

## EDITO



L'Énergie est un secteur industriel à la fois complexe et contradictoire, et à ce titre, passionnant. D'un certain point de vue, les évolutions sont souvent associées à des investissements massifs et à la mise en place d'infrastructures colossales, ce qui limite fortement leur vitesse de mise en œuvre. D'un autre côté, les changements peuvent aussi être extrêmement rapides comme l'a démontré la chute du prix du baril de pétrole, divisé par un facteur deux sur une période de 6 mois au cours de l'année 2014, ce qui a eu pour conséquence immédiate la multiplication des restructurations et consolidations des entreprises. Le secteur de l'Énergie, qui s'inscrit pleinement dans la mondialisation de l'économie, est en effet influencé par de nombreux facteurs de natures diverses, stratégiques, économiques, technologiques, sociétaux...

[Lire la suite](#)

The complex and contradictory nature of the energy sector is what makes it so exciting. On the one hand, changes within it are often associated with large-scale investments and the creation of colossal infrastructures, considerably hampering their speed of implementation. On the other hand, changes can occur extremely quickly, as demonstrated by the fall in the price of a barrel of crude oil, which was halved in the space of just 6 months in 2014, leading to an immediate rise in the number of company restructuring and consolidation programs. Operating within the context of globalization, the energy sector is influenced by numerous diverse factors: strategic, economic, technological, societal, etc.

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## Edito

The complex and contradictory nature of the energy sector is what makes it so exciting. On the one hand, changes within it are often associated with large-scale investments and the creation of colossal infrastructures, considerably hampering their speed of implementation. On the other hand, changes can occur extremely quickly, as demonstrated by the fall in the price of a barrel of crude oil, which was halved in the space of just 6 months in 2014, leading to an immediate rise in the number of company restructuring and consolidation programs. Operating within the context of globalization, the energy sector is influenced by numerous diverse factors: strategic, economic, technological, societal, etc.

As an engineering school specializing in the field of Energy, IFP School has always focused on incorporating the needs of industry into its programs as quickly as possible. But in order to continue to attract the most talented students from around the world, it also has to incorporate the changing expectations of young generations, the very generations that will produce our future graduates.

These new generations, often referred to as the millennials and generation Z, are quite different from those who have gone before them. Born with the digital revolution, these young adults handle digital instruments and applications with ease, but that is not the only thing that sets them apart. A recent survey of French engineering students conducted by the CTI\* and IESF\*\* highlighted that their interest in fundamental sciences was falling while, at the same time, they wanted to acquire the skills facilitating their entry into the workplace and giving them more control over their career choices. These generations require a much more thorough knowledge of organizations and industrial issues, as well as the international context. Much freer and more mobile in their choices, they want greater autonomy, are naturally drawn to innovation and state that they do feel somewhat concerned by environmental issues, particularly climate change.

These observations partly explain the introduction of a teaching module dedicated to entrepreneurship at IFP School. Our objective is to provide our students with the skills - particularly behavioral - that will enable them to manage innovation projects within their companies or within the context of a new start-up. Being able to develop personal creativity and generate innovation, manage an innovative project, work in a multicultural team, lead and sell a project and convince investors... on completion of this module students should have acquired all these skills and more besides.

But there are also a number of other topics covered in this newsletter.

We hope you enjoy reading it!

Philippe Pinchon  
Dean  
IFP School

\* Commission des Titres d'ingénieur (French National Engineering Accreditation Board)

\*\* Ingénieurs et Scientifiques de France (Engineers and Scientists of France)

## IFP School on the road to a digital revolution

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At this year's [Panorama conference](#), an annual event first held more than 20 years ago by IFP Energies nouvelles, aimed at professionals from the fields of energy, transport and the environment, a video was shown highlighting IFP School's digital innovations.

Industry players gathered at this year's event to focus on the digital revolution and understand the associated transformations it implies for their sector. The film illustrated what this change means within a school environment, via testimonials from students, teachers and managers.



For IFP School, this "digital revolution" is reflected, firstly, by the use of innovative teaching methods, offering great promise for the future (augmented reality, e-learning, mobile learning, flipped classrooms, etc.), and, secondly, by changes in program content or even training provision, with IFP School's brand new **Petroleum Data Management (PDM)** program, for instance.

