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Leaders of Tomorrow

Published to mark the
4th World Petroleum Council
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WPC-YC CHAIR’S INTRODUCTION

Upon joining the oil & gas industry, many young people feel overwhelmed by its size and complexity. Its issues are profoundly linked with the development of our societies, their economies and the wellbeing of our people. This is why creating a sustainable energy industry should be the main concern of today’s youth. In recent years, the oil & gas industry has been exposed to various events that have evidenced the weakness of the current energy system. Volatility of prices, political upheaval, extreme weather conditions and cyber threats are only a few examples. Tackling the underlying issues calls for strong leadership, since it requires fundamental changes in our industry. Here lies the opportunity for the youth to take ownership of its energy future and lead the debate.

The Youth Committee of the World Petroleum Council aspires to be the premier forum for these discussions and to inspire young people all over the world to make a difference. As the Chair of the Youth Committee of the World Petroleum Council, I am proud to present you with an insight into the thoughts and initiatives of today’s youth through the second WPC Youth Magazine. I believe that it will further the engagement of the youth in the industry’s dialogue. I also want to take the opportunity to thank Liang Jifeng for the tremendous work that he has put into this edition, the different contributors, the World Petroleum Council and the industry for their support.

Celine Rottier
Columbia University; Chair of the Youth Committee of the World Petroleum Council

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YOUNG MINDS in energy
Hello my friends! As WPC Youth Magazine project leader, I am very pleased to present to you the 2013 edition of the WPC Youth Magazine. In this edition we invite Industry executives to give their views about “hot topics”; collect the young industry elite’s opinion on “focus issues”; share young people’s journeys on joining the industry; and bring you the results of the new youth “unconventional” questionnaire. We hope you enjoy it.

Young people are full of vigour and vitality, and the WPC remains committed to promoting youth work and growth. Five years ago, just like you, I attended my first WPC Congress; I was inspired by the great passion of WPC Youth Committee members I met, and so I joined them. The Youth Committee uses its Youth Magazine as one of our platforms to engage young people, communicate with them, and paint a colourful portrait of today’s global youth. At every WPC Congress and WPC Youth Forum, the Youth Committee will publish an official Youth Magazine in coordination with the Congress or Forum theme. The Youth Magazine comes from the youth and serves the youth; we focus on participation and diversity, rather than academics. We provide a golden opportunity for you, the energy industry youth, to show your talent, tell your story and share your experience.

Throughout the editing of this magazine, we have made every effort to bring you distinctive features, and we really appreciate the hard work of our contributors; we have had much support and encouragement. Thanks again to our Youth Magazine team, WPC Youth Committee and volunteers! I hope we can read your articles in the next Youth Magazine, at the 21st WPC (Moscow, 2014).

The WPC Youth Magazine comes from the youth and serves the youth

Youth Magazine Team

Liang Jifeng
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The World Petroleum Council (WPC) has long recognised that the youth have an important part to play in the future of the energy sector and has initiated a number of activities to engage young minds in the development of the industry. With the vision of designing a sustainable future by harnessing the power of youth, WPC established its official WPC Youth Committee in 2007, targeting WPC’s key strategic area of Youth and Gender engagement.

I joined WPC as a volunteer in January 2010, during the 3rd WPC Youth Forum in India. It was such an inspiring experience, that I wanted to continue to be involved, and still am. I am delighted to be part of WPC now as an Indian Youth Committee Member and after three years of my association I can attest that WPC provides the youth with a voice through its formally organised Youth Committee and gives a chance to future generations to become involved in its activities in an equitable way, both as task force members and volunteers.

The objective of the Youth Committee (YC) is to create a collaborative, global platform for the voice of youth to be heard by the industry, to champion new ideas, to promote a realistic image of the sector and to bridge the generation gap in the hydrocarbon business. The Youth Committee fulfils its objective in three ways, namely: knowledge sharing, global networking and highlighting youth perspectives in discussion forums. Not only has the Youth Committee organised youth activities at the 19th WPC in Madrid and 20th WPC in Qatar, but it has also successfully executed three Youth Forums, including “Youth and Innovation: the Future of the Petroleum Industry” in China (2005), “Energise Your Future” in France (2009) and “Fuel the Youth: Future Energy Leaders” in India (2010). The team is now geared up for the fourth Youth Forum “Unconventional Solutions for an Unconventional World” in Canada (2013).

Presently, the Youth Committee is composed of more than 20 Youth Committee Members from different countries. It is led by a Chair, who is assisted
by a Vice Chair, while the different team heads lead their respective projects. The projects are aligned with the objectives of the WPC and are part of a collaborative effort within the WPC YC team, with the support of volunteers around the world.

Currently, the major projects focusing on network building and sharing information through electronic media are Youth Connect (an online platform), Youth Relations and Knowledge Management. The Mentorship Project is developing global cooperation and a wider platform of discussion through its mentees and mentors. Similarly, the Youth Magazine Project provides a voice for the youth by expressing their views on relevant industry issues at various WPC events around the world. By highlighting young people’s role in the hydrocarbon industry, and by providing a realistic image of the industry’s contribution to society, it will help to attract and retain that age demographic. This will be part of our promotion of the Oil and Gas Industry project. Furthermore, the key project of organising WPC events is being managed in partnership with the Canadian Youth Forum and the 21st WPC in Russia.

The Youth Committee is making an effort to reach out at the grass roots level of the industry and also at the national level of its member countries by forming National Youth Committees (NYCs). Canada, Brazil, Russia and Qatar have already established NYCs, while Argentina, the United States, the UK and India are in the process of doing so. The NYC guidelines are handled through another YC project called the National Youth Committee. Apart from the projects mentioned above, the YC is always looking to promote new ideas to achieve its objectives and support upcoming projects by volunteers and members.

One of our recent initiatives is to create a writing team with the objective of showcasing excellence, which will highlight the views of young professionals across a variety of media. The WPC is keen to choose young people from around the world from different backgrounds who have brilliant ideas, which meet our criteria. In the energy industry, gender and diversity issues are also a key focus point, as we would like to get as many people involved as possible.

The WPC YC is leaving its imprint on every continent in the world and growing over time. Till now, the WPC’s activities have been so successful that they have attracted the brightest men and women from different backgrounds and cultures to create a permanent, global network. The activities of the WPC Youth Committee are creating a platform where young professionals can get advice from the most experienced professionals in the industry, share their views with their counterparts in all corners of the world, discuss current and potential future issues, get involved in the complete chain of the hydrocarbon industry from upstream to downstream, from regulators to stakeholders, from profits to social responsibility and from energy to environment.

The WPC Youth Committee wants to be a leader for youth initiatives and is interested in stimulating engaging, thought-provoking, dialogue. Our Youth Connect platform has the potential to canvass the opinion of the youth and to know the youth’s vision of the future. The motive is to spread the message from young people at the grass roots level to corporate boardrooms where young people can get their voices heard, thereby shaping the future of energy on the world stage.

