer facilities, any disruption across the supply chain could have increased consequences.

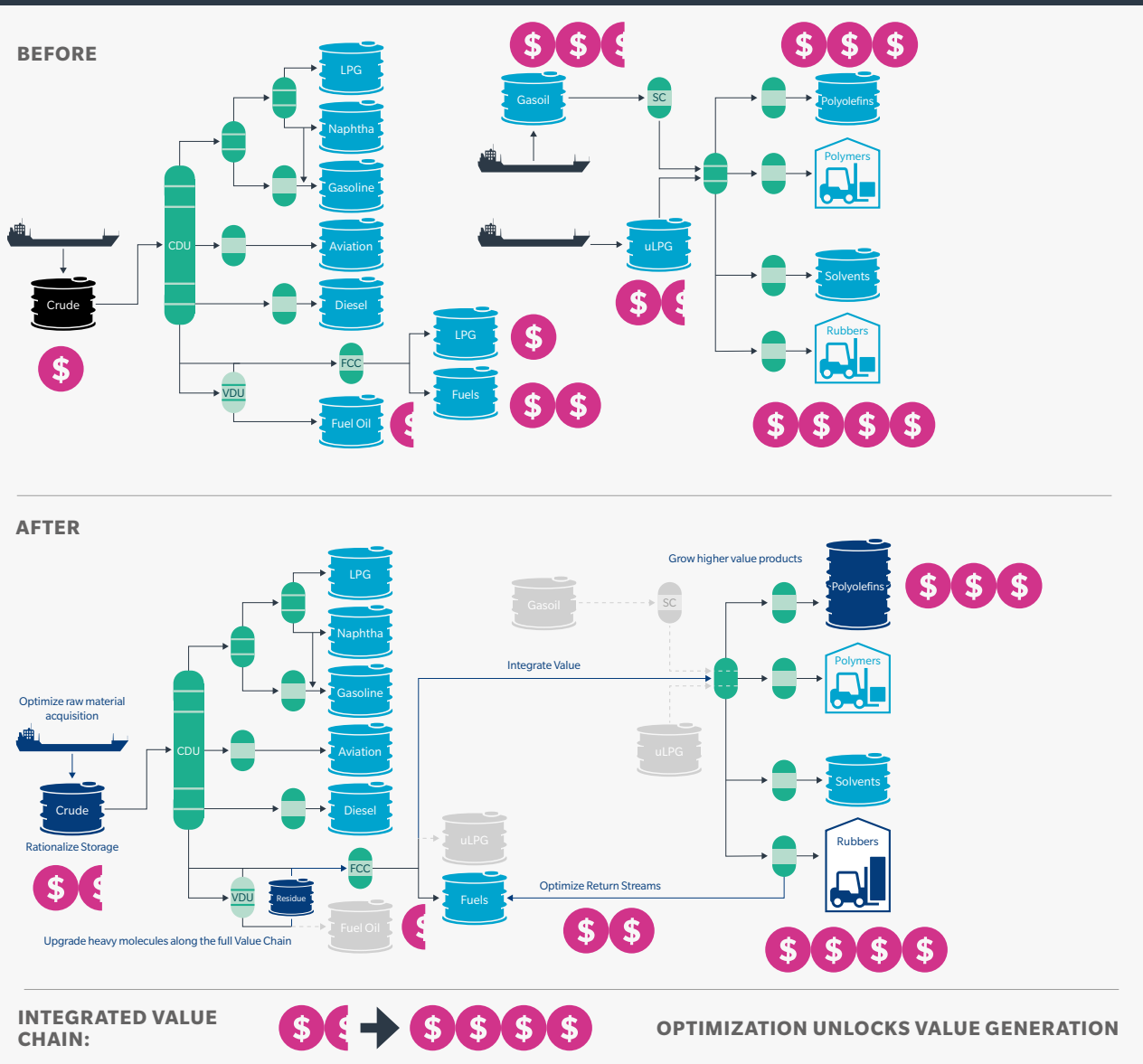
RISK IMPLICATIONS OF INTEGRATING VALUE

Figure 1 shows an example of a mature refinery that developed a new operating strategy to maximize value on behalf of the downstream petrochemical complex. Under the post-integrated model, the downstream petrochemicals units see greater value in olefinic feedstock over paraffin, meaning the upstream refiner invests in additional raw materials and increases severity on conversion units (at cost) to customize the transferrable feedstock molecules and meet the needs of the petrochemicals operation.

The benefit of this integrated value chain is that it now:

- Yields a more valuable suite of specialty petrochemical products.
- Eliminates the requirement for expensive petrochemicals focused imports.
- Enables the petrochemical operator to disinvest its old steam cracker (SC), which was approaching end of life.
- Offloads shared marine loading facilities and reduces requirement for intermediate storage tanks.
- Eradicates low value fuel oil production.

