

Insurance for commercial IGCC projects is breaking new ground

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Merging chemical process with electric utility technologies and practices for IGCC design and operation poses new challenges for owners and insurers.

First developed during the 1800s, the process of partial oxidation – or gasification – of carbonaceous feeds is still used for the production of synthesis gas, a mixture of carbon monoxide and hydrogen.

The most well-known and historic route for the production of syngas was from the batch gasification of coal to produce a fuel known as “Town Gas” that was used extensively first for street lighting and later in homes for cooking and heating in the mid-20th century.

Today, the large scale continuous gasification of either coal or refinery byproducts is providing “clean fuel” for power generation by syngas-fueled combined cycle gas turbine plants that are integrated with the gasification process. Both electric utility and industrial applications that are primarily related to refiners and upgraders are involved.

Merged technologies

Such facilities, known by the industry as Integrated Gasification Combined Cycle plants (IGCCs), present a unique challenge in the insurance world by merging technologies more typically found at a refinery or petrochemical complex with advanced state-of-the-art utility power generation equipment.

Insurance requirements for IGCC process operations begin with standard marine cargo cover for the bulk materials and key equipment items being shipped to the facility site. Given the long lead time to replace many of the components critical to plant operations, coverage for Advanced Loss of Profits/Delay in Start-Up (ALOP/DSU) resulting from loss or damage to equipment

during transit should be considered alongside the standard cover traditionally purchased.

Once construction begins, Erection All Risks (EAR) and Builders Risk insurance is essential for both the construction phase and the “high risk” period during operational testing and commissioning.

Because of the integrated nature of these facilities, the testing and commissioning periods for IGCC projects will be considerably longer than for the typical stand-alone natural gas-fired combined cycle gas turbine facility – particularly given the need for the upstream plant to meet stringent fuel quality requirements.

When negotiating project terms and conditions, consideration should be given to the potential for project schedule extensions and prolonged commissioning periods.

There are risks such as contractual guarantees associated with plant performance and relative lack of experience with F-class gas turbine technology operating on syngas fuels.

Typical coverage

Erection risk policies typically provide three to six months for testing and commissioning. If longer periods are anticipated, given the complex nature of the project, early discussion with your project insurers is recommended to help appropriately evaluate the risks.

Other insurance coverage recommended for IGCC facilities include operations cover that is provided on an “All Risks” policy (meaning that you are covered unless something is spe-

cifically excluded) that includes boiler and machinery breakdown, business interruption and loss of profits. Policies will normally dovetail with contractual warranty provisions, provided by the Engineering Procurement Construction and Commissioning contractor (EPCC) and Original Equipment Manufacturers (OEMs).

These are likely to run from the commencement of commercial operations and should be for a minimum of 12 months on items with a proven operating history. However, longer warranty periods would be recommended whenever there is a lack of plant and equipment operating experience.

Notably, on some recent non-IGCC projects, developers have also sought extended warranties from the manufacturers of the unproven equipment that provide for resultant damage and also for liquidated damages in the event of failure to meet availability targets.

When an insurance company assesses the risk presented by any project, it looks to the experience of the personnel involved with similar projects and to the operating history of similar technology to determine the underwriting risk.

Track record

To date, the major IGCC projects undertaken have started out being highly developmental in nature before being accepted by their owners for commercial operation. While valuable experience has been gained from those early projects, new plant designs for tomorrow’s applications will differ considerably from the technology employed 10 years ago.

Given the continuing evolutionary nature of IGCC plant designs and technologies, an insurance company must have the knowledge and expertise to understand the project and interpret the risks presented by the new facility.

While generating power is the main purpose of these facilities, the nature of some of the processes involved present power generation insurers with uncommon potential for loss such as that resulting from vapor cloud explosion (VCE) or catastrophic failure of the cryogenic air separation unit (ASU).

These are exposures that many utility insurers will not have the necessary expertise to assess and underwrite. Because of these risks, the policy limits required are often substantial, particularly where business interruption is insured, given the extent of damage likely and the time to re-build, which is commensurate with these loss scenarios.

Third-party liability insurers typically would anticipate that the majority of the loss potential for power generation facilities will remain within the site boundary fence and not endanger non-employees outside the facility.

Unfortunately, a release of either

carbon monoxide or hydrogen sulfide, produced in the process as a byproduct of the gasification of high sulfur feeds, has the potential to travel beyond the boundary fence and can pose a health and safety hazard not frequently encountered in the utility industry.

The cost for business interruption coverage for an IGCC plant can also be substantial due to the high value of the investment and the relatively high margins that such plants are likely to project from their operations given the potentially low value feedstock and possible “green credits” associated with application of IGCC technology.

Coverage factors

Overall, financing IGCC facilities will often result in onerous lenders requirements based on the level of limits purchased, scope of cover required (particularly in relation to customers and suppliers extensions), amount of risk retained, the indemnity periods necessary to contemplate the rebuild following a VCE or ASU plant explosion.

Added to this is the uncertainty with respect to the future time for delivery should replacement of key components such as generator step-up transformers

be necessary, given the current tight supply versus demand situation.

To ensure that your IGCC operations are appropriately insured, work with your broker to identify insurance companies with experience in the construction and operational insurance requirements of IGCC facilities. Your insurance carrier should be one that has worked closely with plant developers and operators, and is capable of developing the solutions your facility requires.

A strong insurance team will include engineers who understand the risks presented by IGCC facilities and can provide relevant advice specific to both the gasification and power generation technologies involved.

You are more likely to have a successful operation when you partner with an insurer accustomed to the issues facing your facility and who can help you minimize operational risk. ■

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300 MW Puertollano IGCC plant. Coal-based plant will have completed 10 years of commercial gasification operation in March 2008. Powered by a Siemens syngas-modified V94.3 gas turbine power block fed by a gasified mix of petroleum coke and low-grade coal (40% ash) feedstock. Industry's current commercial IGCC plant offerings are powered by F-technology gas turbines.