The WPC is looking to build a better future and asks all our colleagues to support this initiative in your own way at the WPC, National and individual level. The WPC YC provides a great opportunity for the youth to cast themselves as leaders of the future. There are many opportunities for the youth to get involved with the World Petroleum Council through events, participation in the National Youth Committees, individual projects, task forces, student grants or as volunteers. To explore more options please contact the WPC Youth International Committee with any questions, ideas, suggestions or submissions at:

- Email: youth@world-petroleum.org
- Website: www.world-petroleum.org
The world is in crisis. Except it’s not. Or maybe it is? In February, 50,000 people descended on Washington in protest. Citing examples of crippling droughts, devastating wildfires and Hurricane Sandy, organisers declared the first step to putting America on the path to addressing the climate crisis is for President Obama to reject the Keystone XL pipeline.

Across the pond, reports emerged stating Britain is on the brink of an energy crisis. European Union laws have forced the closure of coal-fired electricity stations; unfortunately with nothing in place to fill the gap. The plan is to import foreign gas, which will put a squeeze on people’s wallets.

Thankfully, hydraulic fracturing has unlocked vast amounts of natural gas – a clean-burning, efficient fuel that can replace coal-fired electricity sources. Better yet, it’s real cheap right now.

Unfortunately, it’s so cheap that the economics aren’t exactly crystal clear.

That’s okay though, as moratoriums on fracking will give producers plenty of time to save some money. By the way, fracking can also unlock oil from tight rock – a cool trick that may make the United States the world’s largest oil producer by 2030.

Good news for Americans, bad news for the Canadian oil sands. There may a lot of oil locked in those sands, but it’s no good to anyone if it can’t get to market. Delays in pipeline projects and rising production are resulting in billions of dollars of lost revenue for both oil sands producers and the Canadian economy.

But wait – aren’t the oil sands just dirty oil? Who wants that anyway? People want clean energy, and the clean jobs that come with it. That’s what they said in Washington.

Those jobs are getting hard to come by. Governments across the world struggle with staggering debt levels and, as a result, clean energy subsidies have taken a hit. In January, Bloomberg reported that investments in clean energy slid 11 per cent in 2012. Economies are slow to recover, resulting in stagnant unemployment.

We don’t have to worry about the 9.2 million people in the United States supported by the oil and gas industry (according to the American Petroleum Institute). In Canada, the future seems even brighter. The Canadian Association of Petroleum Producers (CAPP) suggests that over half a million people are employed by the oil and gas industry, and the Petroleum Human Resources Council has reported that 9,500 new jobs need to be filled by 2015.

But wait, aren’t those the very jobs that people...
are protesting in Washington?
Some may declare our energy future bleak. Desolate even, ripe with hard decisions, hard times and impossible challenges.
Others see it as an open field of opportunity.
We are those people.
Some call us global citizens. We grew up with the Internet and have not only witnessed but also embraced its power to connect people from all over the world.
(Admittedly, we are also part of the population that brought you the Harlem Shake phenomenon. We're sorry.)
Others call us spoiled. We grew up trusting our access to energy. When we flick a switch, the light turns on. Our cars will take us wherever we want to go. We don't hesitate to jump on a plane for a weekend away.
The closest thing to an energy crisis we've experienced is being stranded without a phone charger.
We want to be pushed and we want to run with our ideas. We want to explore different ways of producing energy. We value those that have come before us, and we want to gain their knowledge. But we want to put our own stamp on things too.
We want the freedom to make mistakes – we promise not to make the same mistake twice.
We don't want to do harm.
We want our communities to thrive. We want to give back to the places that helped shape who we are and give a hand up to those that need it. And we want to work for companies that share our values.
We're not necessarily driven by profits and revenue, but we understand why they're important. We actually believe a balance between economic prosperity, environmental performance and social good is achievable.
We see the world in shades of grey, not black and white.
We are the future of the energy industry.
Today, we're the young professionals. The rookies. The farm team.
We're excited by the possibilities but we're also nervous. We've watched the debate on energy grow feverishly, fuelled by strong emotions, and it's overwhelming. Our industry is under a microscope. Our successes – those that aren't ignored or mocked by critics – just lead to more questions.
Our failures are destined to become glaring headlines.
Even so, we can't help but be seduced by the complexity of the task before us. It's up to us to deliver affordable energy to the world in a way that elevates the standard of living while protecting our environment.
We're arrogant enough to believe we can do it.
A few others believe we can too.
Dr Randy Gossen, past President of the World Petroleum Council, felt the voice of youth was missing when it came to discussing the future of the petroleum industry. He believed that we must be involved in shaping the future, not just inheriting it.
With that vision in mind, the World Petroleum Council created a Youth Committee in 2006 – a global forum for us, the future of the energy industry, to start discussing not only the state of the industry, but what we want it to look like. The Canadian Association of the World Petroleum Council followed suit and selected Canada's top energy talent to form a National Youth Committee.
And on October 22nd, the committee welcomes the world to Calgary.
As hosts of the 4th World Petroleum Council Youth Forum, we're inviting young professionals from across the world to debate, discuss and deliberate our energy future. Something we're calling “unconventional solutions for an unconventional world.”
Join us. Support us. Test us.
We're ready.
Thank you for joining the 4th World Petroleum Council Youth Forum in Calgary, Canada. Stay connected today, tomorrow and into the future:
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• For more information, please visit our website here: www.wpcyouthforum.com.
LEAVING A POSITIVE FOOTPRINT

How do you ensure harmonious development between energy production and environmental protection?

The first thing is to recognise that our industry leaves a footprint in all phases of our activities, from seismic acquisition to the drilling of exploration wells and then throughout the development and production phases. We should therefore plan in advance and make sure that environmental considerations are always part of our viability studies and, ultimately, of our decision making process. In the end, what we should target is that, on balance, the footprint that we leave is positive and beneficial to nature and society.

In the long term it will make good business sense to invest in the environment, since it will be the environmentally and socially responsible companies that will earn a competitive advantage to access high-quality exploration and development acreage.

What impact does the shale gas revolution have on the future of the industry?

The development of unconventional oil and natural gas reservoirs has already had a big impact on our industry. Not only in the continuous improvement of the technology involved, particularly in drilling, fracking and reservoir management, which are applicable to conventional development as well, but perhaps most importantly by proving up huge resources and thus providing long-term energy security to some of the most important consuming markets, especially the USA. This is radically changing the sort of investments now planned across the whole value chain. For instance, the US is no longer a favourite location for LNG regasification plants but rather may become an exporter to other markets. Also, the abundance of natural gas and its low prices are making various sectors of the US economy, like petro-chemistry and industries heavily dependent on energy, a lot more globally competitive.

