

**EDITO**



Comme vous le savez certainement déjà, l'École s'oriente résolument vers l'innovation énergétique et la mobilité durable ; l'équipe de Direction souhaite accélérer ce mouvement pour répondre aux nouvelles exigences du secteur, de son industrie et de la société. Dans beaucoup de nos programmes, de nouvelles thématiques ont été ou vont être introduites : procédés ex-biomasse, efficacité énergétique, captage du CO2, éolien offshore, électrification des véhicules, digitalisation et même énergies renouvelables pour la production d'électricité vu sous l'angle économique. Autant de nouvelles compétences qui, ajoutées aux compétences historiques directement transposables, vont permettre à nos étudiants d'être les futurs acteurs de cette « révolution » énergétique.

[Lire la suite](#)

As you are most probably already aware, IFP School is firmly focused on energy innovation and sustainable mobility; the Management team is looking to step up this momentum to satisfy new demands in the sector, its industry and the society. In many of our programs, new subject matter has been or will be introduced: ex-biomass processes, energy efficiency, CO2 capture, offshore wind power, vehicle electrification, digitalization and even renewable energies for electricity production from an economic viewpoint. With this assortment of new skills, in addition to the traditional skills that can be directly transposed, our students will become the future architects of this energy "revolution".

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**Edito**

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In many of our programs, new subject matter has been or will be introduced: ex-biomass processes, energy efficiency, CO2 capture, offshore wind power, vehicle electrification, digitalization and even renewable energies for electricity production from an economic viewpoint.

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When we talk about "energy mix", we inevitably include "Oil and Gas". IFP School will continue to take on this long-standing role, particularly in upstream and petrochemical sectors. Every year, IFP School welcomes many students from oil and gas countries, who come to learn the skills to help advance their countries, whilst at the same time showcasing French culture and education.

There can be no energy transition towards sustainable development unless we all, staff and students alike, adopt exemplary behavior in our everyday lives. This explains why we have created a "Sustainable Campus Initiative". We have very high hopes and expectations for this initiative, which you can read about in this Newsletter.

We hope that you enjoy this issue and wish you all a very happy festive season.

Christine Travers  
 Dean  
 IFP School

## Energy transition: new skills for IFP School students

The energy transition – now a well-known term inextricably associated with climate change – entails the parallel implementation of two actions: the introduction of a low-CO<sub>2</sub> energy mix; and the reduction of consumption.

The consequences are many and varied, which is why this is a priority theme for IFP School. According to APEC (French association for the employment of managers), “numerous managerial professions [...] are recruiting more people and/or incorporating new skills related to the energy transition”. It is with this in mind that IFP School is updating its graduate programs in order to give its students the skills and knowledge they need to address these changes.

### The changes driven by the energy transition

The energy sector is facing a major challenge: it needs to satisfy a growing demand for more sustainable energy and reduce greenhouse gas emissions. What's more, energy is now a “commodity”, traded on international open markets, subject to volatile prices and increasingly complex regulations.

This situation demands the use of technologies requiring both scientific and economic expertise.

### The skills of the energy transition

- **New technologies**

Courses on renewable energies, carbon capture, biomass conversion and vehicle electrification are now incorporated in our programs.

- **Energy efficiency**

Students develop skills in the area of energy optimization and efficiency throughout the production and consumption chain. Specific courses are tailored to fit the needs of each program.

- **Digital transformation and data analysis**

This transformation promotes the implementation of the energy transition because it is essential to understand and mobilize data in order to better manage new production constraints (multiple, local and intermittent) and offer connected customers new fee-based services and packages (electricity, gas, heat-cogeneration, etc.). Students perform case studies taking into account problems related to data analysis and benefit from machine learning. They learn to integrate the Internet of Things (IoT) in order to better monitor activities and consumption patterns.

- **Cross-disciplinarity**

We are witnessing a veritable decompartmentalization of disciplines (engineering, computing and business) and sectors (electricity, gas, transport, construction). There is an apparent need, therefore, to create contacts between different professions: this is what IFP School proposes, through cross-disciplinary projects bringing together students with different academic backgrounds and experience.



