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The Sunset of an Industrial Plant and the Global Decommissioning Challenge

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After many years of productive service, industrial plants reach the end of their useful life and must be dismantled. This complex and costly process, know as decommissioning (commissioning refers to the beginning of a plant useful life), is a confluence of economic, environmental, physical, and regulatory challenges.

Deciding when an industrial plant becomes "idle iron", as it is referred to in the Gulf of Mexico (GoM), requires detailed analyses taking into consideration multiple factors such as commodity prices, operating costs, remaining reserves and regulatory regimes.

Once a decision is taken, the following steps require highly specialized workers to ensure that the plants are safely and efficiently dismantled, in an environmental sustainable way. Adding to the significant operational complexities, operators also need to be able to navigate the many environmental and waste management regulations of individual nations.

But what does this all mean in practice? In the case of an offshore Oil and Gas (O&G) asset, for example, decommissioning steps include sealing the well, removing the platform, the subsea installations, and returning the environment to its original condition. Key environmental issues need to be addressed and managed, including the appropriate containment and disposal of hazardous substances and materials; the need to remediate any potential direct effects on the marine ecosystems; and the removal of any debris that might have accumulated on the seabed.

At first reading this might seem to imply that these complexities can be addressed only when operators are actively considering dismantling a plant, but this is not the case - far from it.

Recent M&A deals have shown that decommissioning considerations are now coming into play well before an asset becomes "idle iron" - and can create a stalemate in the transactions. This is particularly true in places like the UK Continental Shelf with its onerous decommissioning regime, where the price buyers might offer for an asset is negatively affected by both the significant decommissioning costs and by the need of providing a security for the associated liability.

Non the less, major International Oil Companies (IOCs) pursuing a strategy of divesting non-core, late life assets in order to strengthen their balance sheets and reduce debt, have been successful, but this has only been possible thanks to innovative deal structures in which IOCs retain decommissioning liabilities. Retaining liabilities allows a company to reduce the risk profile of a deal, and hence increase the marketability of these assets and

the ability to achieve higher valuations. **Shell sale of UK North Sea assets to Chrysaor**, in 2017, exemplifies this. Of the associated decommissioning costs, expected to be around $3.9bn, Shell will retain a fixed liability of $1bn.

The reason decommissioning is only now starting to come under the public spotlight has its roots in our insatiable quest for energy. Over the years, billions of dollars have been invested - in offshore O&G alone - to build the needed infrastructure to bring fossil fuels to energy thirsty markets. As these assets age the decommissioning industry is rapidly increasing in its size and scope, making the decommissioning **challenge more and more pressing for al stakeholders**.

At the end of 2016, IHS Markit was forecasting spending on offshore O&G decommissioning projects to increase from approximately $2.4 billion in 2015, to **$13 billion-per-year by 2040**, but the market has already reached almost $6 billion in 2018, and is now expected to grow to $9.5 billion by 2027.

It is important to note that while the O&G sector will – by far - take the lion's share of offshore decommissioning operations, it does not represent the full picture. In 2015 the Swedish Yttre Stengrung **wind farm** became the world's first offshore wind farm to be decommissioned. It was a small farm with a unique design that lead to an early decommissioning - only after 27 years in operation. But the truth being that even well maintained plants cannot last forever and with more offshore wind being built all the time, decommissioning activities will also grow in the renewable sector.

Looking forward, due to the decommissioning industry infancy there are **very few benchmarks outlining the cost, schedule, and scope of these projects** and therefore there is a glaring need for both the nascent industry and policy makers to develop an integrated set of solutions to strategically navigate the financial, operational, environmental and regulatory complexities involved.

From this perspective, I would recommend an approach to decommissioning that includes the following elements:

- **Integration of decommissioning costs and liabilities in new projects evaluations.** Asset-intensive O&G companies (but this is true also for the nuclear sector, and power sector in general) should have a better understanding of associated costs and liabilities as early as the feasibility stage of new industrial projects. This because decommissioning considerations could significantly impact portfolio economics.

- **Definition of clear regulatory regimes and best management practices globally.** This, not only to allow companies to have a clear understanding of varying environmental regulations and tax regimes complexities in their global operations, but also to allow governments to hold operators more accountable.

- **New public – private collaborations to develop innovative and environmentally friendly alternatives to decommissioning**. The Rigs to Reef program in the GoM converting decommissioned oil and gas platforms into artificial reefs, and/or the use of abandoned areas (know as brown fields) to build solar farms are good examples. This will also allow all stakeholders to extract more value from the investments.

- **A concerted approach to demystify decommissioning operations and to ensure that local communities and the public at large have an appropriate perception of the process.** Many people believe that operators will defer decommissioning and activities will continue to be pushed into the future as long as possible.

We all have a stake in the decommissioning global challenge and want these projects to be executed both safely and successfully.