Finally, I think that given the enormous footprint that the development of these resources implies, the industry will reinvent its way to minimise environmental impact and engage with local communities affected by its operations. These new benchmarks will then quickly become the industry standards for conventional operations.

“The industry will reinvent its way to minimise environmental impact and engage with local communities affected by its operations”

Dr Renato Bertani
President, World Petroleum Council; CEO & President, Barra Energia
How do you train future technical leaders and company managers? Do they follow the same path or are there different approaches?

In any given group there will be people, regardless of age, gender or ethnic background, with different skills, personalities, interests and objectives. I think that we must allow all of these personal tracts ample opportunity to flourish and make the most of this diversity. In an increasingly complex and competitive industry it is the multi-disciplinary teams with a clear, strategic view that will make the difference.

Even though specialised development and training, be it technical or managerial, must certainly match individual skill sets and interests, the bottom line is that a culture of innovation and teamwork is the key to building successful teams.

Why should a company remain faithful to its ethical principles in an increasingly competitive world?

I think the answer is very simple and is already implicit in the question itself. It is exactly because the world is increasingly competitive that, to stay in business, companies must adopt the highest ethical standards as part of their business model. One of the best consequences of the communication revolution that we are going through is that societies, and particularly the younger generation, are becoming a lot more vigilant, and stricter anti-corruption practices are quickly spreading to all economic activities.

Our industry requires huge amounts of capital, and there is an abundance of liquidity in the world. However, capital allocation is increasingly going preferentially to enterprises with the highest ethical standards, the only ones that will be able to continue to be profitable in the long term.

Therefore being ethical is not only moral, it is good business practice.

What has been the most unconventional way that you have seen/could think of for youth retention and attraction to the energy industry?

It does not take a lot of imagination to figure what would attract young people to our industry: young people like to have freedom to innovate and they want time to be happy. This means that we need to create an atmosphere in our workplace that welcomes challenges to old paradigms, where new ideas are seen as opportunities and innovative thinking is stimulated. We also must recognise that in our industry the most important thing is not the number of working hours but rather the solutions that are developed. Young people need time to pursue other dreams and interests, and this does not necessarily conflict with their professional duties. I know of a beer company that includes in the targets set for their employees the improvement in their performance in something of personal interest, be that his or her golf handicap, tennis serve or dance skills. These are fairly simple things to offer, and yet not many companies have such a culture established in the workplace.

What do you consider to be the major challenges facing our industry in the next 15 years?

I have no doubt that our are main challenges are to attract the talent that we need and to engage with the communities where we operate.

There still is a huge amount of oil and natural gas resources, both conventional and unconventional, to be found and developed in sedimentary basins around the world. The existing fields themselves represent a huge opportunity to increase our reserve base and production through better reservoir management. I think the capital and the technology that we need are or will be available as long as we have access to acreage with good oil and natural gas potential.

It is clear that our industry still suffers from a severe image problem, and this is the main hurdle to attracting young talent and to gaining a licence to operate that, ultimately, we must earn from society. One of our main tasks at the World Petroleum Council is to inform society about the industry's huge contributions to sustainable development for over a century and a half, and the enormous progress that is being made in the areas of environmental protection, safety and social responsibility. Provoking this debate and helping us to engage with all of our stakeholders is one of the outstanding contributions of our Youth Committee to our industry.
How do you train future technical leaders and company managers? Do they follow the same path or are there different approaches?

Leadership to me has many dimensions – Behavioural, Situational, Transformational and Emotional Intelligence to name a few. The challenge for organisations in developing potential leaders is in ensuring that they possess the right knowledge, attitude and skill, or in a single word – competence. A high degree of technical expertise with low social and emotional intelligence would lead to an autocratic style of leadership, and if the converse is true then we would run the risk of having ‘country club’ managers. Both models are fraught with inherent danger for any commercial organisation. The challenge is therefore in developing the right balance.

To this end, it is imperative that any good leadership programme integrates all the above elements. We therefore need to ensure that potential leaders are given the right exposure in terms of challenging assignments, special projects, emerging and front-line technologies, sustainable and climate-related challenges, ethical business conduct, socio-economic issues, opportunities to work in cross-functional, diverse teams, etc. We also need to simultaneously put in place a mentorship or coaching programme, whereby the individual is given an outsider’s perspective which will help him or her to reflect on and appreciate the inherent challenges and opportunities that exist in each situation, and the possible responses and strategies that one would need to adopt while dealing with situations which he or she would need to address.

How can you keep your company successful in an increasingly competitive world?

While the winds of competition will always blow, it is important for the Leadership to correctly assess the situation and reorient the sails so that you can pick up that change early in your journey. History has been witness to the fact that companies which failed to read...
such signals on time have become extinct and today exist only in case studies of management schools.

The key pivots of any commercial organisation to me are its Purpose, Process and People. In the face of competition and change, we need to constantly recalibrate and assess if the core purpose of our existence is still relevant in the emerging or competitive scenario. Further, you also need to have a pulse of your customer and the market place besides the regulatory and external environment to stay current and contemporary. A case in point is the paging industry: most companies failed to read the emergence of mobile and internet-based technologies and therefore their core purpose of existence itself is no longer valid.

Secondly, you need to have robust processes which can give life to your purpose. The key challenge is to deliver your service or product faster, better and cheaper than the competition. For this, it is imperative that companies focus on operational efficiencies, best-in-class supply chain management, efficient warehousing, frontline production technologies, economies of scale, consolidation and mergers, etc. In a competitive and networked world, efficient processes are the key.

Lastly and most importantly, I sincerely believe that it is the quality of Human Resources which can make a difference to any organisation. It is therefore important that we continually invest in our people and ensure that they stay ahead in terms of their vision of the business, their ability to foresee change and their capability to lead the competition.

What has been the most unconventional way that you have seen / could think of for youth retention and attraction in the energy industry?

The energy sector has its own set of sectoral challenges in retaining talent. Working on an oil rig, or in a refinery, or in a remote oil terminaling facility is not as glamorous as, say, the information technology or consulting sectors in terms of working conditions. However, this is not to suggest that we are unable to attract or retain talent. I recollect an article titled *How Gen Y & Boomers will reshape your agenda* published in the *Harvard Business Review* which identified ambition, new experiences and challenges, multi-cultural ease, environmental concern and networking as key issues and challenges for this generation.

In a reaffirmation of the above findings, a recent internal study of employee attrition of new hires within our organisation, found that the lowest rate of attrition was quite contrary to our expectations in business lines that provided the most challenging, demanding and difficult assignments. Closer examination of this phenomenon revealed that the assignments provided the new hires with high level of work autonomy, meaningful and complete work, opportunities for learning new technologies in their field of study and flexible work timings.

