SPECIAL WPC YOUTH MAGAZINE

UNITING ENERGY LEADERS OF TOMORROW

PUBLISHED TO MARK THE 21ST WORLD PETROLEUM CONGRESS
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Visit http://tiny.cc/wpcapp or use the QR code below:
Do you still remember the good time we had at the 4th WPC Youth Forum in Calgary? Do you still have the Youth Magazine from last year? Now, we are back and presenting the new version of the WPC Youth Magazine for the 21st World Petroleum Congress in Moscow.

For over a century, we have lived in a world with abundant fossil energy; nowadays the oil and gas industry is closely related to the world economy, national security and the environment. We enjoy an amazing lifestyle provided by petroleum-based energy; at the same time the petroleum industry is facing more challenges on resources, technology and sustainability than ever before. As the new generation in the industry, it is our duty to work with senior colleagues to bring about a bright – and green – energy future.

After many years' exploration and development, humankind has progressed and made many achievements in the petroleum industry. What is the attitude of the youth to these legacies? Inherit, doubt or change? In this edition, you will see young people with different opinions from different regions; they will tell you about their “Petroleum Legacy and Vision” in their own words. In addition, we also pose similar questions to industry leaders from Brazil and China.

Sincere thanks to every author and WPC YC member for their hard work on this magazine! As usual, we invite and encourage industry youth to join the WPC Youth Committee and take part in our activities, where you can showcase your talent and ideas to the world!
While the history of some countries is intimately intertwined with the petroleum industry, others have only recently joined the ‘club’ and need to define a responsible development path in light of their newfound resources. As a new generation of energy leaders emerges, it is important that the ‘solution space’ they envision is connected to the reality of their industry; not only at home, but across the globe. As globalisation progresses, the challenges that they will face will increasingly stem from abroad.

This has led the WPC Youth Magazine to start a unique project, inviting young people around the world to share the main characteristics of the energy industry that they have inherited from previous generations. In addition, young people have been asked to share their view on how they would like to see the industry in their region evolve. The result is a colourful mix of regional portraits of the energy industry.

The Youth Magazine encourages young people to actively propose solutions that can make their ideas for a better future fly. In the third section of the magazine, young people explore the solution space for specific topics, such as sustainability, diversity, the fuel mix and policymaking. Along with the regional focuses, they provide an excellent basis for intergenerational dialogue at our Youth Lounge in the main exhibition space or online on our Youth Connect platform.

Young people seek to become a ‘link’ to the chain of previous oil and gas industry generations. Hence, we invite all members from the oil and gas family to join the main youth session on Friday for an open conversation with senior industry leaders and the industry’s brightest young talent.

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

“As a new generation of energy leaders emerges, it is important that the ‘solution space’ they envision is connected to the reality of their industry”
Asia, with its rapid population growth and increasing energy demand, is changing the energy dynamics of the world. The resulting supply/demand gap has made the hunt for oil and gas ever more crucial. The last decade has influenced major overseas asset acquisitions by Asian oil and gas companies. Billion-dollar deals have been struck for the energy security of their respective nations. It is clear that the legacy has overcome all odds to put India and China firmly on the world hydrocarbon map. There is much to say when we talk about the petroleum industry legacy in Asia, including basic theories, professional knowledge, industry technologies, etc. But the first thing that comes to mind is the hard-working spirit, which is the most important legacy we can inherit as young people.

Asia belongs to the pioneers of the world’s petroleum industry, with a history going back over 150 years. Among the first oil wells were Xihai (1835) in China’s Sichuan Basin, Bibiheybat (1848) in Russia, and Pennsylvania (1859) in the USA. Nevertheless, the petroleum industry developed slowly in Asia. The basic theories were imported from Russia and the USA, the professional knowledge and industry technologies were also learned from other continents. Thanks to Asia’s hard-working spirit, the continent has made huge discoveries. The discoveries include the Daqing oil field in the Songliao Basin of China, Mumbai High in the Bombay Basin of India, and Natuna D-Alpha in the East Natuna Basin of Indonesia. Hence, we can say that it is their natural assiduousness that helped Asians make those achievements.

