

Fuelling the oil and gas industry with innovation



Interview with Olivier Appert

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What does innovation mean to your company and how does it impact your business strategy?

Technological innovation is a key driver of the oil and gas industry, and innovation is our 'raison d'être'. IFP Énergies nouvelles (IFPEN) is a public-sector applied research centre focused on innovation in the fields of energy, transport and the environment. That means all our R&D strategy, based on scientific excellence, is market oriented and aims to meet the needs of industry. We have close partnerships with industrial players, we provide industry with the innovative and competitive technical solutions, we create new companies in order to transfer our technology to the market, we support the innovation efforts of small and medium-sized enterprises. So we contribute to economic value and job creation.

How do you encourage a culture of innovation within your organisation?

One of IFPEN's strengths is our ability to anticipate industry requirements. To achieve it, we develop forward-looking thinking on a continuous basis. We also use the strategic analysis methodology, as the industry does, that helps focus R&D towards the production of innovations. Patent filing is a key component of our research strategy, taken into account from the launching of the project. The aim is not only to protect R&D results, but also to ensure technology transfer. To enhance our innovative focus, we recently set up an in-house 'incubator'. It aims at bringing out new ideas that could result in breakthrough technologies, speeding up the development of innovative, low-carbon solutions, and helping create eco-industries that grow new ideas and new jobs.

To conduct cutting-edge, innovative research, IFPEN also needs to maintain a high level of scientific expertise. Doctoral theses are another way of contributing to the emergence of new ideas. Our doctoral students, as our researchers, are closely linked with industrial challenges.

We are convinced that a continuum between science and industry is mandatory to bring solutions to the challenges associated with the energy transition. For example, Yves Chauvin, a former IFPEN employee who received the Nobel Prize for Chemistry in 2005, developed different processes now widely deployed within the industry.

What new vistas does innovation open for energy production and consumption?

We must innovate to take up the challenges facing energy and the environment, to boost the competitiveness of the industry and to meet societal challenges. Engaging energy transition implies important research and innovation efforts following two main axes:

- Firstly, improving the existing technologies to explore, produce, transform and use the energies in order to increase their efficiency and reduce their environmental impact. For instance we are deeply involved in conventional and unconventional oil and gas technologies. We also work on Enhanced Oil Recovery technologies, production being a key challenge worldwide. Likewise, by optimising industrial systems thanks to more efficient processes and equipment, 15 to 20 per cent of the actual energy consumption in industry could be saved.

- Second, developing breakthrough innovations to use alternative energies in place of fossil energies, such as biomass, hydrogen, storage technologies and smart grids. Renewable energies cannot yet replace fossil energies. Several challenges must first be tackled for renewable energies to reach technological maturity, ensure their cost effectiveness, their storage, their social acceptance, and then put in place the related industrial channels.

At the crossroad between research and industry, IFPEN puts technological innovation at the heart of its action. For the third consecutive year, in 2013, IFPEN was ranked by Thomson Reuters in its list of the Top 100 Global Innovator organisations.

Can you elaborate on how IFPEN transfers to industry the results of its research?

As I mentioned earlier, our research is totally market oriented. Transfer from the laboratory to industry takes the form of industrial partnerships, the creation of subsidiaries or shareholdings and support for innovative young companies. Thus, over the years, IFPEN created Technip, whose success is well known, as well as Axens, Beicip-Franlab, IFP Training and Prosernat, and it took shares in Heurtey Petrochem and RSI.

Beicip-Franlab is a leading international consultant and software provider in exploration and production. It provides its customers with advanced consulting services in oil and gas exploration and field develop-





ment. Its geosciences software solutions benefit from the leading research and innovation capability of the IFP Group. Beicip-Franlab has a unique track record in the exploration of offshore and onshore basins worldwide, and in the development of newly discovered as well as mature fields of all sizes and types.

Created by IFPEN in 2001, Axens has become a key player in the supply of refining technologies and catalysts, especially for deep conversion and production of clean fuels. For example, the company markets processes for catalytic cracking gasoline desulphurisation (Prime-G+™) and a complete chain of processes for aromatic production (ParamaX™).

After years of R&D cooperation with IFPEN and Total, Prosernat has become one of the leading providers of natural gas sweetening licences and is an important player in the gas drying unit market. For this Prosernat has won references worldwide.

IFPEN is the reference shareholder in Heurtey Petrochem, one of the leading suppliers of process furnaces for hydrocarbon conversion and hydrogen production. Heurtey Petrochem's expertise extends from feasibility studies to the completion of turnkey projects.

The RSI Group is fully dedicated to process and control simulation. RSI merged recently with IFP Training, and takes the advantage of IFP Energies nouvelles' unparalleled source of expertise in high level process modeling.

Cutting-edge technology requires highly qualified professionals – how do you train them?

Human resources are a major challenge for our industry, for NOCs and IOCs as well as for supply and service companies. Within our group, we offer a wide range of training services. IFPEN includes a graduate engineering school, IFP School, to prepare future generations to take up the challenges of energy supply, transformation and use. Every year, more than 600 students from around the globe graduate from IFP School.

IFP School offers graduate programmes in French and in English for young engineers and professionals. The students are mostly sponsored by a company or an institution that finances their living costs during the programme and contributes to their tuition fees. IFP School has also created several off-site programmes tailored to the specific needs of the host country, and designed to meet the same standards as the programmes delivered in France. These programmes are created in partnership with a university and are sponsored by a company.

In addition, IFPEN created IFP Training to cover permanent training needs. It is very active worldwide, offering training programmes to about 15,000 employees from industry. The programmes cover the whole oil and gas industry needs as well as automotive and energy management. IFP Training can help all professionals (technicians, engineers, managers and executives) throughout their careers with information courses, foundation courses for people taking on a new job, specialised technical training, advanced level training and professional development. ■

R&D into the challenges of energy supply, transformation and use