### PDM program

At the start of the 2016 academic year, IFP School, in partnership with the Ecole nationale des sciences géographiques (ENSG - national school of geographic sciences), well-known for its expertise in the field of geomatics, launched an innovative new training program (Specialized Master's program), unique in the energy world, in the field of **Petroleum Data Management**.

The 16 students from the first intake will complete their course at the end of March before going straight into an internship lasting a minimum of 4 months, giving them the opportunity to apply their theoretical skills in an industrial context and acquire some initial professional experience.

Applications are already open for the September 2017 intake.



## Entrepreneurship and innovation at IFP School

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As part of the Professional Skills Module (PSM) run from 3 to 27 January 2017 at IFP School, 29 students, divided into 6 teams, took part in the "Innovation & Entrepreneurship" module, offered by the School for the first time. The students were coached by lecturers from the School's different centers and by an executive from IFPEN's Strategy Division.

In just one month, this new entrepreneurship module enabled them to come up with innovative ideas to address current challenges in the field of mobility, draw up a business model and define a marketing plan to accelerate the growth of their future company. Thanks to a partnership with the [CESI](#) (professional training center) in Nanterre, the students were also able to prototype their ideas in a FabLab. They then *pitched* their ideas to win over the jury and the public.

Watch an example of a *pitch* here, concerning the POCHI project:



A vote was held, with the Inducarpet project, focusing on the recharging of electric buses by induction, receiving the most support.



During this module, evening lectures were organized, which included interventions by François Badoual, CEO of Total Energy Ventures, as well as alumni of the school having gone on to create their own businesses (Gautier Dreyfus - PEM 2014; Ludovic Peignard – GOP 2007; Louis Toulemonde – ENEP 2012).



Monday, January 23<sup>rd</sup> 2017  
16:45 – 18:00 in TA14

**Round Table**  
**"IFP School Alumni create their business"**



PEM 2014  
Gautier Dreyfus  
Forsea Robotics



GOP 2007  
Ludovic Peignard  
EarthQuick



ENEP 2012  
Louis Toulemonde  
Keepen  
Home alarm system



***Come and meet IFP School Alumni who created their start-up***

**The 6 projects presented by our students:**



**Earn vouchers with eco driving:** how to encourage drivers to practice eco-driving? By offering them money-off vouchers in stores based on their driving.



**Ride N' Work - let your office come to you:** a bus that takes you to work and allows you to work during your journey as if you were in the office.



**Car Jumping - Pochi – Just push it:** short-distance car-sharing: just push a button and you're off! ([watch the video](#))



**INDUCARPET: Wireless Charging. Effortless:** recharging of electric buses by induction at bus stops.



**Against traffic jam:** the Flex car: a small modular car - the wheels can be removed to turn it into a self-balancing electric scooter in the event of traffic jams.



**Electric Velib:** a portable electric battery to be clipped onto self-service bicycles.

## 3rd Sustainable mobility MOOC session

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There have been numerous changes since the first session of the Sustainable mobility MOOC in November 2014. This MOOC was quickly awarded the « e-learning Excellence Award » by the CEGOS group, for the best "educational" training tool in June 2015.

The second session, launched in November 2015 was also a runaway success, with over 5,000 participants from 95 countries.

The week of 20th March sees the end of the 3rd session of this MOOC, the main hallmark of which is learners' immersion in fun environments via serious games designed to enhance the learning experience. Below we review this invaluable experience.

**Interview with Maria Thirouard, project manager.**



### **Why launch a 3rd session?**

The main objective of this MOOC on Sustainable mobility is to promote IFP School and reach potential students for our programs. The first two sessions were a resounding success, with a 60% plus increase in the number of people signing up to take part.

What's more, the results achieved, in terms of completion rate (number of participants having been awarded the certificate compared to the number having signed up) are among the best of any MOOC anywhere in the world.

Finally, this MOOC has become a showcase and a vector to promote the educational innovations that we are developing.