The challenge therefore for the energy sector is to break away from conventional models of employment and build alternative models which provide this young new generation with platforms which enable them to network in the workplace, enable them to have flexi-work arrangements in terms of work hours, give them the opportunity to give back to society and “heal the planet”, offer work schedules which require them to travel and experience other cultures and civilizations and lastly, and perhaps most importantly, provide meaningful and challenging work.

* *How Gen Y & Boomers will reshape your agenda*, Sylvia Ann Hewlett, Laura Sherbin and Karen Sumberg, HBR, July-August 2009

“We continually invest in our people and ensure that they stay ahead in terms of their vision”
What impact does the shale gas revolution have on the future of the industry?

We have witnessed the potential that unconventional resources may have on the economy as a whole and on the industry in the case of shale revolution in the United States, where the share of shale gas has risen from 2 per cent of domestic production to 37 per cent in a short period of time. I should add that the necessary facilitative measures need to be taken in order for such a revolution to occur in other places as well. Such measures include clear regulations, together with an encouraging economic environment. Exploratory studies for unconventional resources are being examined in Turkey, with international companies participating. I believe the recent approval of natural gas exports from the United States will accelerate the expansion of the effects globally. There are many well-endowed places in the world in terms of shale gas, and we anticipate discovering a good amount of unconventional resources in Turkey; yet there still is a lot to be done for a revolution to happen in the way that is has in the United States. Technological improvement makes more and more resources recoverable and shale gas revolution once again proves that there is plenty of opportunity in the upstream sector to be exploited.

How can you keep your company successful in an increasingly competitive world?

In order to keep our company successful in an increasingly competitive world, we are revising our strategy map considering our corporate capabilities in the light of recent developments, such as geopolitics,
risks, etc. Exploration and production, being our core business, brings out lots of challenges and opportunities, where companies prefer to collaborate, thereby creating stronger structures. For this, a strong functional capacity and an active decision-making process is needed in order to be in the right place at the right time. Developing the right technical and managerial abilities is of great importance, as well as attracting talented young people in order to reach operational excellence with a strong corporate structure and financial system. With concrete and transparent goals, motivation of the human resources increases sharply. Continuous education, being open to change and learning from experience are also essential in order to grow and be successful. Visualisation of the common goals in the head, heart and soul is crucial. At TPAO, we have gained extensive experience in ultra deep water drilling over the last few years, for example, which I think is a very valuable asset. As the head of the Turkish National Oil Company, I have full confidence in my company and its human resources. I believe that we will be moving forward and creating an even more successful business in the near future.

What do you consider to be the major challenges facing our industry in the coming 15 years?

We are at a time of dramatic, perhaps unprecedented, change and challenge in our industry. A number of factors, such as rising geopolitical tensions, changes in supply and demand dynamics, the emergence of new competitors, social and environmental pressures are transforming and reshaping the global oil and gas business, narrowing down the conventional opportunities. Besides these significant immediate near-term trends, the oil and gas industry should focus on the long term and consider the following major issues and opportunities in next 15 years. First is access to significant quantities of unconventional oil and gas resources. These resources were not commercially viable until recently. It is only due to technological advances that 'unconventionals' have become so apparent nowadays, resolving in part the issue of global demand. In common with companies in other parts of the world, TPAO is making significant investments in the potential of unconventional resources in Turkey. The second issue is technological innovation. Technology has not only enabled unconventionals but also provided access to frontier acreage reserves in the Arctic, the North Sea, pre-salt basins in deep water, etc. On the other hand, end-use technologies, such as fuel cells, electric cars, are also rapidly evolving. Another, perhaps more critical point, is energy efficiency. Energy policies can help reduce fossil fuel needs. Through energy efficiency policies, we can save up to 25 per cent of our energy. For all of these, a high rate of investment is needed, to seize the new opportunities ahead.

“Continuous education, being open to change and learning from experience are essential in order to grow and be successful”
What is the WPC Mentoring Programme?

In practical terms, it is an opportunity for young professionals to discuss their issues related to the energy industry or to their career as a student/young professional/young manager with their peers and with senior industry experts and leaders from the WPC community. Our aim is to develop global cooperation via direct communication (such as emails, conference calls, Twitter, etc) and access to a network of experience via the newly established Youth Connect Platform. We have had very strong support from the WPC community, and special thanks go to Burçu Günal for being the tireless engine of this programme.

Who are the participants?

After the first pilot programme in the year 2011, with 6 mentoring groups, we achieved a big step forward in attracting participants and mentors for 18 mentoring groups with 74 young participants. Although the deadline for application has long since passed, we continuously receive new applications from young professionals all over the world, which I think is a sign of the programme’s success.

Why is this programme a unique opportunity?

Many of you will already have had experience of mentoring programmes in business schools or in your company, but I believe that the WPC Mentoring Programme is truly unique. The opportunity to share and discuss your questions, thoughts and concerns on professional and career-related issues with senior industry leaders and peers from the industry from different parts of the world gives you a great opportunity for personal development towards an international career in our industry. The programme does not have a strict framework, as this would set
hard deadlines or boundaries for the joint activities. At times we feel it brings some challenges for the participants, and for the organisers as well, but I have heard about some really good examples. Therefore, I have asked Csaba Zsótér from one of the most active groups in the programme to share his experiences as a participant and give you a real insight into the process.

WPC Mentoring Programme: Experiences as a participant

Working for a multinational oil company, you do not always have time to think about global issues, or to talk to people from different countries. You tend to concentrate on your own projects, working with your close colleagues. That was the main reason I was very happy to get into the WPC Mentoring Programme – to broaden my horizons.

I was lucky to get into the Mentoring Circle led by the British gentleman Peter Newman, an oil industry consultant and former Honorary Treasurer of the UK Energy Institute. My colleagues there are Silvia (from Spain, a Repsol LNG expert), Shima (from Iran, an assistant engineer at Lloyds, working in the UK) and Dan (from England, a reservoir engineer at Statoil, working in Norway) – quite a diverse team, isn’t it?

Since October we have already had four telcos, all of them on very interesting topics – each of them raised by one or other of us. We discussed personal/professional career paths in the oil industry, natural/shale gas and LNG issues, the future of European downstream, and the US shale boom, including US crude oil logistics issues (with special emphasis on the KeystoneXL pipeline). In almost all cases one of us had experience to share, and we always heard interesting and useful opinions from our mentor, Peter.

I really like these telcos – a short break in my daily work, discussing topics I am really interested in but do not normally have time to get more information about. I hope I can get to Calgary this year, meet my colleagues from the Mentoring Circle and continue our discussions in person.

“In almost all cases one of us had experience to share, and we always heard interesting and useful opinions from our mentor”

Csaba Zsötér
Supply Chain Management Expert, MOL Group
When you decide to share your thoughts online there is always a rationale behind it. For Victor, this rationale was sharing his research, helping young people gain a foothold in the energy industry and becoming a mentor for aspiring energy professionals. For Erik it was a way to build a portfolio of ideas and thoughts for an eventual larger writing assignment while attempting to interact with both industry professionals and the public at large.