- **Innovation**

« Innovation is the cornerstone of the energy transition », as Ludivine Pidol, in charge of the “**Innovation and Entrepreneurship**” module at IFP School reminds us. Students from IFP School’s different programs spend a month working together on the development of an innovation in the area of energy or mobility. They employ a range of techniques, including design thinking, prototyping and business model construction.

These new skills supplement the know-how acquired by our students in more traditional fields, since IFP School adapts to the changing world while remaining faithful to its roots in the oil & gas and IC engines sectors.

Data analysis: an IFP School student wins 1st prize in the E-Tonomy hackathon



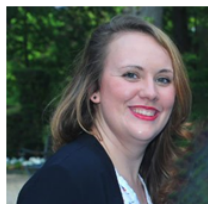
Aastha Sharma, a student on the 2018 Petroleum Data Management Specialized Master's program, along with her team, won 1st prize in the E-Tonomy hackathon held from 11 to 15 October.

E-Tonomy is an annual international event aimed at promoting innovative projects designed to promote autonomy within a global demographic context of population aging. This 1st prize was awarded in recognition of the team's mobile app project intended to help Alzheimer's disease sufferers. The reward: a trip to Shenzhen (China) to raise funds for this innovative project.

## Play or learn... Now there's no need to choose!

The polymer industry has been growing steadily over the past few decades: polymers are now part of our everyday lives. New applications in a broad variety of fields (medical, construction, transport, packaging, electronics, etc.) and constant innovations to address environmental challenges: the development of new processes has become strategically important.

IFP School's [Processes and Polymers \(POLY\)](#) program provides a comprehensive knowledge of the whole petrochemicals value chain, from monomer to polymer and the end product. One of the challenges for students is to memorize the most important steps in this complex chain, for 64 applications selected from everyday life. On 15 November, a smartphone app was launched to help them in this task, supplementing IFP School's range of mobile learning educational materials.



Céline Pierre, head of the POLY program, and Lucie Dhorne, in charge of innovative teaching methods, explains how the app came about.

### • What prompted you to develop a game for students on the Processes and Polymers program?

**Céline Pierre:** For POLY students, the year starts with a multitude of theoretical concepts that need to be learned: relating to the polymer value chain, Oil&Gas, right through to the finished product. We thought it would be useful to find a visual, fun way to explain these concepts in order to help them in their learning process.

We also thought that breaking with the linearity of the program might be a good way of facilitating learning: going back up through the chain, incorporating the correlation with the end product right from the start of the year helps students to gain a more concrete understanding of the concepts they are looking at. As a student, obviously, but also as a consumer and a citizen. The practical learning approach has already been used with the [supermarket visit](#).

Finally, we think it is useful to reinforce the link between our introductory classes delivered at the start of the academic year and the more applied and detailed ones given by industry players later on in the program.

### • How does a game help you achieve these objectives?

**Lucie Dhorne:** We worked on the basis of gaming techniques to support learning. Our "swipping cards" game, which respects the codes of generation Z games, takes the form of a smartphone app. It proposes six questions per day for four periods of one month each, spread throughout the year. The "quiz" format selected is particularly suitable for our dual memorizing and learning objective:

- memorizing is achieved thanks to repetition, with each question repeated twice per week, from a different angle,
- understanding is verified thanks to a specific bonus given to students if they are capable of showing that they have understood their mistake if they have given a wrong answer.

And to spice things up a bit, a "time bonus" rewards the fastest players...



Visually, a major objective was to ensure the user-friendly nature of the game, focusing on the use of images – especially photos showing finished products in real situations – which constitute the starting point to go back up through the polymer chain.

The progression in students' knowledge is ensured thanks to the way the game is structured into successive periods, each one tackling increasingly complex subjects.

Finally, our app meets students' needs in terms of nomadic and immediate learning methods. Its content is available anywhere, anytime and on any device: ATAWADAC (AnyTime, AnyWhere, AnyDevice, AnyContent).

