

Operating experience provides foundation for innovative solutions

Several years ago, a decision was made to move the research and technical service organisation that had supported the Shell Group's global activities and to establish an independent commercial business group. So, the company, Shell Global Solutions, was created as an organisation dedicated to sharing its knowledge and expertise with other energy and processing businesses.

From the beginning, a crucial element of this innovative new business has been the licensing of Shell technologies and processes, especially innovative, field-tested technologies including hydroprocessing catalysts, to third parties in the downstream sector. But what sets Shell Global Solutions apart is that its expertise stems ultimately from experiences gained using these technologies in Shell-owned and operated facilities.

Suleyman Ozmen, General Manager of Licensing, explains, "We specialise in developing and licensing innovative services and technology solutions from one operator to another. Our experience, as part of an operating company, means that the technology transfer to the licensee delivers improved returns for the project and a successful operation. This is one of our key advantages compared to others in the licensing industry."

"We are continually innovating our licensed technologies and process technologies, because we (the Shell Group) own operating plants that require leading-edge methods to be competitive in the present environment. The technologies we are making available to third parties have been developed for our own Shell Group refineries. So, ultimately, the third-party customer can be confident in these licensed process technologies and

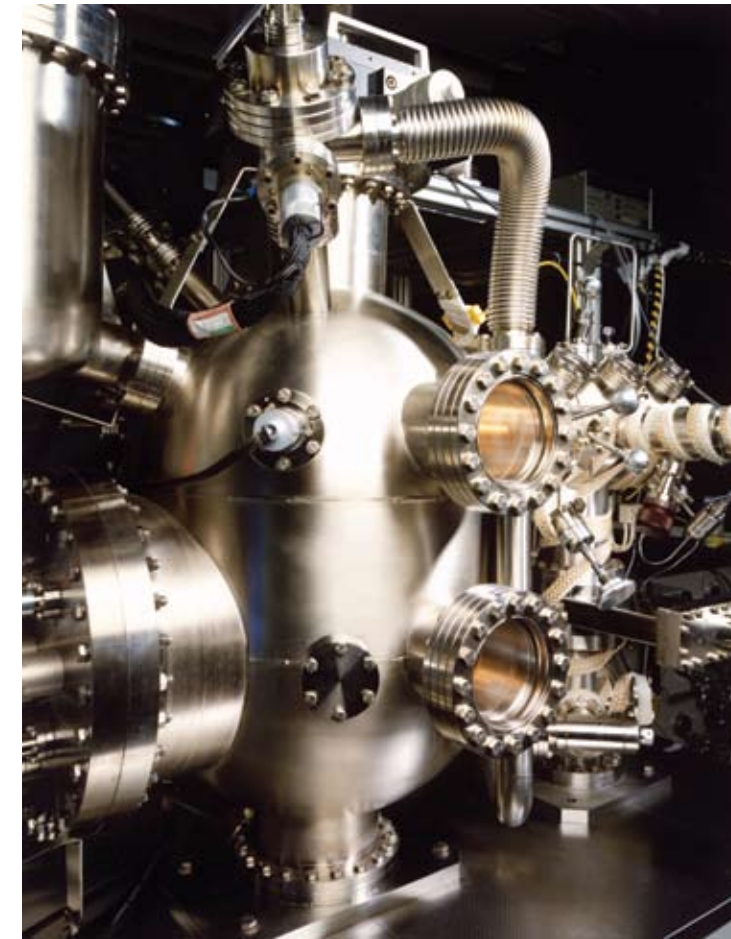
results because they have already given us (Shell) what we want," says Mr. Ozmen.

Over the years, Shell Global Solutions and its network of technology companies within the CRI/Criterion Inc. family of companies—including Criterion Catalyst & Technologies in the refining sector—have developed and patented a wide range of technologies and processes.

Underpinning many of these innovations is the drive to create more efficient and reliable processes. These developments reflect the complex needs of modern refineries and address specific challenges and demands faced by the industry. These include increasing demands to produce cleaner fuels, develop more efficient and reliable processes, and reduce emissions.

With these goals in mind, Shell Global Solutions has invested considerable energy

Technology transfer can deliver improved returns



Testing in the Shell laboratory, Amsterdam

and resources into the development of hydroprocessing catalysts. Consequently, the company is now the world's largest supplier of hydroprocessing catalysts, with in-house dedicated research and technical service delivered by a skilled team of 1,000 staff members based in 15 locations worldwide.

"Our integrated technical support structure is world-class," adds Mr. Ozmen. "It's all about providing a unique combination of products, technologies and services to our customers. We make, service and support the best hydroprocessing catalysts and this technology can be made available to third-party clients across the downstream sector, which helps to make us a world leader when it comes to clean fuels projects."

Recently, national and multinational governmental organisations have been engaged in a concerted effort to introduce harmonisation of specifications for fuel quality, with

the ultimate goal of improving urban air quality and reducing pollution.

Shell, through its catalyst company, Criterion Catalyst & Technologies and Shell Global Solutions, offers leading technology in producing ultra-low-sulphur diesel (ULSD) as demanded by this changing regulatory framework. In the past two years, more than 50 ULSD units for North American refiners have been licensed and designed. In 2006, five new hydrocracker licences were signed. Shell Global Solutions also has more than 60% of the hydroprocessing reactor-internals market.

Crucial to this success is recognising that each site has specific needs and requirements. He explains, "Projects are site, feedstock and operating conditions specific. We work closely with our licensee to develop an optimum hydroprocessing process unit design and a catalyst system, which is unique for their refinery."

Customers are offered flexibility in delivery. They can use their own front-end engineering design contractor with a custom-made basic design package that meets the licensee and engineering/procurement/construction contractors' requirements. This provides the optimum catalyst system and proprietary state-of-the-art internals technology.

It's this knowledge of customer needs, combined with Shell Global Solutions' 40 years of operating experience and its proven technology offerings that has delivered the company's proven track record in ULSD projects. "We now have more than 35 units making ULSD outside of the USA—mostly in Europe," adds Mr. Ozmen. "We're now the largest hydrotreater operator in the world with global experience in the range of feed types/qualities, operating variables and product specifications."

Shell Global Solutions, in addition to hydroprocessing technology, offers lead technology in crude/vacuum distillation, thermal cracking, fluid catalytic cracking gasification and gas treating.

"Ultimately, this fits in with so much of Shell Global Solutions' work to assist companies that are looking to respond profitably and sustainably to the challenges of the hydrocarbon processing sector. Whether it is long-term growth, maximising asset performance, formulating an effective response to new legislation or working toward a greener energy future—this is a perfect fit," according to Mr. Ozmen. ■