

# The vision to look ahead... Weir rewarded for commitment to nuclear market



**After years of inactivity, new build nuclear power projects are back on the agenda for many countries and the demand for the equipment needed to build them is accelerating. Weir Power & Industrial has had a number of recent successes in China's nuclear new build program, for both the reactor island and the conventional island. With an established reputation in the market Weir is one of the few companies which continued to invest in its nuclear capabilities over the past decades, putting it in a strong position around the globe.**

*By Christian Borrmann & Joanne McIntyre*

**B**y adopting a positive view that the nuclear power generation industry would one day revive, Weir Power & Industrial retained its nuclear capabilities by participating and investing in the after market support of installed plants around the world. "Rather than abandon the nuclear market, Weir elected to invest in its operations in Europe and North America in order to retain its nuclear qualifications and capabilities," explains Dr Alan Boyce, Divisional Commercial & Strategic Development Director at Weir Power & Industrial. "Now that the sector is accelerating quickly we can see that very few companies have retained the skills, expertise and qualifications that are essential to participate in the nuclear

renaissance. Because our French, US and UK plants remained active in the nuclear business we are well positioned to step in and meet the rapidly growing demand." A prime example of the company's ability to step up to meet demand for nuclear parts was demonstrated recently when the company's UK facility began supplying critical valves to be installed in Unit 3 of the Qinshan Nuclear Power Station Phase II Extension Project (2 x 650MW). Standing 5 meters tall, the 32" (750mm) diameter Main Steam Isolation Valves (MSIV), of Hopkinsons parallel slide gate valve design, are the largest ever designed and built at the Elland plant. Weir Power & Industrial has also continued to invest in its French operations. The

Chateaufort plant in the south of France is totally dedicated to the nuclear industry, and will be moving to new and enhanced facilities close to the existing site by 2011. This is where the engineering and design centre for the Sebim Pilot Operated Safety Valve (POSV) is located. The company has an installed base of POSVs in existing nuclear fleets worldwide and is working closely with customers to expand this base as nuclear new build projects are developed. "After the Chernobyl disaster most of the world turned its back on nuclear power," continues Dr Boyce. "In contrast, the French embraced the technology and developed a very long term plan. Today France has 59 reactors which produce





the north and northwest of the country, while the majority of the industry is in the south and southeast. Over 50% of China's rail traffic is taken up in transporting coal. Mr Griffin continues: "A significant benefit of going nuclear is that the power plants can be built right next to where the power is needed. Nuclear power will eliminate the logistical problem of freighting fuel while providing a carbon free and efficient means of producing electricity. These three drivers combined are powering China's nuclear new build program."

Another key factor in the rapid growth of China's nuclear market is that most of the projects are government-funded, as opposed to most Western projects which are

privately funded and would struggle to find the finance for such ambitious growth. And the scale of China's nuclear program is huge; in 2007 China was producing 7 to 9 GW of nuclear generated power; by the end of 2009 China will have over 20 units under construction; and by 2030 generating capacity from nuclear could reach 120 to 160 GW. Such a large-scale program clearly offers opportunities for companies such as Weir Power & Industrial. "China is an extremely important market for us and strategically the region has been at the centre of our focus for many years," says Mr Griffin.

around 80% of its power, compared to just 20% in Britain. Therefore when China started to consider nuclear power, it was logical that they would look to France and its highly successful technology. The fact that Weir has a long history of supplying products to Areva and EDF enabled us to establish solid relationships with the Chinese from very early on."

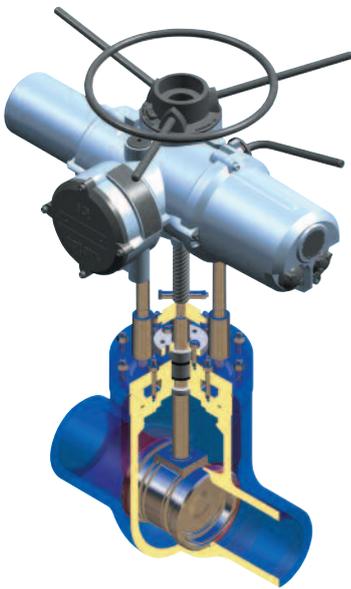
### China powering ahead

China has the potential to be the largest nuclear new build market in the world with in excess of 100 reactors either planned or under construction. Mr Roger Griffin, Regional Managing Director, explains why nuclear power will become so important for China in the years ahead. "Today 80% of China's electrical power is produced by burning coal, 15% is hydroelectric, while oil and gas-fired generation make up just 3%. This means that currently nuclear is only providing around 2% of the country's power needs. However the incredible growth in demand which China has experienced over the last ten years has resulted in power shortages and high pollution levels as a result of its dependency on fossil fuels." An additional important factor is that China's dependency on coal creates huge inefficiencies; most of its coal is located in



*At 5 meters tall and 750mm in diameter, the Main Steam Isolation Valves supplied to the Qinshan Nuclear Power Station Phase II Extension Project, are the largest Weir has manufactured at its Elland (UK) plant.*





*A key advantage of the Hopkins parallel slide gate valve is that fluid-tightness is maintained without the aid of a wedging action. No mechanical stress is exerted between the discs, and the valve is not subjected to dangerous strains on opening or closing.*



*The Tricentric® triple offset metal seated butterfly valve is installed on various nuclear applications, including containment isolation and service water systems. The torque seated design removes position seating concerns and the non-interference seat and seal design eliminates binding wear and tear.*



*The Sevim Tandem design is an innovative concept for over-pressure protection in the cooling circuit, incorporating two independent pilot-operated safety valves housed in the same body. The first valve ensures pressure safety and relief, while the second valve provides fail safe protection in the event of a failure of the primary valve, to significantly reduce accidental coolant loss.*

“One of the most important steps we took in the Chinese market was to establish a permanently staffed office in Beijing back in 1998. In the 2000 financial crisis most Western companies pulled out of China but we believed it would be poorly perceived to leave when business dropped and then move back when things picked up. That decision has paid huge dividends in the past three years; it proved our commitment to China for the long term and earned us our customers’ respect.”

