


LNG INDUSTRY

A supplement to Hydrocarbon Engineering

Spring 2008


ConocoPhillips

Liquefied Natural Gas

Optimized Cascade™ Process 

The image features a hand holding two blue puzzle pieces. The background is a light blue gradient with a sunburst pattern emanating from the top center. A white, torn-paper-like shape is layered over the sunburst, framing the text. The text is in a bold, blue, sans-serif font with a white outline.

ON COMMON GROUND

Fallah Chennouf, Sonatrach, Algeria, and Ian Smith, KBR, USA, discuss the companies' recent Skikda project and long standing relationship.

Sonatrach had good reason to act swiftly in 2004. The Algerian state owned oil and gas company needed to replace three LNG trains totalling 3.2 million tpy that an explosion and fire destroyed. Rebuilding the site was vital to the community and would take several years and several billion dollars now that project costs were escalating along with the price of crude oil.

Skikda is of national importance to Algeria and Sonatrach's objective is not only to regain ground from a production and revenue standpoint but also to create new jobs for the Skikda community. Sonatrach wants to bring hope and an economic boost to the surrounding area by creating 6000 - 8000 jobs during the LNG plant construction phase and 100 - 150 permanent positions once the plant enters its operational phase.

Even though Sonatrach wants to get their plant into production as soon as possible, there are other weighty goals including enhancing Algeria's LNG exports while improving the economic vitality of the Skikda region.

Behzad Kazerani, KBR Vice President of North African Sales, confirmed that the Skikda project would also provide needed gas resources to North America and the European Union while providing flexibility for Algeria in the marketing of its gas resources. Algeria became the world's first producer of LNG in 1964, and the industry expects that over the next 5 - 10 years the country will continue to lead the world in Atlantic Basin LNG export. Currently, Algeria ranks as the fourth largest exporter of LNG worldwide.

Skikda was one of the initial projects affected by resource shortages and escalating project

costs that have become a reality for LNG projects around the world. Now that the LNG product price has also escalated, the question for those considering LNG plant investments is whether the LNG product price will remain high enough to justify plant investment.

Product prices have risen, since the price of LNG is related to the price of crude oil. It is all sold on heating value, and heating value is taken from the price of crude. Because the price of crude (and LNG) fluctuates, clients tend to take a conservative approach when assessing project economics, and often underestimate what the value of crude is going to be down the line.

While underestimating product value protects LNG plant investors this practice can make economic returns of a project appear lower than they will actually be. Just as clients must protect their investors, contractors have their own investors to protect when projecting cost escalations over several years. Using conservative assumptions on both product and plant prices is likely to result in a situation where the revenue stream does not justify the investment in the plant. In the case of a massive project such as Skikda, both Sonatrach and KBR needed a way to allocate risk so that projected investment returns reflect realistic prices for both product and plant.

Understanding that prices were keeping the Skikda rehabilitation from going forward, KBR presented a new contractual framework for addressing the current market environment where escalating project costs and the availability of qualified personnel often influence business decisions.

After more than 24 months of proposals, counterproposals, hot and cold discussions, drawn out

negotiations and more than 15 000 documents, Sonatrach and KBR reached common ground and signed an agreement on July 7th, 2007 for the construction of a new 4.5 million tpy Skikda train. KBR put the new train on track for a November 2011 startup.

Hybrids reflect changing market

'Major LNG contracts in the past were mostly lump sum,' says Normand Grenier, KBR Senior Counsel. 'But Sonatrach wanted a lump sum at a time when the market was changing and prices were escalating,' he adds. Lump sums in this climate are too complex for contractors to gauge and the contingencies needed are too substantial for clients. This volatility in pricing drove KBR's and Sonatrach's negotiating team to find a way to get Sonatrach what they wanted most: the best market prices for equipment, subcontracts and materials, whether technical or commercial, by keeping these costs reimbursable.

