Legal Perspective

EPC Contracting in the "Downstream" Marcellus Shale Market

By Brian R. Davidson, Esq.

The Marcellus Shale has the potential to provide a significant economic boom to Western Pennsylvania for the next twenty-plus years. Already, the "upstream" market is booming with the dramatic increase in natural gas drilling across the region. In the "midstream" market, Shell Oil Company and Williams Partners have recently announced their plans to form a joint venture, Three Rivers Midstream, to build a system to gather and process Marcellus Shale gas. However, the biggest long-term impact to the region as a result of the Marcellus Shale boom may come with the development of the so-called "downstream" market comprised of petrochemical processing facilities.

Shell has publically announced its intentions to build a multi-billion-dollar petrochemical facility, including an ethane "cracker" and other associated units, in Beaver County. If this construction project goes forward, it would likely last four to five years, would be one of the largest construction projects ever in Western Pennsylvania, and would bring thousands of construction- and engineering-related jobs to the region. Once completed, the facility will transform ethane extracted from Marcellus Shale gas into other products such as ethylene, a material used in the manufacture of various plastic products. (As we all remember from the movie The Graduate, the future is in "plastics.")

One of the first decisions that Shell, or any other owner of a large-scale industrial construction project, will be facing is the selection of the appropriate construction delivery method for its project. The most common types of contract delivery methods for these projects include: Engineering, Procurement and Construction ("EPC"); Engineering, Procurement and Construction Management ("EPCM"); Cost-Reimbursable; and Cost-Reimbursable with a Fixed Fee Component.

Generally speaking, under an EPC contract, the EPC contractor is responsible for all phases of the project from the development of the engineering through the commissioning and testing of the completed project. The EPC contractor must deliver the project by a guaranteed completion date, for a lump-sum fixed price, and at certain guaranteed performance levels. Under an EPCM contract, the contractor furnishes the engineering and procurement and manages the construction undertaken by a separate contractor. The major difference between EPC and EPCM contracts is that a third party is the construction contractor under the EPCM method. Cost-Reimbursable contracts are often tied to target price guarantees with sharing mechanisms in place for any cost savings or overruns with respect to the target price. It is not uncommon for a construction project to start out with a Cost-Reimbursable contract and then convert to an EPC contract once the scope of work has been properly defined.

In today's marketplace, the most common project delivery method for large-scale industrial construction projects is the EPC contract. The EPC contract provides the project owner with a single point of responsibility for the completion of the project on time and within budget. An EPC contract is often referred to as a Turnkey contract because the EPC contractor is required to deliver a completed project and all the owner has to do is "turn the key" to start the operation of the facility.

The EPC contract can be preferable to the owner from a project management perspective. However, there are relatively few construction companies that have the knowledge, experience and balance sheet sufficient to take on an EPC contract for a project as large as Shell's proposed cracker facility. As such, the EPC contractor is often a joint venture, or a consortium, of construction and engineering companies.

As the name suggests, under an EPC contract, the EPC contractor is responsible for the detailed engineering, the procurement of all necessary equipment and materials, the construction of the facility, and, most often, the commissioning and testing of the facility. In certain circumstances, a specialty engineering company with a proprietary technology process will provide a part of the engineering, either directly to the owner, or as a subcontractor to the EPC contractor. In addition, the owner may procure some of the long-lead capital items, such as turbines, generators, and compressors, directly prior to the execution of the EPC contract and later assign those purchase orders to the EPC contractor. Otherwise, the EPC contractor, which will be largely responsible for the supply chain, will enter into multiple purchase orders with equipment manufacturers and suppliers from around the world. Some EPC contractors will self-perform the construction activities, while others will subcontract that scope of work to specialty construction subcontractors.