While knowledge and technology evolve over time, China’s hard-working spirit remains the constant which will power China’s progress in the industry of the future. For instance, the exploration area changed from uplifts to sags, from structural traps to lithology-stratigraphic traps. The technologies of seismic acquisition, well drilling, and hydrocarbon development have also changed dramatically. But the hard-working spirit remains unchanged. In the past, this spirit was reflected in field work: workers such as the “Iron Man”, the nickname given to a petroleum engineer at Daqing oil field in China, who jumped into mud sumps to mix the mud with his own body during the drilling of a well at Daqing. Today, it is more often reflected
in the research field, where researchers may work for several days in a row without rest, in order to obtain the results of their experiments. The Chinese youth have inherited the same hard-working spirit from their predecessors.

The legacy of the petroleum industry in India has been largely about the hegemony of the country’s National Oil Companies (NOCs). This has affected the petroleum industry in India in both a positive as well as a negative way. The transfer of knowledge and expertise has been a boon in terms of legacy, which has resulted in major discoveries like the Mumbai High field in the country. Later on, the liberalisation of the petroleum sector in the 1990s, which allowed 100% Foreign Direct Investment (FDI) in India, opened the market to foreign companies. The New Exploration Licensing Policy (NELP), was a major milestone that enabled massive exploration in the country, especially in deep-water areas. The negative aspect of the legacy is its academia-industry gap and the perception of the industry amongst ordinary people. The courses at Indian universities were not on a par with the industry’s requirements and the Indian public never recognised the importance of the energy industry. Thus, the attractiveness of the hydrocarbon sector to young people was quite low compared to other sectors, for example software and IT. The NOCs, along with private companies, are now solving the problem of ‘crew change’ in India and leaving no stone unturned in their efforts to meet the nation’s energy needs.

**NORTH AMERICA**

In North America, the region strives not only to maintain its array of natural resources and pristine landscapes, but also to achieve a relatively successful balance between both. The abundance of domestic oil and natural gas supplies have contributed to economic prosperity across multiple generations, and will continue to provide promise for future generations.

Energy demand in North America spans end-uses from heating and cooling homes to enabling travel and entertainment on this vast continent. Energy also facilitates technological advances and innovations in the region. The region’s high standard of living is, in part, attributed to the array of domestic energy sources.

To the north, Canada’s oil sands contain billions of barrels of oil reserves. The high-viscosity oil, or bitumen, is contained in the shallow surface rock, and is predominantly recovered using in-situ liquefaction technology. Conventional reserves are found throughout the Prairie Provinces, and comprise the industry’s light oil and natural gas supplies. The United States has added to its conventional reserves by deploying technology to economically produce unconventional oil and natural gas from shale formations. America’s energy sources continue to grow with additional deepwater discoveries in the Gulf of Mexico.

Fossil fuels are relatively low-cost, energy-dense, abundant, and reliable. These fuels serve as the building blocks for plastics and as inputs for

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Drilling rig at the Daqing field in China: home to the legendary "Iron Man"
electricity generation, among a variety of other uses. As a significant consumer of carbon-based fuels, the region is working on strategies to manage climate change risks. Pro-actively addressing emissions from fossil fuels is a joint step in a positive direction. While both nuclear and renewable energy sources are expected to grow as a percentage of the region’s energy supply, natural gas remains a significant and growing source of energy.

As global energy demand continues to grow, gains in energy efficiency are needed and expected to curb the ever-increasing energy consumption of the developed world. Developed regions have a responsibility to forge the path to efficiency, and to introduce a new way of considering energy that will contribute to sustainable growth and environmental preservation for all regions. The need to manage climate change risk is intensifying as developing regions continue to improve their standard of living and begin to reflect North America’s habits of energy consumption.

**EUROPE**

**The European oil and gas industry: A diversified legacy**

Two centuries of oil and gas production in Europe have provided the old continent with an extensive experience in exploring, producing, transporting, refining and distributing oil and gas across its boundaries. For example, Russia (which produced 520 million tonnes (Mt) of oil in 2013) produces only slightly less than Saudi Arabia (544 Mt of oil in 2013) in the ranking of the main producing countries of the world, while the pipelines of Turkey are transporting 200 million tonnes of oil per year.