Erik’s experience
I started writing about energy four years ago, and did so professionally for the Center for Energy Marine Transportation and Public Policy at Columbia University, as well as for my Paris-based consulting firm, Landstrom Consulting, until the Fall of 2012, when I began my studies at Columbia. While in the US I am not allowed to work for my consulting firm due to visa restrictions, and not having an outlet for my thoughts on energy drove me to start a blog.

I immediately started struggling with which complexity level to choose, i.e. should I write for industry experts or should I see this as an educational effort? I never quite figured this out and I instead decided to write about exactly what I felt like writing about.

I see my blog as a longer-term effort to understand my audience, to practice writing and analysing complex energy issues and to influence the energy debate. It is also a way to position myself within the industry and to have a topic of conversation when contacting industry participants. Furthermore, it is a way to start gathering language and a backlog of informational research from which I can draw if I ever want to write a book.

Both of us agree that no matter why you start writing about energy, it is a very stimulating endeavour, although it might not provide you with instant gratification, and you will spend many unpaid hours working on it. We both strongly believe that in order to put in the required time you need to have a passion for energy. Ultimately, both of us have found it to be a great experience, it has helped us to network, to meet interesting people and led to great opportunities. We encourage all of you to do the same and to get in contact with us if you do!
Victor’s experience

My blogging days began about 5 years ago, in June 2008. At that time, I was studying Petroleum and Gas Technology. I had always been very curious about the energy business: researching materials, opportunities and news about our industry. Then, I decided to share it with my peers in order to help in their development.

Strong networking and job opportunities have been the main benefits since I started blogging. Following my offshore experiences, my blog experienced a huge growth in followers due the fact that I began to share my own experiences and tips with my readers, acting as a career mentor, so to speak. In 2012, I began to lecture at many university-based events, including large ones, such as SPetro, at which Graça Foster, Petrobras’ CEO, also participated, and a session organised by the Brazilian National Youth Committee at Rio Oil and Gas, the country’s major petroleum conference.

Nowadays, I’m working onshore at FMC Technologies in the Surface Wellhead Division, as a Services Coordinator. I’m liking it a lot; the only downside is that I don’t have the same free time as I used to when I was working offshore and had fixed days off. However, the mission to help all those interested in our industry, and the dedication to recognise petroleum-related degrees as a great choice is still alive! I feel I now have even bigger responsibilities, because I’m the Brazilian National Youth Committee Chair and have to think about the integration of my generation into our promising industry.
I will never forget the trip to Lhasa, Tibet – not only the clear air which, without any pollution, gave my soul a sense of joyous elation, but also the people; the pilgrims on the way who spent months “walking” with their whole body from their home to Lhasa, prostrating themselves full-length on the ground, expressing their perseverance in their beliefs. Their sun-tanned faces are wrinkled, but full of courage and honesty; their ageing hands are dusty, but I believe they have the purest souls. It is a journey of faith which brought many dear thoughts to my mind, enlightening me to pursue what I believe – the quest for clean energy.

A pilgrimage to Lhasa is a dream for all Tibetans. For me, clean and efficient utilisation of coal or unconventional oil, and mitigation of undesirable emissions becomes the dream to be fulfilled, for some reason; an obligation which must be accomplished while we are still young and fearless, and passionate about life and adventures in this fast-changing world. So, I started to dabble in this area. I went to China University of Petroleum-Beijing (CUPB) for my undergraduate study, visiting different oilfields around China during summer vacations, and the more I learned, the more I wanted to know. To explore further, I came to Canada, a place with a vast and diversified portfolio of energy resources. After graduating from the University of Alberta with a master’s degree in Chemical Engineering, Nexen offered me an opportunity to fuel my passion for the energy industry, a stage on which I can have a chance to act out my dream.

As a young engineer, beginning a career in energy, I find this influential field full of potential and challenges. There may be a thousand splendid suns, but I would like to focus on this one, and chase it all my life.
First impressions and expectations are not always easy to put in a nutshell. This was for me the point where I started when the idea of joining the petroleum industry first crossed my mind.

Entering a global, cross-linked and, for so many sectors, important business, challenged and inspired me. I was fascinated by being part of an industry which has such a big influence when it comes to economic, environmental and scientific questions and issues.

The first steps I had in mind were bringing my experiences and knowledge to this business. To combine new ideas and different types of experiences related to working in other industries, gives one the chance to have a different view on issues and problems. This approach is how I look at new challenges and how I go about performing new tasks.

Looking back at my first months, the impressions are still the same. The petroleum industry is a huge and complex network which presents many challenges and opportunities, especially to young professionals. You get an extensive overview of economic and environmental issues and you are challenged to give your best to be part of a continuously improving industry.

In my opinion, the petroleum industry, like any business of this size, benefits from the strength, power and enthusiasm of young people. Working with biogenic and fossil feedstock offers a platform for creating new products, and alternative ways for their economic and ecological use.

If I could make a wish, I would say that giving young people opportunities to start in this business is indispensable. Young people are making the future, and taking the right steps when it comes to struggling with future problems is one of the most important aspects of the petroleum industry.
Why do I want to work in the energy industry? Because I am motivated to tackle new challenges and to work in a multi-disciplinary environment.

Having studied geosciences I am maybe not typical of the “energy youth”. However, with my geochemically-oriented master thesis (“Abiotic oxidation of oil and gas at elevated temperature and pressure”) I stepped into the field of petroleum chemistry and since then it has caught my interest. With my PhD I continued this track. My focus is on simulating subsurface processes in laboratory experiments to gain a better understanding of complex natural systems. Research in the oil and gas industry is a potential field of work for me after my PhD because I am eager to use my expertise to tackle real industry problems and to contribute to a better understanding of reservoir processes. This knowledge is crucial for prediction models used for petroleum generation and exploration planning.

I expect research in the oil and gas industry to be complex, which piques my interest because I like to think “outside the box”. The interdisciplinary work environment encountered in this globally operating business also excites me because it surely creates a nurturing work atmosphere. In addition to that, I like the opportunities for further career development because I like to grow and develop new skills. However, it is not only the technical side that catches my interest, but also the social, environmental and economic aspects of oil and gas operations, as well as the close interdependence of these different areas. Having said all that, a job in the oil and gas industry is desirable for me – and who knows where I will be one year from now?

Swenja Germerot
PhD Geochemistry,
Leibniz University, Hannover

“It is not only the technical side that catches my interest, but also the social, environmental and economic aspects of oil and gas operations”
My relationship with the WPC began in 2008 when, with a couple of friends, I wrote a paper for the Madrid Congress, putting together some of our areas of expertise. It applied game theory to analyse the gas market in South America. We exceeded our wildest expectations and were awarded the Best Article by a Young Author! And the best part was that the award was given by the King of Spain, Juan Carlos, himself! I can’t put into words what this meant for me and my family, since my grandfather was a Spanish immigrant, and to have his grandson meeting the King was a great honour for him.

