

Company overview

Dissecting the marketplace

Flowserve, which provides pumps for the global infrastructure and process industries, has dealt with the ups and downs of the world's economic climate since being involved with steam pumping engines as far back as 1790. Keith Loria asks the company's vice president, James K Quain, about the situation today.

James K. Quain, Vice President and General Manager of Flowserve Flow Solutions Group, has nearly 30 years of pump managerial experience with Flowserve and one of its predecessor companies, Ingersoll Dresser Pumps. He has been monitoring the industry's trends and discusses how each market is faring in the current economic climate.

Quain started by saying: "In general, Flowserve's success has mirrored market strength with major project wins coming from global regions and industry segments exhibiting the most strength and investment. We've seen significant project wins in China, India, Russia and Middle East, and we continue to see solid success in Latin America and Northern Africa."

Among the company's recent successes are a large order for multiphase pumps designed to very demanding specifications for an oilfield expansion in Abu Dhabi, a master purchase agreement for a major exporting refinery project in Saudi Arabia, a major project for mainline crude pumps for pipeline capacity expansion in the CIS and Russia and a major licensing agreement with a large Russian ship repair center. In addition, there have been two significant orders for dual work exchange energy recovery (DWEER) devices for large desalination projects. Figure 1 shows dual work exchange energy recovery units for seawater reverse osmosis (SWRO) desalination.

Flowserve's customer mix comprises the world's major players in oil and gas, power generation, chemical processing, mining and water resources. Today, however, the company has also branched out into niche segments such as concentrated solar power (CSP), geothermal power, carbon dioxide (CO₂) capture and storage, and CO₂ injection for enhanced oil recovery.

Comments James Quain: "We've developed many strong relationships with new technology providers and contrac-

tors that will prove to be mutually beneficial for decades to come as these new technologies commercialize.

"The driving force behind our served markets continues to be energy consumption and population growth. The last couple of years have been characterized by slowing growth in energy use. In fact, 2009 was the first year we saw a decrease in energy usage globally in nearly three decades, the result of difficult global economic conditions.



Figure 1. Dual work exchange energy recovery units for seawater reverse osmosis (SWRO) desalination can recover up to 98% of the energy in the brine waste system.



Figure 2. A twin-screw double-suction pump for multiphase services onshore, offshore and subsea.

“The least affected by the global recession were India and China where immediate demand increases for energy continue to outpace the rest of the globe”, said Quain.

Oil and gas

Oil prices are rising, reflecting an increased global demand, so investment in exploration and production is gaining momentum. In addition, advances in drilling and recovery techniques as well as sub-sea production (see Figure 2) are expanding production possibilities, keeping oil and gas an attractive investment for the world’s leading producers. In fact, it is becoming easier to access the world’s unconventional reserves.



Figure 4. High pressure, double case, multistage pump used for water injection in enhanced oil recovery.

“Investment in oil production appears to be broad-based with significant activity around the world,” Quain says. “Projects for tar sands in Canada are coming back. Big endeavors are underway in offshore production in many regions, especially in the Gulf of Mexico, Western Africa and Brazil. We also see an uptick in refining in areas such as China, India, Brazil, Middle East and Northern Africa.”

Figure 3 shows HPX single-stage process pumps for refinery and petrochemical plant services in application, while Figure 4 illustrates a multistage pump used for water injection in enhanced oil recovery.

Looking at natural gas, reserves and production are now back to levels last seen in the 1970s following years of decline – so says the International Energy Outlook 2010, released by the US Energy Information Administration.

Around the world, oil and gas producers have adopted and honed advanced drilling techniques, enabling them to tap unconventional resources such as shale gas, which is often trapped in dense rock thousands of feet underground.

“Even with accelerated demand for natural gas, current proven reserves could meet North America’s needs for the next 100 years and beyond,” says Quain. “Similar production activity to obtain unconventional natural gas is gaining strength in Europe. This represents an important opportunity in production applications.”



Figure 3. The type HPX single-stage process pump for refinery and petrochemical plant services.

Power generation

The International Atomic Energy Agency sites that power generation is expected to undergo significant changes as natural gas becomes a preferred energy source. This is because of large natural gas reserve discoveries, low relative cost to harvest, reduced environmental impact of emissions, speed of construction and low cost per megawatt of construction compared to other technologies.