The European industry is diversified, with major producing countries (Russia, Norway, the United Kingdom), major consumers (Germany, Spain, France), and a major corridor between the main producers and consumers of the world (Turkey). In addition, the oil and gas industry has been impacted by national political decisions: while the Norwegian growth model is based on the sustainability of its sovereign wealth fund, France has reduced its dependency on oil and gas by developing an efficient nuclear industry. Most of them have developed integrated oil and gas majors: BP in the United Kingdom, Statoil in Norway, Gazprom and Rosneft in Russia, Repsol in Spain, TPAO in Turkey.

After years of successful discoveries and growth in their production capacities, many of the European countries have reached a plateau and started declining. From the brown fields of the Norwegian Continental Shelf to the post-USSR planned production, oil and gas production has been decreasing (due to reserve availability in Western Europe, and the collapse of the USSR in the case of Russia), offset by alternative sources of energy such as nuclear power in France and hydroelectricity in Norway (which accounts for 98% of the country’s electricity). However, countries such as Spain maintain a dynamic refinery industry and are developing a sustainable energy model, wherein gasoline is exported, generating wealth for future generations.

The industry has also played a significant role on the diplomatic scene, and in particular European economic integration. In Spain, oil dependency is above 99.5%, while oil accounts for more than 50% of the country’s overall primary energy consumption. Conversely, 60% of the Russian national budget is funded by oil and gas exports, with 75% of production destined for customers in the European market. These interdependencies have driven European diplomacy through successive crises between the EU and Russia. This has posed a series of geopolitical questions as to whether the stability of European energy supply is sustainable in the long run, as highlighted by earlier gas disputes between Ukraine and the Russian Federation. It is in neither party’s interest that any disruption should occur, and hopefully this view will prevail.

The legacy of the European oil and gas industry is also marked by the negative image of the industry’s activities. Major catastrophes such as the Prestige
disaster in 2002 (Spain) and Erika in 1999 (France) have turned public opinion against the industry. With the current economic crisis, the visible financial wealth of the industry is reinforcing the citizens’ criticism towards one of the major contributors to European employment and growth models.

The future of the oil and gas industry will see some similarities between European nations. The European upstream industry will have to go beyond new frontiers. With the growing development of offshore technologies, and rises in price, new fields are being discovered on the Norwegian Continental Shelf, in the United Kingdom and in Russia. They will contribute directly to offsetting, and even reversing, the decrease in oil and gas production. At the same time, Turkey (in the Black Sea) and Spain (in the Canary and Balearic Islands) are betting on new technologies to support exploration and future discoveries. In addition, the American shale gas revolution is attracting Europeans. Although France prohibited the exploration and production of shale gas by law, and initial estimates in Spain were too optimistic, the United Kingdom and Russia have opened their territory to hydraulic fracturing, while Poland looks set to be the first European country to start production, in 2014.

The diversification of the energy mix is also part of the future of the continent. It will be driven by geopolitics and regulatory factors. The western European countries expect to decrease their dependency on producing countries which affects their national energy security (74.4 % of the EU’s imports of natural gas in 2010 came from Russia, Norway or Algeria). In addition, the European parliament passed a binding regulation on the EU’s energy mix. By 2030, European countries are expected to increase their production of renewables, decrease their emissions (a 40% cut in greenhouse gases) and increase their energy efficiency, according to the European Commission’s 2030 framework for climate and energy policies.

**SOUTH AMERICA**

Energy has always been, and still is, a hot topic in South America, especially in its main producing and consuming countries, Brazil, Venezuela and Argentina. In the former, for the last 60 years, energy supply has been mainly associated with the country’s natural oil company, Petrobras, which has long been a pioneer in the development of deepwater oil fields and the value chain associated with them. From 1997 onwards, international companies joined the fray, bringing more dynamism to the sector. Among the impacts have been upgrades in infrastructure (terminals, pipelines), investments in R&D and education, the creation of thousands of jobs in the shipbuilding, refining, chemical, and manufacturing

“Energy has always been, and still is, a hot topic in South America, especially in its main producing and consuming countries, Brazil, Venezuela and Argentina.”
sectors, not to mention indirect benefits, such as social and environmental programmes and cultural incentives. Nowadays, the oil and gas industry in Brazil represents 12% of GDP, and is expected to reach 20% by 2020, making it the key engine driving the country forward.