The EPC contract will be executed based on a lump-sum fixed price, which can be subject to increases or decreases based on owner-approved change orders. Thus, the EPC contract provides the owner, and its project lenders, if any, with a degree of certainty as to the total capital price of the project. Conversely, the risk of a cost overrun, as well the benefit of any cost savings, will generally fall to the EPC contractor. The EPC contract price will include the contractor's profit and a contingency component for risks allocated to the EPC contractor, such as contractor-caused delays and construction materials quantity variations.

An EPC contract will include guaranteed dates for interim milestones, such as mechanical completion or substantial completion, as well as overall project completion. The EPC contractor's failure to achieve the guaranteed completion dates will typically expose it to significant liability for delay liquidated damages in a specified per diem amount. The total amount of liability for delay liquidated damages is usually subject to specific caps based on a percentage of the overall contract price. The purpose of delay liquidated damages is to compensate the owner for the projected losses or damages resulting from not finishing the project by the guaranteed completion date, such as loss of revenues or profits and extended financing costs. Under Pennsylvania law, delay liquidated damages are enforceable if they are a reasonable estimate of anticipated loss; otherwise, the delay liquidated damages could be deemed an unenforceable penalty.

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In most instances, the EPC contract will include a detailed performance specification which sets forth the performance standards that the completed facility must achieve, such as quantity and quality of production and utility and raw material consumption. The performance specification is often prepared by the owner itself using its own engineers or on behalf of the owner by a third-party engineer. In the normal course of events, the EPC contractor has the opportunity to review the performance specification before it agrees to the performance guarantees. The EPC contractor will have to carry out various functional and guarantee tests to demonstrate that the performance guarantees for the completed facility have been achieved. The failure to pass these tests may expose the EPC contractor to performance liquidated damages typically based on the percentage of the performance shortfalls. Generally, the EPC contractor cannot limit its liability to the payment of performance liquidated damages unless it has achieved minimum guaranteed performance levels. Until the minimum guarantees are met, the EPC contractor at its cost is required to make plant modifications to improve plant performance. This is referred to in the industry as a "make good" guarantee.

The standard EPC contract will include various contract provisions that provide additional protections to the owner. For example, the EPC contract will include general warranty provisions under which the EPC contractor, for a specified period of time following project completion or other specified milestones, will be required to remedy any discovered defects or deficiencies associated with its scope of work. The interplay between the obligations of the EPC contractor under its performance guarantees and general warranty can often be misunderstood by those not familiar with the industry. The EPC contractor will also be required to provide any or all of the following financial instruments as additional protection to the owner: a performance bond and a labor and material payment bond from an approved surety company, each in the amount of 100% of the contract price; a parental guarantee; and/or an on-demand irrevocable letter of credit equal to an agreed upon percentage of the overall contract price.

From the EPC contractor's perspective, the EPC contract can also provide significant protections. In particular, the EPC contractor will have the opportunity to seek additional time and/or money for the impacts of various events including, delays caused by the owner or its other contractors, owner initiated change orders, suspensions of the work, and events of force majeure. In order to protect itself against unlimited liability, the EPC contractor will seek caps on its liability for delay and performance liquidated damages, as well as its overall liability, all based on a percentage of the total contract price. The owner will typically seek exceptions to these limitations of liability based on events of willful misconduct, fraud, or material breach by the EPC contractor. The EPC contract will expressly define the owner's remedies for warranty claims and performance shortfalls as the owner's "sole and exclusive" remedies.

Both parties will want mutual disclaimers of consequential damages, and the right to terminate the EPC contract based on certain specific events of default by the other party. In the end, a successful project will be based upon an EPC contract that fairly allocates the risks between the EPC contractor and the owner.

If Shell elects to go forward with the construction of a cracker plant in Beaver County, the positive economic impacts will be felt throughout the region for years to come. Construction and engineering jobs will be created, and local equipment manufacturers and suppliers will be called upon to provide the materials necessary to construct the facility. In short, while an EPC contract provides for a single point of responsibility, thousands of individuals and companies will contribute to the construction of the Shell cracker, or any other large-scale industrial plant constructed as a result of the regional Marcellus Shale gas boom.

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