This award, given by the WPC, is really special and it changed my life. From that point on, I joined the Brazilian National Youth Committee, became its Chair, helped to reorganise it, and promoted all sorts of activities in Brazil, mobilising thousands of our young people to participation in our events, really engaging them in the issues that our industry faces.

Apart from the local participation, I also joined the WPC Youth Committee, first as a volunteer and from 2011 onwards as its Vice-Chair. Since then, the YC has grown a lot, creating different task forces to take on each of our exciting projects. My role is mostly trying to integrate the group and its main issues, keeping the team motivated. This is not too hard, considering the promising and engaged young leaders we have in our group! In this very same magazine, we present some of these projects, such as the Youth Forum, the Youth Connect platform, and our Mentoring team, among others.

Being part of the WPC Youth Committee is a really unique experience, and I feel very fortunate. Sharing our personal and professional experiences, the different background mix (education, culture, geography, and religion), and the close relationship with senior and high-level experts and executives, really makes us grow. But most of all, I would say, it the friendship and bond we create that makes everything worth while, and the certainty that we will carry this for rest of our lives and, hopefully, use this experience to give back to society and the industry some of the things we are learning today.
Much of the public discourse on the petroleum industry in the context of climate change has focused on demonising the industry. However, 30 per cent of the world’s energy supply currently comes from oil and will continue to for years to come. For young people entering the petroleum industry, who recognise the very real threat of climate change, this article examines the impact the industry currently has and identifies policies to help mitigate the risks of climate change and to reduce greenhouse gas (GHG) emissions.

The oil and gas sector is a key stakeholder in reducing the carbon intensity of the global economy. The oil and gas sector is a key stakeholder in reducing the carbon intensity of the global economy. The oil and gas sector is a key stakeholder in reducing the carbon intensity of the global economy.

The capital investments made today – whether in conventional, unconventional or renewable resources – have the potential to determine our energy mix and future climate fate. While most emissions from oil and gas ultimately come from the combustion of petroleum products, within the operational boundaries of an oil and gas company, emissions result from operational combustion, flaring, fugitive sources and vented emissions. The petroleum industry recognises and is planning for opportunities that climate change may cause, such as increased access to hydrocarbon reserves from an ice-free Arctic, which may happen as soon as the Summers of the 2030s. But how should it manage the risks associated with climate change and the impact of climate change on the petroleum industry? IBM has identified the top five industry impacts from climate change: water scarcity, physical asset failure, employee health and safety risks, lower financial asset valuation and regulatory risks.

The oil and gas sector is a key stakeholder in reducing the carbon intensity of the global economy. The oil and gas sector is a key stakeholder in reducing the carbon intensity of the global economy. The oil and gas sector is a key stakeholder in reducing the carbon intensity of the global economy.
damage to corporate reputation. Companies that are able to manage these risks will be best positioned in our water-scarce and low-carbon future. Four steps an oil and gas company can take to mitigate the effects of climate change are:

1. **Support Cap and Trade Programmes.** Cap and trade sets a clear goal on the quantity of emissions reduction yet enables the market to determine the most cost-effective means of reducing emissions.

2. **Target, Monitor, Report and Verify.** To prepare for cap and trade programmes and disclose risk to their stakeholders, the industry should set targets for emissions reduction, report these emissions and verify results based on where they occur across the value chain.

3. **Reduce Flaring.** UNEP estimates that over 8 per cent of total worldwide natural gas production is lost annually to venting, leakage and flaring which amounts to between US$27 and US$63 billion in energy and economic losses. A first step to reducing flaring is establishing processes to comply with the World Bank’s Global Gas Flaring Reduction Standard.

4. **Improve Energy Efficiency.** Undertaking efficiency opportunities with equipment, venting and leakage are good for both for reducing the impact of climate change and an oil and gas producer’s balance sheet.

  Taking these four steps can help manage risk, save money, increase the industry’s reputation and enable it to be a more responsible public steward. Additionally, it could mitigate extreme weather events we have seen in the past year such as Hurricane Sandy, 115°F rain in California, the coldest winter in 30 years in China, and unprecedented flooding and snowstorms in the Middle East. Ultimately, the first movers will benefit the greatest, and it is up to our future leaders to help make that a reality.

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**Table: IOC Comments**

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<thead>
<tr>
<th>IOC</th>
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<tr>
<td>ExxonMobil</td>
<td>'Rising GHG emissions pose significant risks to society and ecosystems.'</td>
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<tr>
<td>Chevron</td>
<td>The use of fossil fuels to meet the world’s energy needs is a contributor to an increase in GHGs – mainly carbon dioxide (CO2) and methane – in the Earth’s atmosphere.</td>
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<td>ConocoPhillips</td>
<td>'Human activity, including the burning of fossil fuels, is contributing to increased concentrations of GHGs in the atmosphere that can lead to adverse changes in global climate.'</td>
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<tr>
<td>BP</td>
<td>'Addressing the global challenge of climate change will require the efforts of governments, industry and individuals.'</td>
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<td>Shell</td>
<td>'CO2 emissions must be reduced to avoid serious climate change.'</td>
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2 IOC Comments


Energy efficiency is the lowest-cost strategy to reduce carbon emissions in commercial and residential buildings, as well as many processes in the industrial sector. While renewable technologies might lead to even deeper cuts in carbon in the future, they are not yet ready to compete against fossil fuels on price. Even with the varied levels of subsidies provided by governments, they cannot conquer a majority of the market. Meanwhile, investing in energy efficiency represents many NPV positive opportunities, many of which have paybacks of less than 2 years. The 2009 Mackenzie report put the potential to reduce energy consumption at around 23 per cent annually through 2020, eliminating more than US$1.2 trillion in wasted energy for a US$520 billion upfront investment. This would result in 1.1 gigatons of greenhouse-gas emissions abated annually.

The greatest barrier to the implementation of energy efficiency is a lack of information, although access to capital for upfront investment can affect the residential sector and some small industries that are highly leveraged, due to high growth rates. While education is important, the most significant informational barrier to the implementation of energy efficiency is the lack of data that supports the cost saving projections of energy auditors. Private investors and banks are often cited as saying that they cannot accurately assess the risk to energy efficiency investments because there have not been enough case studies that have measured the longer-term results of projects that have been pursued. The Deutsche Bank study is one of the first comprehensive evaluations of energy efficiency projects in relation to the projected cost savings proposed by the energy auditors. This study focused on more than 230 affordable multi-family residential buildings in New York City and found that 2/3 of these buildings projections ranged from 25 per cent to 50 per cent, while realised cost savings ranged from 10 per cent to 40 per cent.

