

# Oil and Gas Projects Flourish in Asia-Pacific

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With an unparalleled range of geographies, economic conditions, religions and political systems, the countries of Asia and the Pacific region offer some of the most diverse markets in the world. For international contractors serving the energy industry, Asia-Pacific is a region that presents enormous opportunities, but the risks associated with these opportunities are substantial. Success in the area often depends on reducing these risks to manageable levels by maintaining a local presence and by drawing upon the technical and financial resources of a global organization.

## Regional Growth Spurs Activity

The Asia-Pacific region encompasses a few countries with well-developed industrialized economies – Japan, Australia and New Zealand – and many countries with emerging or developing economies. Much of the world's economic growth over the next two decades is expected to occur in the developing nations of Asia, where the U.S. Energy Information Administration (EIA) projects annual growth of 5.1 percent in gross domestic product (GDP), compared with 3.0 percent per year for the world as a whole. China is expected to have one of the highest growth rates among the world's economies, averaging 6 percent per year between 2001 and 2025, which should position it as the world's third-largest economy after the United States and Japan.


While there are considerable oil and natural gas reserves in the Asia-Pacific region, most notably in India, Indonesia, Malaysia, China and offshore western Australia, long-term energy demand growth is expected to surpass its own production capacity. Eventually, the countries in the region are expected to be the dominant consumers of the world's energy supplies. Coal is the primary energy source in China and India due to Asia's large coal reserves; however, crude oil is the energy source of choice throughout the remainder of the Asia-Pacific region.

Energy demand in the emerging economies of developing Asia, including China and India, is projected to more than double between 2001 and 2025. Net

electricity consumption in the developing nations of Asia is projected to rise by 3.7 percent annually during the same period. Population growth and urbanization in China and India are expected to produce large increases in demand for residential electricity, while rising incomes and rural electrification efforts will further boost demand. In the industrial sector, energy consumption in developing countries is projected to increase from 40 percent to nearly 50 percent of worldwide industrial sector consumption by 2025, with China's industrial sector leading this growth.

During the next two decades, oil is expected to retain its position as the world's foremost source of primary energy consumption. While industrialized countries continue to consume more oil than developing countries, the gap is narrowing. By 2025, developing nations are expected to consume an amount equal to 94 percent of the total amount of oil consumed by industrialized countries. Petroleum-based fuels used for transportation are poised for strong growth in developing Asia. Once again, China is the key market that will drive growth





in regional consumption, followed by India, Thailand and Indonesia. Energy use for transportation in China is expected to increase by 5.3 percent annually between 2001 and 2025, while demand in Asia's other developing countries will also experience strong growth as rising standards of living result in increased automobile ownership. Energy demand for transportation in the industrialized countries of Asia-Pacific will also increase, but at a slower pace.

Natural gas consumption is expected to increase throughout the Asia-Pacific region in the coming years as well. In the industrialized countries of Japan, Australia and New Zealand, annual gas consumption is projected to grow from 3.9 trillion cubic feet (TCF) to 6.0 TCF between 2001 and 2025, an average annual increase of 1.8 percent. In developing Asia, natural gas consumption is expected to increase by an average of 3.5 percent per year during the same period. China and India will be setting the pace as the region's fastest-growing energy consumers, with projected average annual increases in natural gas use of 6.9 percent and 4.8 percent respectively.

Demand for petrochemicals is also growing rapidly in the developing countries of Asia, since the petrochemical market tends to emulate GDP growth. For instance, consumer demand for plastics in China and India, driven by rising incomes and increased consumer purchasing power, has led to a rise in petrochemical imports and the development of petrochemical processing facilities. China's GDP, which grew 9.5 percent in 2004, is expected to continue strong growth.

### **E&C Firms Rise to the Challenge**

Responding to the growing demand for energy in the Asia-Pacific region, international and state-owned energy companies have invested in the development of technically complex, world-scale facilities in the region. Liquefied natural gas (LNG) import terminals are being developed in China, India, Japan, South Korea and Taiwan, while LNG producers in Australia, Malaysia and Indonesia have recently completed or are contemplating expansion of their capacity with new liquefaction trains.

Several of the LNG import terminals have associated gas-fired electricity generating plants under development. Massive petrochemical plants are either in the engineering phase or are under construction near Shanghai and in China's Fujian, Guangdong and Zhejiang provinces, as well as in Singapore and Taiwan. Grassroots oil refineries are under development in China, India, Indonesia, Taiwan and Vietnam, while numerous existing refineries are expanding capacity. Meanwhile, refinery owners in Australia are facing government-mandated requirements

to lower the sulfur content of transportation fuels, similar to clean fuels regulations in other parts of the world. These regulations require capital expenditures for the construction of hydrotreating and sulfur recovery facilities.

Given the technical complexity and financing requirements of these projects, energy companies have engaged international engineering and construction (E&C) firms for design and execution. Developers use international contractors because of the technical expertise and experience, management capabilities, financial strength and global supplier relationships they bring to the table. With billions of dollars on the line in many of these projects, an E&C company's proven track record of past success is an essential selection criterion. Global resources and experience are highly valued in this market. CB&I, for example, has been working in the Asia-Pacific region for more than 80 years, and the company established an Australian subsidiary in the early 1960s.