### **So what's new in this 3rd session?**

Last year, we introduced an engine simulation game, the aim being to optimize pollutant emissions and fuel consumption. This year, we've opted to introduce [virtual reality](#), offering a tour of our engine test benches. This tool provides a 360° view to work in a difficult-to-access environment. Using cellphones and special glasses, all MOOCers have the unique opportunity of visiting an environment normally reserved exclusively for dedicated engine testing teams.

### **And the results?**

We are very happy with the results, since feedback has been extremely positive. This year, we have achieved a record of 5733 participants, from 110 different countries. The results in terms of completion rates are not yet known. If we manage to maintain a high completion rate while increasing the number of participants, we will have achieved our objectives.

## Discover the latest news from the Alumni Association

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### Annual General Meeting

The Annual General Meeting of IFP School's Alumni Association was held on Wednesday 8th March 2017 and was chaired by Jean Sentenac. Philippe Pinchon, the Dean, was also in attendance. The meeting was an opportunity to reaffirm the priority objectives defined in 2016, notably: to develop the "Employment-careers" service, increase membership, overhaul the website and maximize synergies with the School.

Also on the agenda was the election of four administrators and Committee members (three new members and one re-election). Those elected were: Jean-Christophe Flèche (GOP 1984), Jean-Paul Gouzard (RAF 1970), Julien Trost (MOT 2015) and Jean-Bernard Sigaud (RAF 1971).

These arrivals represent an extremely positive step for the Association. Jean-Christophe Flèche is head of the International commission which he is about to relaunch, Jean-Paul Gouzard is focusing his efforts on the Employment-Careers commission and Julien Trost plays an active role within the Events & Culture commission.

### L'Hydrocarbure becomes IFP School Alumni Mag and publishes issue 265



L'Hydrocarbure, the association's magazine created in 1926, is changing name from issue 265 (March 2017) and will now be called *IFP School Alumni Mag*. The change reflects the journal's desire to accompany the School's developments more closely, particularly its expansion outside France and into all energy sectors.

While the journal is changing its name, it intends, more than ever, to contribute to the debates surrounding the future of the energy and transport sectors. After the connected vehicle and the energy transition (which was the focus of two issues) in 2016, the feature report in this first issue of 2017 - and the first to be called *IFP School Alumni Mag* - is dedicated to the digital revolution. The subsequent issue, due to be published in June, will examine energy policy using Germany and China as examples.

We invite you to contribute to the journal so that it remains a lively and interesting platform of exchange between the School, its students, its graduates and, more generally, decision-makers from the world of energy.

### Drink & Network Event



IFP School Alumni organized a Drink & Network event on Tuesday 14th March at the BRKLYN, in Paris. Some thirty people attended this informal and friendly get-together, a highly satisfactory turnout.

As a reminder, the "Drink & Network" events are designed to drive and reinforce IFP School's alumni network and give recent and future graduates the opportunity to get together and make contacts in a relaxed environment.

## Discover the latest news from the School

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### IFP School and virtual reality on M6 national news channel



The French news channel M6 came to IFP School premises to film a news report and interview some students to exemplify concrete applications of virtual reality here.

This report was broadcast during the 19:45 News on the M6 channel on 22nd February 2017.

It shows the use of 3D virtual reality glasses allowing the students to immerse themselves in an industrial environment: an entertaining foresight for their future careers!

### 2nd IFP School – University of Akron exchange in the field of Polymers



The five IFP School students participating in the [academic exchange with the College of Polymer Science and Polymer Engineering at the University of Akron](#), have arrived in the United States end of January for 6 weeks' time.

The students – who were greeted by the University professors and Kaitlyn Mawhinney, the student who had spent 6 weeks in France in the IFP School [Processes and Polymers](#) program last June – will deepen their knowledge of polymer chemical sciences.

The success of this exchange, taking place for the 2nd time running, was the focus of an article to be read [here!](#)

### New program handouts and 2017 applications



IFP School has produced new bilingual program brochures for the [ten engineering specializations \(industry-oriented programs\)](#). These can be found in each program description under the icon:



#### Reminder!

Applications for September 2017 close on 31st March.

Don't hesitate to encourage friends or family to apply on the [IFP School website](#) and pursue an engineering career in the field of energies and sustainable mobility!