Increasing the data around the cost saving projections of energy efficiency will allow for more private investment in this sector as the perceived risk of investment is clarified. Fully taking advantage of these opportunities will lead to a reduction of carbon emissions while fossil fuels still dominate the market.
The Great East Japan Earthquake that had a magnitude of 9.0, occurred on 11 March 2011 in the northeast part of Japan, and was the worst disaster in Japan since the Great Hanshin Earthquake in 1995 that hit Kobe. The earthquake generated a powerful tsunami that reached heights of up to 40m, devastating large areas in Japan. The earthquake and tsunami caused nuclear accidents initiated by cooling system failures in the Fukushima Daiichi Nuclear Power Plant. After this catastrophe, most of the nuclear plants in Japan were shut down for earthquake safety, so the imports of liquefied natural gas used in thermal electric power generation have risen sharply. Japan relies on imports for the majority of its oil and natural gas, as the country lacks natural resources. Since the price of Japan's imported natural gas is determined in tandem with crude oil, the cost of power generation is increasing.

Shale gas is one of the unconventional resources that are expected to make large contributions towards cost reduction. In the United States, shale gas has been a rapidly increasing source of natural gas, with the technological advances in horizontal drilling and hydraulic fracturing in recent years. The government of Japan expects to approve imports of shale gas from the United States. If the shale gas in the United States, which is thought to be less expensive than the natural gas of other countries, is imported to Japan, it is likely that Japan can generate electricity at a lower cost and maintain a stable energy supply.

In Japan, the development of unconventional resources such as methane hydrate has been discussed as a potential resource. In March 2013, Japan successfully extracted natural gas from a layer of frozen methane hydrate at a depth of 1,000m under the seabed. It is the world’s first offshore example of producing gas from methane hydrate. This is a milestone and could also be a major step towards future commercial production, although the cost of extracting gas from beneath the sea floor is much higher than for other production methods. It is hoped that unconventional resources like shale gas and methane hydrate can assist in meeting Japan’s future energy requirements.

Takehiro Nagano
Geophysicist
JX Nippon Oil & Gas Exploration (Qatar) Limited

“In March, Japan successfully extracted natural gas from a layer of frozen methane hydrate at a depth of 1,000m under the seabed”
In March 2013, I had the opportunity to participate in the “Oil, Rights and Development” simulation taught by Professor Jenik Radon at the Columbia University School of International and Public Affairs (SIPA). I emerged full of new insights and excitement after two packed days and highly recommend this type of experience to anybody involved in the oil & gas industry. It will empower them to exercise judgment, and as Professor Radon says, “hopefully based on moral principles” to design a more sustainable energy future for all.

The simulation we performed was created by Mr Donald O’Neill, a former Shell executive, in order to immerse executives in the universal challenges of the extractive industry. This multi-layered, role-playing simulation, based in a small, war-torn, fictitious nation in west Africa trying to prevent the infamous resource curse, allowed more than 100 students to explore, in depth, the challenges associated with the establishment of a major industrial venture in a developing country. The roles assigned ranged from government officials, journalists and villagers, to executives of international energy companies. Each individual belonged to one of the 19 groups, and was given a unique perspective and objective through a personalised information package. I was given the role of an executive of Nosferatu, one of the two oil & gas companies that was competing for access to the nation’s natural resources.

I started the simulation with a mixture of excitement and wonder at how the ensuing days would play out. I was most struck by how my classmates and I fully immersed ourselves in our roles in the context of fast-paced, sudden and dynamic turns of events. It was surprising how our roles and objectives took control of us. In my case, this included illegal activities such as bribing or...
the provision of weapon supplies, while the rival oil & gas company was promoting moral stances and high environmental standards. As the oil & gas companies were continuing negotiations, they were facing numerous challenging situations, including: the threat of an armed insurrection, an explosive relationship between two government factions, rebellious youth in the local communities, skewed press coverage, and protesting NGOs. The complexity and fast pace of the simulation turned it into a very intense experience in which it was difficult to pursue our original objective as we constantly had to rethink, adjust and act. It seemed a very realistic portrayal of the multifaceted challenges in the oil & gas industry that are strongly influenced by human relationships and incomplete information. It is a truism that no one has all information and no two groups analyse and view the same information in the same way.

In May 2013, I had the opportunity to follow up with Professor Radon, who currently teaches a course entitled, “Energy, Corporate Responsibility and Human Rights” at Columbia University. As he witnessed the negative impacts that irresponsible behaviour can have on society, he came to appreciate the necessity to invest in and help create a sustainable future. While he is aware that there is still enormous progress to be made, he also recognises that companies need to make a profit. According to Professor Radon, the increasing awareness that human activities come at an environmental cost is already a major step forward, especially if this trend is supported by the oil & gas industry. He comments that a sustainable future will only arise once all appreciate the stringent need to minimise our footprints and that “we are all in it together”. It will require the oil & gas industry to understand and focus on the long-term societal implications of its activities. This will be especially challenging in the complex surroundings in which the industry operates, as students understood through their participation in the simulation game. Regulations also play a key and indispensable role in the advancement of sustainability, says Professor Radon. In fact, the industry should aim for the establishment of high international standards. There is no reason why people should have lower environmental standards in one country than others. Such standards must be equally demanding everywhere. Only by aiming for a sustainable future will the oil & gas industry be able to withstand the inevitable force of change.

According to Professor Radon, the youth have a key role to play in the creation of a sustainable oil & gas industry in that they have the “power of the first draft”. In practically any organisation, young people are handed the responsibility of writing the first draft of contracts etc. A simple and straightforward question like, “Doesn’t this pipeline proposal run through the habitat of protected species?” can be the catalyst for change in a project and in the documents. Once young people understand that “they will have to live in the environment that they create” in their drafts, he comments, the potential for change that could result is significant.

I encourage all people in the industry to participate in an oil & gas simulation. It is an intense experience that will change your perspective on the industry and increase your awareness of the complex environment in which it operates. Hopefully, it will increase the understanding that we are all interconnected and that a sustainable future can only be achieved if all of us participate, including, and according to Professor Radon especially, the youth. As Professor Radon mentioned, this will lead companies to pursue and secure a “social licence” in addition to the “legal or formalistic licenses” for their future operations.

Environmental degradation has all too often been an unwelcome side-effect of oil industry operations.
The recent discovery of petroleum reserves across East Africa has once again brought equitable resource allocation to the forefront of conversation. Vast resource wealth throughout the region has prompted governments to reassess existing energy infrastructure and consider future sector development. This process grants both governments and private institutions the opportunity to address energy poverty in these countries.