Hybrids keep some risk with the EPC contractor

The teams also understood that the alternative of a cost plus reimbursable contract did not suit Sonatrach. Cost plus contracts require significant human resources that are now lacking for all major companies, and particularly Sonatrach, which is facing a substantial investment in its infrastructure in the next decade. Additionally, Sonatrach was investing a lot of its own money in Skikda, and they needed KBR's commitment to effectively manage and enhance project performance. 'Our ability to accelerate contract negotiations was the result of agreeing to commit our services, fees and responsibilities as lump sum and the vendor/subcontractor costs as reimbursable; in other words a hybrid,' says Grenier. 'It was important to Sonatrach that their EPC contractor was fully committed to the project and shared some of the risk.'

Hybrids require two companies, one vision

With a hybrid, a contractor has more responsibilities and guarantees than when using a reimbursable contract but lacks full control of the operations of a lump sum. Combining facets from two traditional contracts makes it increasingly important for Sonatrach and KBR to cooperate to perform the project efficiently as in a lump sum.

Both KBR and Sonatrach are working in transparency to achieve common goals. Staying on top of project goals and practicing open communication to avoid misunderstandings is how Sonatrach and KBR focus on what is vital. Part of Sonatrach's responsibilities as an integrated team includes overseeing and approving studies, drawings and thousands of documents to help speed up the work. But part of KBR's responsibility is to communicate all information needed so Sonatrach can make the best decisions possible.

Both companies are involved in teambuilding exercises from KBR's Houston offices and are optimistic they will meet the milestones that lie ahead. Eighteen of Sonatrach's Skikda team members arrived at KBR's Houston offices in November 2007, and the company is increasing that number to approximately 30. Sonatrach's team is on a one year assignment and could stay as long as 18 months depending on productivity and how fast they meet project goals.

KBR's Skikda project team was at work well before the effective contract date in late September 2007. KBR

will have 300 dedicated employees based in the Houston office at peak working on Skikda. They will also have another 100 - 150 employees in Monterrey focused on detailed engineering.

Obtaining information and approvals from government authorities in Algeria can be an involved process. 'Most countries have their own set of rules for importing materials and equipment, overseeing port congestion and taking safety precautions,' says KBR senior manager of procurement and materials, George Daly. 'Getting project members and materials through the point of entrance in Algeria and into the job site safely is an integrated task that KBR and Sonatrach will perform jointly.'

KBR and Sonatrach's collaborative relationship includes more than signing their first hybrid contract in the LNG industry. This project also marks the first full EPC LNG project that KBR has executed on its own and from Houston in 30 years.

Going forward

KBR prides itself on delivering complex projects on time, and having one of the best safety records in the industry. Daly says that safety is a core value at KBR, and that KBR prequalifies contractors at an early stage to account for prior safety records, the number of safety incidents, the number of accidents, lost time days and so forth before developing a bidder's list.

Controlling costs, meeting schedule milestones, communicating effectively, working safely and providing maximum security to foreign guests are just some of the challenges that are faced when working on Skikda. So far everything is on schedule, performing well and goals are being met. Ongoing hurdles being faced by KBR include effectively controlling cost and meeting schedule targets each month. Besides achieving monthly goals, KBR's project team monitors progress measurement and cost trending. 'Getting our systems in place and compiling a strong team from engineering, procurement and construction all aligned with the client's vision and our responsibilities is 99% of achieving our monthly objectives,' says Cathy Papouchado, KBR Senior Project Controls Manager.

One of the lessons that KBR's Skikda project team has gleaned from participating in a 24 month long negotiating process is that it pays to persevere. 'Just because a contract is not signed initially doesn't mean it's a lost opportunity,' says Kazerani. 'Understanding the client's priorities and mitigating his concerns is key to developing a solution that works for both parties.' Many times the negotiations stalled, stopped or approached yet another standstill but KBR's negotiating team says there is no substitute for providing a viable, creative alternative to meet client needs.

KBR's team asserts that this contract negotiation made them aware of how critical it is to listen to their client, be flexible, and most of all, respond quickly to their client's concerns. Sonatrach says that the contract with KBR provides the type of relationship that will assist Sonatrach in performing the Skikda project within all its own economic and social responsibilities in Algeria. At the end of the day, both teams admit their relationship is about working with a company they trust to create value that transcends to the client, the contractor and the Skikda community. **LNG**