Venezuela has had a similar history, with its NOC, PDVSA playing a major role in the local economy, responsible for the development of the oil industry and indirectly for the development of the country. Petroleum is at the heart of the country, where reserves are among the largest in the world. The country’s history reflects this, since for more than 100 years there has been crude exploration, production, refining and marketing, thus creating a huge legacy for the present generation. Therefore, young professionals are not only fortunate to have this great heritage, but have also inherited a wealth of knowledge that these generations took years to develop, allowing them to face the myriad challenges ahead. However, for young professionals it is extremely worrying to see a trend towards increasing political influence and decisions in the industry, which is perceived as the root cause of many problems in Venezuela. The best thing for the country would be to separate both.

As for Argentina, the first thing to mention is the country’s high expenditure on energy imports, in particular natural gas, which is often cause for debate. Also an oil producer for over 100 years, it is not by chance that Argentina has an 86% hydrocarbon-dependent energy matrix. This legacy makes it a national imperative to increase hydrocarbon production. This is complicated by the negative perception of the industry in recent years, especially among the younger generations. Locally, the industry inherits the image of one with a short future. This can be attributed to the lack of investment in the sector over the past 10 years, leading to production decline of both oil and gas. Some young professionals in the STEM subjects, however, see the industry as an opportunity to have high salaries and worldwide career perspectives. But that should not be the only reason for joining the industry. This perception needs to be changed immediately if the country wants to overcome its energy crisis in the near future.

THE MIDDLE EAST

The Gulf oil and gas legacy
Award-winning architectural masterpieces pierce the star-studded skies mentioned in the tales of the 1001 Arabian nights, rising from what were once the unforgiving sand dunes that symbolised the struggles of our ancestors. A rainbow of lights colour the waters of the Arabian Gulf, where tourists now enjoy the breathtaking views from dhows once used to dive for pearls.

Oil and Gas have played the largest role in unifying a once tribal community into one that shares a common interest in economic development and self-dependency. This article will discuss the transformation of the 6 sister nations of the Gulf Cooperation Council (GCC), and the future that lies in the hands of an overwhelming population of youth below the age of 35.

The Transformation
The Kingdom of Bahrain was the first of the GCC nations (consisting of Saudi Arabia, Qatar, Oman, The United Arab Emirates, Kuwait, and Bahrain) to discover Oil in 1931, after which the rest of the GCC followed suit. The region now holds approximately 30% of global oil reserves and 20% of global gas reserves. These statistics have acted as a catalyst for the GCC nations to pursue the diversification of their economies, quadrupling the average GDP shared by the GCC since 2001.
Yet, it is noteworthy to state that the discovery of “black gold” came to a highly uneducated population, allowing global corporations to enter the market and develop these resources for profit. During the oil price surges of the mid-1970s and early 1980s, most of the GCC states were newly founded and lacked the institutional infrastructure that could absorb a six-fold increase in revenue. Therefore, the pivotal role of the skilled expatriate workforce in developing the region’s infrastructure and economy over the past decades is noteworthy, and has come at a cost.

The nations of the GCC have unified around a vision to reduce their reliance on an educated expatriate workforce by diversifying their economies, and using the surplus in petroleum revenues to educate their nationals in all fields of benefit to their respective economies.

**Nationalisation – supporting the Youth**

‘Nationalisation’, the practice of increasing the percentage of professional nationals within the economy, has been a priority for all governments within the GCC. However, statistics regarding the severity of nationalisation needed differ throughout. At one end of the spectrum, Oman and Bahrain currently have a high percentage of nationals within their energy sector, whereas Saudi Arabia has introduced the “Nitaqat” programme to increase the employment of Saudi Nationals, this programme encourages the Saudi Youth to enter the workforce as skilled professionals by offering lucrative contracts and on-job training. Furthermore, it is noteworthy that Saudi Arabia leads the GCC, with 61% of the Kingdom’s population being under 25 years of age. This signifies an economy that can be refreshed and nourished by an influx of newly-educated Saudi Nationals.

Kuwait, as part of its ambitious plan introduced in 2010, aims to reduce the expatriate population by 100,000 over the next 10 years. Therefore, to attract the elite of Kuwaiti nationals into the energy sector, the government offers a salary premium of 132% more than the general market.