#### • How has the game been received by POLY students?

**Céline Pierre:** The game was launched a month ago and all the program's students are playing it! Despite the fact that it isn't compulsory, but simply a learning tool. So it has had a very positive reception, but how useful it will be over time remains to be seen...

**Lucie Dhome:** A dashboard allows students to measure their progress and see how their performance compares to other participants: a good way of encouraging competition! And because games often involve something concrete to play for, we offer students some little prizes, depending on their results. Another way to help keep them interested!

**Céline Pierre:** We eagerly await the 2018 academic year to find out if the game will be rolled out again... and expanded!

## Theory AND practice: the energy transition requires knowledge AND know-how

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At the start of the 2017 academic year, IFP School's Sustainable Development Club had a complete makeover: new name, new identity and new scope to serve a school committed to combating climate change and protecting the environment. The man behind the initiative is Sidney Lambert-Lalitte, teacher and assistant head of the [Petroleum Economics and Management](#) program. We asked him a few questions.



### Why create a Sustainable Campus Initiative?

IFP School's Sustainable Development Club was 3 years old: a good age to take stock and make changes! We felt the need to instill new momentum, driven by our students: in the past few years, their expectations in this area have evolved. Quite legitimately, they want what they are being taught in class to be applied more on the IFP School campus... To address this demand, we created the Sustainable Campus Initiative, with two watchwords guiding our actions: realism and efficiency.

Coordinated by a small group of staff from IFP School, the most motivated volunteers work together on each initiative, in order to guarantee maximum agility. We have therefore refocused our actions: we do not get involved with IFP School's programs on the theme of sustainable development and have chosen to concentrate instead on concrete initiatives, exclusively related to IFP School's living environment. There is lots to be done!

### What are the first initiatives launched?

During induction week in September we took the opportunity to ask students what a sustainable campus meant for them. With their different cultures, experience and educational backgrounds, they spoke about issues as diverse as energy consumption, transport, food and even health. We collected around fifty ideas, many of which – to our immense satisfaction – can quickly be put into practice! In some cases, it's simply a matter of ensuring students are better informed about what already exists: for example, many of them requested bike shelters, whereas, in fact, these already exist and are accessible to all. In the longer term, why not envisage more ambitious projects, such as the installation of solar panels or a shared kitchen garden for IFP School's student residence?

We are also taking advantage of IFPEN's corporate social responsibility policy to improve our efficiency. For example, we are planning to launch an eco-practices campaign very soon, and also to provide centralized waste-sorting terminals. There's no shortage of ideas, but to be sure we don't disappoint, we need to be organized and choose our battles.



### How do you publicize your actions?

For the time being we prefer to keep our structure light so we can progress quickly.

In the wake of induction week, we created our own visual identity, inspired by the IFP School logo, and opened a Twitter account. From the start of the next academic year, we will detail our actions in the practical guide handed out to students on their arrival. We have also been in contact with the Student Association, which remains a key player when it comes to communication with our students.



We also plan to have the Sustainable Campus Initiative benefit from the educational projects of some of this year's students: proof, if proof were needed, that the energy transition at IFP School is a reality that goes well beyond its teaching programs!



## Discover the latest news from the Alumni Association

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### The Amicale alumni association welcomes new IFP School students



On 12 October, the [Association](#) organized a welcome reception for the 2018 student intake to introduce the association and the people running it. Jean Sentenac, the Association's chairman, played host to a large number of participants, in the company of several board members. He briefly presented the association's activities and invited the students to become associate members, something that is now allowed by its articles of association. The event was sponsored by Axens and two prizes were awarded to students having joined up that day, with their names being drawn from a hat. Each winner was given two tickets to attend a PSG football match.

### Issue No. 267 of IFP School Alumni Mag



Issue 267 of the IFP School Alumni Mag has just been published. Its feature report is dedicated to the IFP School ecosystem. An integral part of the IFPEN Group, IFP School has developed close relationships with numerous partners – academic and industrial, French and international – over the years, enabling it to offer high-quality graduate programs and attract talented students. The result is a veritable ecosystem, nourished by the diversity of its components, their complementarity and the synergies implemented.

