



R&I Rating Approach by Sectors: Industrial Gas

(This report is an English translation of the original report in Japanese.)

General View

Industrial gas is the generic name for various gases used in manufacturing production processes. The main products are air separation gases - oxygen, nitrogen and argon - which are manufactured by separating air into its component gases. The category also includes carbon dioxide, hydrogen and specialty gases for electronic materials. Industrial gas is distinct from city gas and LP gas, which are used in homes and commercial facilities. With the exception of certain specialty gases, industrial gas is unsuited for export because of transportation costs, and basically the industry is built around domestic demand. The size of Japan's domestic industrial gas market was estimated at about 500 billion yen in 2006. Achieving an accurate understanding of the market's size is difficult, however, because there also are domestic users that meet some of their industrial gas requirements through internal production for in-house consumption.

Capital investment and capacity utilization rates of major customers, particularly in industries such as iron and steel, chemicals and electrical machinery, easily affect total industrial gas demand. Demand shows a propensity to expand in conjunction with the growth of domestic mining and manufacturing production. Oxygen, for example, which the iron and steel industry utilizes in large quantities, is highly synchronized with domestic crude steel production. Trends in the chemicals and electrical machinery industries, on the other hand, affect demand for nitrogen, which is used in safety applications at petrochemical complexes and as an ambient gas to create the oxygen-free environment required for semiconductor manufacturing processes.

The main air separation gases are general-purpose products, which are difficult to differentiate quality between producers and electric power costs, depreciation and amortization expense represent a large portion of the production cost. Traditionally it was difficult to improve profitability because of the large number of manufacturers vying for market share, and price competition was severe. Triggered by the prolonged slump in demand and excessive competition in the industry since the 1990s, however, the reorganization of the industrial gas industry has significantly altered the industry structure. The eight major manufacturers that previously existed have now been consolidated into three companies: Taiyo Nippon Sanso Corp., Air Water Inc. and Air Liquide Japan Ltd. (Japan Air Gases Co.). These three firms control more than 80% of the domestic markets for oxygen, nitrogen and argon.

Backed by higher costs for electric power and distribution resulting from the sharp rise in crude oil prices, industrial gas companies had steadily succeeded in raising the sales prices since the fall of 2005, reversing what previously had been a soft pricing environment.

The increased ability of major customers such as the iron and steel and chemicals industries to absorb higher prices as their earnings continue to improve

Main Indicators

- Cash flow from operating activities, EBITDA
- Debt to operating CF
- Owners' equity, equity ratio
- D/E ratio
- Return on Total Assets (ROA), Return on Sales (ROS)
- Free cash flow

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is one factor behind these price increases, but the enhanced ability to negotiate prices as a result of consolidation in the industrial gas industry is also recognized as a key change. As order in the industry has recovered, the earnings stability of each industrial gas company appears to have increased.

Rating Points for the Industrial Gas Industry

Creation of customer bases and supply organizations

The major industrial gas companies supply large-scale demand users in the semiconductor, petrochemicals and iron and steel industries. They also supply gases to small and medium-sized users through their dealer networks and direct sales subsidiaries throughout Japan. These gases are indispensable to users' manufacturing processes, making it necessary for suppliers to construct gas manufacturing bases, including emergency backup systems, to meet their supply obligations in each region of the country. Building a strong customer base and a supply organization, supported by technological capabilities and ability to finance the capital investment related to large-scale gas manufacturing plants, is critical, and both considerations form a major barrier to market entry.

Supplying a major customer requires construction of an on-site plant. The plant itself involves the installation of a gas manufacturing device on the user's factory premises or adjacent land and supply of gas through a pipeline. Once a relationship is established, the on-site plant also forms a physical restriction that makes new entry by a competitor difficult. Although profit margins are thin, business risk is limited because agreements entered into ensure the plant construction costs and other expenditures are ultimately recovered. R&I evaluates favorably the size of the comparatively stable earnings and cash flow that strong business relationships with major iron and steel and chemical industry manufacturers and on-site plants will generate.

Investment capacity and financial resilience

Industrial gas is a typical process industry, with a substantial capital investment burden. Because an investment of several billion yen is required to put a large-scale air separation facility in place, balance sheets can balloon quickly, and asset efficiency can deteriorate easily. On the other hand, the probability of recovering an investment through supply in the form of an on-site plant is high, because stable sales are achieved through long-term agreements or other arrangements over about ten years. In reality, the entry of a competitor is almost impossible. Because of the substantial capital investment burden and long-term recovery cycle, financial indicators of major industrial gas companies, such as years to repay debt or financial structure, compare unfavorably with those of manufacturers in other industries, but R&I strongly reflects the industry characteristic of steady earnings obtained through on-site plants in its rating evaluations.

Because the earnings stability of the domestic industrial gas business has improved, increasing investment capacity will be linked to maintenance of a firm's customer pool and enhancement of its operating base. Ensuring the financial resilience that enables a firm to make investments to expand capacity with appropriate timing and scale in response to users' demands is vital. Therefore in its rating evaluations, R&I emphasizes indicators such as (1) the amount of cash flow that can be channeled into investment, (2) a financial base that ensures smooth procurement of external funds (amount of real equity capital, equity ratio and real debt/equity ratio) and (3) the balance between net debt and cash flow on a real basis. In some cases, firms also use leases for their investment in gas manufacturing facilities, and comprehending the net debt and cash flow in such instances demands careful attention to the affect of off-balance sheet factors such as lease obligations and securitization of sales receivables.

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Evaluation of international operations and diversification projects

Two of the major industrial gas companies, Taiyo Nippon Sanso Corporation and Air Water Inc., are aggressively pursuing mergers and acquisitions aimed at growth in scale. There are significant differences, however, in the two firms' approaches to development of businesses other than domestic industrial gas. Because of the strong linkage between domestic demand for industrial gases and mining and manufacturing production, there is little prospect for large growth because Japan's economy has matured. Given such circumstances, Taiyo Nippon is eyeing the world leaders in industrial gas and seeking a growth path through overseas expansion. In contrast to this approach, Air Water continues to position industrial gases as its core business, while also pursuing diversification into chemicals, medical services and other areas. Because both overseas expansion and diversification involve many businesses with high risk compared with the comparatively stable domestic industrial gas, linking business expansion to steady improvement of earning capacity, and increasing investment capacity by strengthening the financial base, will be vitally important. The issue is to achieve both business growth and maintenance and improvement of the firm's financial base, and free cash flow conditions also cannot be neglected.

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