### **Investing in the future**

“It’s now six years since we first started looking seriously at the future possibilities for new build nuclear plants in China,” explains Dr Boyce. “It’s taken that long to successfully position ourselves to be a part of the many projects that are moving forward.”

Weir’s vision in persisting in the nuclear market despite the lack of new projects can be credited to a divisional strategic decision made in 2005. “At that stage we had a good look at the business and made a conscious decision to significantly grow and invest in our nuclear capabilities, including new and expanded facilities,” says Dr Boyce. “We had faith that eventually the market would return and in the meantime we continued to service the existing fleet in Europe and North America. We knew the decision to retain our presence in the market would prove successful because once the sector rebounded there would be very few experienced and qualified players left. This is exactly what has happened; visit any nuclear project today and you’ll see that there are few companies active in them, and Weir is one of the largest and best placed.”

Weir Power & Industrial’s North American nuclear involvement dates back decades. The Tricentric® triple offset butterfly valve is manufactured at the company’s facility in Ipswich, Massachusetts. “Since its introduction as the first triple offset butterfly valve produced in North America in the 1970s, the Tricentric has established a reputation as a problem solver for troublesome applications,” explains Dr Boyce. “Its all metallic, non-interference seat and seal design is ideal for nuclear applications and the design has replaced hundreds of rubber lined and soft seated conventional butterfly valve designs in operating nuclear plants.”

The decision to continue investing in the nuclear market across all of its global

locations was a long term strategy which has taken years to bear fruit in the form of contracts to supply new build projects.

“Today we have valves from the UK, France and the US being shipped to Chinese nuclear projects. As the Chinese started to develop their own reactors they looked to the French technology and our products became part of the installed fleet. In China long term relationships are very important; one of the reasons we have been so successful is that we already had those relationships in place over many years so we are not newcomers to the market. This is advantageous to us across many regions and many of our brands are so strong that they are considered the standard products for nuclear applications. Such a solid reputation takes a long time to establish,” says Dr Boyce.

“Technology is also a key driver in the nuclear market; China is now considering 3rd generation reactors, which have enhanced safety systems, a smaller environmental footprint and are more economical to operate. Weir Power & Industrial has strong relationships with the companies who will provide this technology; we already work with them and will supply our products to those projects when they happen. We’re extremely well positioned to take advantage of the growth that’s going to take place in years to come”. Any third generation reactors that go into China will initially be 100% Western technology and of a fairly standardized design. However, as Dr Boyce points out, localization will be a major issue in China in the future. “China is understandably keen to develop its own nuclear technology and localize production. Within 10-15 years the country will have the capability to design its own reactors and have the technology to have 100% local products in its plants. As a global business, Weir is ideally positioned to support China’s ambition for that in the future.”

### **Think globally, act locally**

At Weir the emphasis is on strong relationships and strong brands, both globally and locally. The business is not only focused on selling new products but also on providing technical aftersales support.

“Our strategy is not to simply supply equipment; we have a long history of servicing nuclear power plants in Britain, the US and France,” says Mr Griffin. “These activities underpinned our ability to stay in the nuclear market for all the years when





*Hopkinsons parallel slide gate valves undergoing final checks at the Elland (UK) plant.*

personnel from around the world. This smart assimilation of information from one region and applying it in another is typical of the Weir Group's strategy. "Our dedicated global nuclear team combines expertise from our American, French and UK operations to achieve commonality in how we approach the markets," Mr Griffin continues. "This centralized expertise allows us to quickly reach and service markets as they open up. The local team brings invaluable insight before and during the bidding phase, and is complemented by the global nuclear team. This team contains dedicated regional Key Account Managers, allowing us to link up international players and operations and ensure that we are in the right place at the right time. In the nuclear business there is a process of up to three years to position yourself properly for a project and make sure you're in the right place with the right technical products when they are needed." Mr Griffin: "Collecting input from every part of the world ensures that all information is linked into a central system. The process is well supported and financed by the group as a whole. Underpinning our approach, and at the heart of our philosophy, is that the company thinks globally and acts locally."

### **Future outlook**

"We will continue to serve our traditional global markets of Europe and North America," says Dr Boyce. "At the same time China will be an important market for Weir in the years to come. On a global perspective approximately 75% of currently established nuclear plants include Weir equipment, and that figures looks set to grow," concludes Dr Boyce.

there were no new build projects and will help us to succeed in the emerging markets. When power plants shut down for planned maintenance, they know that Weir already has 30 years of experience of supporting plants like theirs during routine and unplanned maintenance schedules, and this instills confidence in our clients. We understand the issues and know the technology."

The company has established a cross-divisional Nuclear Forum to combine the company's vast experience and understanding of developments in the marketplace. The Forum is attended by Weir Power & Industrial sales and operations

### **Facts & Figures**

Name:	Weir Power & Industrial Division, part of Weir Group
Headquarters:	East Kilbride, UK
Key industries:	Power generation, oil & gas, chemical and general industry
Brands:	Atwood & Morrill; Batley Valve; Blakeborough; Hopkinsons; MAC Valves, Roto-Jet Pump; Sarasin-RSBD; Sebim; Tricentric; Wemco Pump
Products:	Critical service and safety valves for isolation and control, specialist pumps, service solutions for flow control and rotating equipment
Manufacturing & service facilities:	Europe, Middle East, Far East, North America