The report offers an overview of this ecosystem via a few examples chosen to illustrate its various facets.

## Annual dinner on 24 November

The Association's annual dinner was held on Friday 24 November 2017 at the Renaissance Paris Le Parc Trocadéro hotel in Paris. This convivial event was attended by more than 150 people, including the guest of honor, Philippe Brunet, Director of Mechanical Engineering at Alliance Renault Nissan Mitsubishi, and a 1988 IFP School graduate from its Applications program (today's Energy and Products program, PRO).



The spotlight was put on classes of 1947, 1957, 1967, 1977, 1987, 1997 and 2007 at this year's event.

Philippe Brunet recounted his career and took part in a Q&A session. Student representatives, also present at the event, were also full of praise: "This evening gave us the opportunity to meet some great former students of IFP School. These meetings with people who are well established in the world of industry are invaluable as they give us a chance to hear about their backgrounds, to project into our own futures and to consider the career opportunities our training will offer us once we are qualified", says Jessica Gesbert, MOT 2018. Edouard Mikhail, PRO 2018 adds: "This dinner is a great opportunity to start building our own network, something that is very important in our professional lives. A big thank you to the Alumni association for making this such a successful evening!". It is important to note that the dinner was supported by five industrial partners: [Axens](#), [Crealyst-Oil](#), [Hti Automobile](#), the [SEA \(French Military Fuel Service\)](#) and [TechnipFMC](#).

The "Prix de l'Amicale" award was given to Amel Lassel (GOL 93), former head of the Events & Culture committee, in recognition of her hard work on behalf of the Association. In addition, Pierre Bécard (ECO 85), who was rewarded in 2016 for his contribution to the creation of the alumni club in Switzerland and who was unable to attend last year's dinner, collected his prize this year.

## Discover the latest news from the School

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### Success for the 3rd Oil & Gas MOOC session

In October, the School's Oil & Gas MOOC made a comeback with a brand new session, once again supported by Total. It proved even more popular than the first two sessions, notching up a record 24,491 participants, from 154 different countries. These results are largely explained by IFP School's highly interactive training model. This year's Oil & Gas MOOC incorporated two new features: a series of interviews on the theme of digital technology and subtitled course videos in Spanish and Portuguese.

### IFP School graduates rewarded by their peers

**George Saliba** (*Petroleum Economics and Management, 2016*), **Leaders for Tomorrow à la conférence Oil & Money**



George Saliba attended the Oil & Money Conference as a recipient of the Leaders for Tomorrow scholarship. The aim of this scholarship is to support the next generation of global industry leaders and executives.

The Oil & Money conference is jointly convened by the International New York Times and Energy Intelligence, bringing together energy and finance leaders to discuss the current and emerging issues facing the international oil and gas industry.

**Mathieu Flin (*Energy and Processes, 2011*), EFCE innovation prize**



On the occasion of the 10th World Congress of Chemical Engineering on 3rd October 2017, the European Federation of Chemical Engineering (EFCE) announced that a 3D printed reactor is the winner of its innovation prize. Mathieu Flin, from the French company Air Liquide is part of the team the prize was awarded to, for their 3D-printed clean energy reactor.

Congratulations to him and his team for this exceptional achievement!

More information: <https://3dprintingindustry.com/news/air-liquides-3d-printed-clean-energy-reactor-awarded-efce-prize-barcelona-122188/>

**Appointment**

**Olivier Guézet (*Energy and Powertrains, 2008*), Director of Groupe PSA's Factory Booster**

Groupe PSA has created its "Factory Booster" to accelerate the deployment of factory-scale innovations. The direction of this new structure was entrusted to Olivier Guézet, ENS Cachan and IFP School graduate.

Congratulations to him for his career path !

More information (in French): <http://www.usinenouvelle.com/article/video-psa-cherche-a-concretiser-son-projet-d-usine-du-futur.N589898>