Over 2.5 billion people worldwide lack consistent and affordable access to energy resources, with 95 per cent of these individuals residing in Sub-Saharan Africa and developing Asia. This inability to obtain electricity or petroleum resources places communities and countries at a severe disadvantage. Energy access increases productivity, improves education and healthcare, and enhances competitiveness. The provision of energy resources grants individuals the tools to participate in formal markets and contribute to sustained economic growth and development. In coming years, as governments begin to receive fossil fuel revenues, they must address the issue of energy poverty through infrastructure investments in both urban and rural communities.

Historically, the greatest barrier to the improvement of energy resources in developing nations has been deficient domestic savings. A lack of monetary resources has prevented development in the most capital-intensive of industries. As a consequence, Sub-Saharan countries have experienced limited foreign investment, creating a self-perpetuating cycle of inadequate investment and scarce savings. If used wisely, oil and gas revenues will bolster national savings, improve infrastructure and decrease energy poverty.

Ghana is a case in point. More than a year after production commenced at the country’s Jubilee field, the government passed legislation to effectively allocate resource revenues. Subsequent to its enactment, government infrastructure spending increased 4 per cent, contributing to vast improvements in energy access. Ghana is not alone in its quest to reduce energy poverty through transparent government spending. Mozambique, Kenya and Ethiopia are exploring diverse revenue management strategies to make equitable allocations to urban and rural infrastructure projects.

Ultimately, investments in the alleviation of energy poverty are contingent upon good governance and funds management. However, transparent dialogue between investors and policymakers must contribute to equitable resource and revenue sharing. Working in collaboration, stakeholders may alleviate energy poverty and provide sustainable economic growth in developing nations.
The WPC Youth Writing Fellowship programme is an opportunity for young professionals to truly shine and stand out from the crowd as the trend setters for the global conversation among youth on energy and the environment.

This is the first time the WPC is inaugurating this programme of excellence. The aim of the programme is to create an intellectual dialogue between young professionals and to initiate conversations within the WPC community and beyond. The programme already has a diverse team who are dedicated their efforts towards recruiting and facilitating the Writing Fellows.

This programme is a unique opportunity for you to participate in because it will help you develop into a well-rounded young professional who is capable of voicing their opinion in an international forum. The Writing Fellows are provided with the freedom to pursue their interests within the broader set topics.

The programme team will always be present to provide support and guidance throughout the tenure of a Writing Fellow. We are continuously receiving new applications from young professionals and we look forward to hearing more from all the bright and energetic young professionals from all over the world.

How to apply? Easy as 1, 2, 3!

1. Your resume (show us who you are!)
2. A written sample (500 words) on the energy industry
3. Any relevant publications on the industry

Join us!

Email: writingfellows@world-petroleum.org
Twitter: #WPCYouth
Facebook: WPC Youth

Manzoor Roome
Planning Analyst,
Shell (Qatar); WPC Writing Fellows Programme Chair

"The WPC Youth Writing Fellowship programme is an opportunity for young professionals to truly shine and stand out from the crowd as the trend setters for the global conversation among youth on energy and the environment."
Unconventionals are revolutionising the energy landscape. The WPC YC has asked a randomly selected group of approximately 60 young people to share their views on some key aspects of this phenomenon. The results show that these young people mainly associate shale gas or shale oil with the concept of unconventional and that they are clearly convinced that this is the future of the oil and gas industry. While they believe there is still a significant untapped potential for unconventionals, they say that its viability is primarily dependent on environmental concerns, ahead of required technical improvements. Although the young people are confident that the industry will be able to solve any hazards related to leaks to aquifers, they do not seem to have a clear opinion on the impact of unconventionals on climate change. They also seem to find that the industry still has to make further progress to increase their economic viability.

Overall, unconventionals form an extremely attractive work field for young oil & gas professionals, ready to take on the different challenges it involves, of which they are well aware. It is in fact this same challenge that seems to be the main motivator for these young people to join the industry, ahead of monetary compensation. This all points to an energetic new generation of oil and gas youth, ready to push the industry to the next level, in balance with the environment.
1. What would you consider an unconventional resource?

- Extra heavy oil 22%
- Oil shale 19%
- Tight gas 17%
- Natural gas hydrate 17%
- Coal bed methane 15%
- Shale gas 10%

2. The potential of unconventional resources of the world has barely been touched.

- Strongly agree 11%
- Agree 67%
- Neutral 11%
- Disagree 11%

3. What are the areas that the industry should improve in order to make unconventional resources viable?

- Minimising environmental impact 28%
- Improving drilling technologies 20%
- Improving production technologies 20%
- Focusing on social responsibility 14%
- Improving imaging technologies 10%
- Improving downstream technologies 8%

4. Unconventional resources are the future of this industry.

- Strongly agree 11%
- Agree 67%
- Neutral 20%
- Disagree 2%

5. Unconventional gas resources require sound management of water resources; do you think as an industry we are able to handle well construction and integrity in order to prevent leaks to aquifers?

- Strongly agree 9%
- Agree 48%
- Neutral 28%
- Disagree 13%
- Strongly disagree 2%

6. Unconventional gas has higher production-related greenhouse-gas emissions than conventional gas; with the increasing global concern around greenhouse-gas emissions do you think that the industry is ready to handle this?

- Strongly agree 11%
- Agree 33%
- Neutral 22%
- Disagree 32%
- Strongly disagree 2%
7. As an industry we are technologically ready to make unconventional resources economically viable.

8. Since this is a new frontier in the industry do you think it is an attractive field to pursue for young professionals?

9. What are the biggest challenges facing unconventional resources?

10. What's the most attractive thing for you to join the industry?

11. Do you agree that transnational energy enterprises entering the developing or undeveloped countries is a kind of "new colonialism"?
The Energy of Youth is a driving force towards global sustainable development. It is an inexhaustible energy source that promotes innovation, outside-the-box thinking and international cooperation between peers and senior experts in the energy field. The future we envision is possible, it is in our hands. It is time to show our commitment and put the Youth mark on the global energy agenda!

On June 15-19, 2014 more than 300 students, PhD researchers and young professionals in the energy sector from around the world will gather in Moscow. The 21st World Petroleum Congress Youth Programme is open to people up to 35 years old. The main theme of the Youth Programme is “Responsibly Energising a Growing World: The Role of the Youth”, and will be divided into three blocks:
1. An unconventional look at the energy future
2. Environmental protection: The future generation’s crucial challenge
3. Education and Career in the energy industry: Join us today

You will enjoy a fantastic opportunity to participate in a contest for the best youth paper, attend a special Youth Debate Session, and take part in the daily discussion sessions and leadership training in a comfortable youth lounge area. In addition, delegates will meet global energy leaders, attend technical tours and social events, and benefit from networking with peers.

According to the World Petroleum Council, many of the qualities young people offer, such as active thinking, sensitivity to new issues and their powerful innovative potential, are vitally important to the future of the petroleum industry.

Thus, do not hesitate to submit your application for the best paper and become a volunteer at www.21wpc.com. ■