“Near term, we expect the most robust activity to come from India and China where half the world’s nuclear power generation projects are planned,” Quain says. “As of late last year, 58.6 GW of nuclear capacity was under construction globally so we see a tremendous amount of opportunity in nuclear.”

Figure 5 shows a radially split, forged barrel reactor feed pump for nuclear service.

Concentrated solar power continues to show promise but only in certain pockets. Says Quain: “We’re tracking and participating in projects from the US to the Middle East.”

Desalination

In terms of desalination, there are currently nearly 160 active projects with a potential for \$500 million for energy recovery alone.

Comments Quain: “Supply of fresh water continues to be a major global concern and desalination will play an important role in solving this critical issue. The key limitation for desalination is the energy required to produce potable water and the associated operating costs. Suppliers will need to focus on helping major plant operators and technology providers continue to chip away at the cost of production. We’ve been fortunate



Figure 5. A radially split, forged barrel reactor feed pump for nuclear service.



Figure 6. Durco Mark 3 ASME B73.1M standard process pumps for chemical processing applications.

to repeatedly capitalize on the demand for energy-efficient pumps and energy recovery devices that reduce the operating costs of these energy-intensive plants.

Chemical and general industry

From Flowserve's perspective, it seems as though the global chemical industry is near, or at the bottom, of this recessionary cycle with some pockets of improvement - especially in China, India and Middle East.

Comments Quain: "The recent trend for major oil and gas producers to vertically integrate chemical production is creating opportunity in these markets. Also, commodities price increases and industrialization of emerging markets have created niche growth opportunities in segments such as mining and minerals processing, and fertilizer and pesticide production."

Figure 6 shows Durco Mark 3 ASME B73.1M standard process pumps for chemical processing applications.

Looking ahead

Quain hesitates to name one market segment being pursued more aggressively than any other, stressing the importance of portfolio diversification as being paramount to success. He believes that, fundamentally, nothing has changed for the long term. Population growth (projected at greater than 1.5 billion over the next 25 years) and the world's demand for energy (projected at 1.4% growth annually for the next 25 years) will keep core markets strong.

"However", says Quain, "we still need to pay close attention to the realities of our current situation where, in the near term, developing markets are leading the economic recovery with North America, Europe and Japan still lagging."

Oil and gas and power generation are getting much attention from Flowserve because it offers these segments a significant portfolio of solutions; in return, these sectors offer steady prospects, both near and long term. In addition, the company has important initiatives that keep it focused on the many opportunities available in other important markets, such as water resources, chemical processing, mining, and food and beverage production.

Aftermarket approach

Flowserve has undergone a significant transformation in its business over the last two years, developing and formalizing an unusual approach to the aftermarket by focusing on technology and services.

Explains Quain: "We needed to evolve beyond the traditional equipment supply, spare parts and service business, and give our customers what they really require: consultative engineering and technical services that reduce energy consumption and increase plant availability; technology solutions that monitor and predict equipment and system behavior (see Figure 7) while also allowing collaboration among technology experts to quickly deploy solutions to flow management issues.

"Near term, I would expect Flowserve to continue to invest in the emerging markets such as India, China, Northern Africa, South-east Asia and Russia."

In order to provide local support around the world, the company has invested in more than 140 service facilities - called Quick Response Centers - and the necessary human capital to provide technical and engineering services in each on of its significant customer clusters.



Figure 7. The IPS Wireless wireless monitoring system for cost-effective, reliable and scalable data communications. It integrates easily with most existing instrumentation, software and controllers.



Figure 8. James K. Quain, Vice President and General Manager of Flowserve Flow Solutions Group.

Education and training is also required to develop workforces in emerging markets where there is a shortage of the technical skills needed to operate and maintain a world-class plant. Flowserve can provide this and also operates what it says is 'the industry's most advanced education and training centers in North America, South America, Europe, Middle East and Asia'.

Concluded James Quain: "We'll continue to focus on our markets in this manner, making sure our customers know we've invested in the life cycle of our equipment and the systems in which they are employed. We will make these investments in accordance with our customers' plans for geographic expansion while also following the market opportunities." ■

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