**Southeast Asia/China.** Most of the developers of hydrocarbon processing and storage projects in Southeast Asia and China, whether international, regional or local, are interested in maximizing local content. Driving this interest is the desire to boost the local economy and develop local resources. Other considerations include an awareness that local suppliers are more price competitive; they have a better understanding of their region's environment, practices, codes and standards; and they can more easily obtain the necessary licenses and qualification certificates. A final consideration is more long term in nature, as developing countries seek technology transfers that will perpetuate economic growth and local resource development in the future.

Successful regional contracting, therefore, requires understanding the strengths and weaknesses of these local resources, and then utilizing their strengths and managing their weaknesses to reduce project risks to acceptable levels. Most international contractors find that establishing a local presence in the region will enhance their prospects for success.

A local base of operations helps the contractor:

- understand the markets and customers;
- understand the local resources and suppliers;
- understand local regulatory requirements (such as permits, taxes, registrations and banking); and
- develop competitive approaches to the local marketplace that are compatible with the contractor's guidelines and practices for doing business.

Indeed, in many locations in Southeast Asia and China, local partners are required. In some cases,



developers seek to lower the project's risk profiles and costs, while in other situations they must comply with regulatory mandates. Local partners can help foreign contractors negotiate the landscape and the often complex relationships among city, provincial and national authorities. In working with a local partner, it is important that the contractor's project team members possess the appropriate cultural sensitivities to ensure a smooth working relationship and promote maximum safety, productivity and quality. It is critical for both parties to align their values and interests from the start and to manage their relationship over the course of the project.

**Australia.** In Australia, a local presence is as much a key success factor for international contractors as it is elsewhere in the Asia-Pacific region. Since many projects require detailed knowledge of Australian codes, maintaining a local engineering group helps keep the firm abreast of code requirements. And a local presence obviously facilitates relationships with repeat clients.

Australia differs from other Asia-Pacific nations, however, because the country is highly unionized. With unions holding significant economic and political power, project success is often dependent on successfully managing local industrial relations.

Labor agreements are typically negotiated on a job-by-job basis, so current knowledge of the market and other agreements is essential. Established relationships with union officials are necessary both during negotiations and during project execution. Additional elements for successful industrial relations include implementing and managing agreements fairly, screening personnel for hire, maintaining good employee relations between supervisory staff and tradesmen and proactively managing safety and other workplace issues.

The current active market in Australia is making it harder to attract and hire good labor, so contacts are important. CB&I, for example, is able to retain key people by placing them in assignments outside Australia when workloads decline in the country. CB&I recently had as many as 70 Australians working on a major LNG expansion project in Nigeria. This ability to offer overseas assignments is a differentiator to prospective employees and helps attract and retain the best people.

Another key factor for success in the Australian market is a contractor's ability to work at remote sites, since many of the country's mineral and natural gas processing projects are in very sparsely populated locations. Handling the logistics of remote sites for both labor and materials is essential, and this ability has enabled CB&I to complete projects successfully, whether

in the deserts of Western Australia or in the jungles of Papua New Guinea.

### **Strong Growth Forecast**

With strong economic growth forecast for the next couple of decades, rising demand for energy and petrochemical products should lead to abundant opportunities in Asia-Pacific for international engineering and construction firms in the oil and gas sector.

Successful project execution in the region requires the technical expertise and financial strength of global contractors. Just as important is the need to combine this global capability with local knowledge of the region, knowledge that has been gained through the development of relationships and the commitment to maintain a local presence in the region. ■

**Gerald M. Glenn is chairman, president and chief executive officer of CB&I, a global engineering, procurement and construction (EPC) company. He was appointed to his current position in February 1996.**

**Under Mr. Glenn's leadership, CB&I embarked on an ambitious cost-reduction and growth program, culminating in the acquisitions of Howe-Baker International, LLC, the Engineered Construction and Water Divisions of Pitt-Des Moines Inc., the U.S. EPC operations of Petrofac Limited and John Brown Hydrocarbons Limited. These acquisitions have vaulted CB&I's revenues to an annual rate of nearly \$2 billion and have positioned the company as one of the world's premier providers of turnkey low-temperature, cryogenic and above-ground storage systems, as well as hydrocarbon processing plants.**

**Mr. Glenn is active in the United Way and serves on the board of directors of Junior Achievement of Southeast Texas and the school board for the John Cooper School. He and his wife served as co-chairs of the 2005 Montgomery County Heart Ball. Mr. Glenn also sits on the board of the Gas Technology Institute, and he is a member of the Chicago Council on Foreign Relations, the Economic Club of Chicago, the Executives' Club of Chicago, the Mid-America Committee, the US-ASEAN Business Council, the 25 Year Club of the Petroleum Industry, the Greater Houston Partnership and numerous other organizations.**

**Mr. Glenn is a graduate of Clemson University, where he received a bachelor's degree in civil engineering. He and his wife, Candice, live in The Woodlands, Texas, with their two sons.**