FIGURE 1 The Integrated Supply Chain



The newly configured value chain is efficient, lean, and delivers key strategy improvements at both businesses. Reduction of refinery fuel oil production negates the need to invest in and develop alternative solutions to the impending International Marine Organization (IMO) sulphur cap regulation changes, a major business risk as there is uncertainty over the future high-sulphur fuel oil product value and subsequent impact on refinery profitability.

While the integration and consolidation of existing assets may increase supply chain value, there is also the potential that this could simultaneously remove operability resilience, as parts of the supply chain become more dependent on each other and back-ups within the system are removed. New single critical failure points arise, with the risk of suspending manufacturing operations across clustered co-optimized businesses, should they face disruption. Furthermore, each business is less flexible, and therefore less likely to be able to respond quickly to market opportunities and strategy changes.

This increased interdependency of integrated transfer streams increases exposures significantly, creating new levels of complexity. If one part of the supply chain were to face disruption (such as an unplanned outage on the fluid catalytic cracker unit (FCC)), it could result in economic losses across the entire value chain.

For example, the integrated value chain in Figure 1 shows how the petrochemical unit is reliant on the throughput and qualities of refined olefinic unsaturated liquefied petroleum gas (uLPG). Additionally, the refinery logistics are now dependent on the reliable utilization of the downstream petrochemical units, as the rationalization of storage facilities means that none of the businesses can operate independently. Production losses from one business will affect the entire cluster, and, in the event of a loss scenario, these vulnerabilities have the potential to result in larger margin impacts than the original operating configuration and independent loss scenarios.

This reduction of business resilience creates interesting challenges for risk managers. Running a leaner process may appear beneficial from a margin perspective, however, unplanned downtime and lost spontaneous uLPG intermediate import trading opportunities has the potential to offset any margin gains. **It is essential that there is a strong understanding of the interdependency risks, and consideration needs to be given to the ways the businesses will manage them.** The following considerations may help to reduce these emerging risk exposures for operators:

- Host regular reviews to identify interdependency and critical nodes.
- Create molecule management systems to develop, manage and steward value chains.
- Prioritize cluster equipment criticality on a general interest value basis.
- Use risk assessments to justify the high availability and maintenance of critical node facilities.
- Identify new mitigations and operating modes which contribute in to business continuity plans.

SPOTLIGHT

Supply chain dependency on specialty products

Petrochemical manufacturing processes beyond commodity grade production are becoming increasingly reliant on bespoke, undiversified supply chain networks. This increases the dependency risk exposures for both the manufacturers and the consumers of these products.

In the event of a loss at either a third party or the insured, the entire value chain can be broken triggering CBI losses. In addition, following a significant outage period, manufacturers may be exposed to a significant ramp up time as they look to develop new marketing and sales of their specialty grade production into a new supply chain network.

UNDERSTANDING DIRECT AND INDIRECT SUPPLIERS

In order to make sure that the right level of insurance coverage is in place for CBI risks, organizations need to make sure policies are constructed in a way that accurately reflects the complex operational integration and contingent commercial interactions. This should include in-depth discussions with their risk advisers, brokers, and insurers to ensure that the insurance product responds in line with stakeholders' expectations.

The development and optimization of production clusters can lead to new direct and indirect commercial arrangements. In the event of a loss, the risk may either be shared or transferred across businesses as a function of transfer pricing calculations. Disclosing supply chain and cluster interdependency relationships to insurers is a prerequisite to ensure adequate CBI insurance policy coverage.

To put this into context, an Australian chemical producer[1] recently lost a $10 million lawsuit seeking CBI coverage from its insurers. Insurers denied the organization's CBI claim on the basis that only its pipeline owner– and not the natural gas producer – was a direct supplier to the chemical producer and coverage did not extend to indirect suppliers. The chemical producer argued that, although its contract was with pipeline owner, which delivered the natural gas, the other company was, in fact, the provider and direct supplier of the gas.

Cases such as this highlight how critical it is to review and understand CBI exposures and coverage. Innovative lines of cover, such as dedicated supply chain policies, can help an organization when attempts to secure CBI coverage within property damage/BI policies are not successful, or when cover is required for indirect dependencies. These alternative policies can also develop methods to cover non-damage events.

CONCLUSION

Risk exposures in energy and power operations are some of most challenging to identify, assess, and manage. These manufacturing complexities are continually evolving as the industry develops new ways to remain competitive, while adapting to mandatory regulatory changes. Marsh expects operator complexity will grow, as new optimization work processes drive integrated value across entire supply chains, delivering new co-optimized production clusters that will aim to maximize general interest profitability.

The commercial changes between affiliates will drive the industry understanding of business interruption to the next level. It is therefore essential that the insurance industry adapts to recognize these changes and deliver policies that accurately reflect these evolving business risk exposures. Stress testing of policy wordings, against a range of credible loss scenarios, is one method to ensure the policy mechanism responds appropriately alongside the new business commercial structures.

Conducting business interruption reviews for industrial complexes benefits both risk managers and insurance markets. Independent experts can quantify operational resilience, critical nodes, and supply chain interdependency. This promotes internal risk management processes and helps in marketing risks to underwriters for insurance placement purposes.

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