Qatar Petroleum, Qatar’s NOC, has taken the initiative to wean themselves off their dependency on trained expatriates by adding a clause in all expatriate contracts that states their pivotal role in “on-job coaching” to young nationals, in addition to their work mandate. This implies that all expatriate professionals are legally obligated to help nationals with any expertise that they need, creating an “open door policy” between young national professionals and their experienced expatriate counterparts. This policy is not unique to Qatar, and is mirrored in oil and gas companies across the GCC.

Other corporations such as ADNOC (Abu Dhabi National Oil Company) have signed long-term contracts with universities to design custom curriculums and provide vocational training to hone the skills of local talent. Furthermore, well respected and highly ranked Western universities have been contracted to open campuses that provide curriculums tailored towards the economy that hosts them. Texas A&M University, situated in Qatar Foundation’s Education City, offers a wide array of degrees within the field of engineering. Other universities are similarly offering the highest ranking courses within their campuses, including Georgetown Economics, Weill-Cornell Medical, Carnegie Mellon Business, et al.

Although the sister nations of the GCC address the reduction of reliance on expatriates differently, what is common amongst them is the theme of re-investment of petroleum revenues into human capital, thereby creating a plan of self-reliance based on the current Youth.
For a developing country like India, the vision of the energy industry is focused on reducing import dependency in the hydrocarbon sector and achieving self-sufficiency in fulfilling energy demand. Two years ago, major policy changes were made, such as the policy for exploration in concession areas, early monetisation of discoveries etc. The fiscal terms of the country are being modified so as to create an investor-friendly market where national and international companies can operate smoothly. India has already started with its Coal Bed Methane (CBM) production, and is now looking ahead towards shale oil and gas exploration. In moving towards unconventional energy resources there are some serious challenges that need to be resolved: the retention of talent in the country, the subsidy legacy that indirectly affects the growth of the organisations and the lack of international knowledge transfer to India, to name a few. Youth in this industry are looking to embrace new technology and tackle energy challenges. The industry is beginning to recognise the potential of early development of young professionals for leadership positions and the hierarchical structure is becoming more flexible towards future generations.

In China, hydrocarbon exploration and development is becoming increasingly challenging. In order to make new breakthroughs, the Chinese youth should aim for increased innovation in science and technology. The largest challenge comes from the fact that the low-hanging fruits have already been picked. Consequently, failures have become common in wildcat drilling. Only with the accumulation of knowledge and the upgrade of technologies can new discoveries be made.

In order to increase the number of hydrocarbon discoveries, China needs to overcome a series of challenges. It can do so by acquiring knowledge of new resources (such as shale gas accumulation) and developing technologies (such as horizontal drilling and fracking technology). The Chinese youth should seek to contribute to both aspects, whatever field they belong to.

The first aspect is the basic academic knowledge. Chinese youth should learn about the latest theories in their research area, such as unconventional oil and gas exploration and developing theories. With the new theories, the youth can keep up with the development of resources and
know where to focus their efforts. Knowing the latest theories is not enough; the Chinese Youth should also seek to apply their knowledge. That is, to master the technologies for the new era of hydrocarbon exploration. During the practical application of this knowledge in real work, we may verify the theories we have learned. If we find some new problems, we may improve upon the theories, which is how the process of research and development works. In the process, we may grow rapidly, and may become the driving force of the petroleum industry.

**NORTH AMERICA**

There is shared value in reducing the dependence on fossil fuels, to manage climate change risks, and to start the long transition to increased reliance on renewable energies. Historically, the region has witnessed gradual changes in fuel sources. Enacting energy policy is a means of impacting both energy habits and the regional energy demand mix on a shorter timescale.

Introducing a regional policy on carbon has faced broad resistance, so there remains a gap that must be closed, to reflect the true cost of carbon. A carbon usage tax is one straightforward and potentially effective way of changing behaviour and consumption by re-aligning incentives. While a tax on fossil fuels would yield more expensive fuel, price alone would encourage many in the region to consume less. As an added bonus, the tax may even generate adequate incentive for the research and development of alternative fuels or processes. Creating a robust portfolio of energy sources will ultimately yield a more sustainable energy system for the region.

In addition to policies, we need to pioneer this new energy balance while understanding the interplay of economic, social and technological abilities in the region. There is a current inconsistency in policy discussions: people (and politicians) want to take action on carbon policy, but at the same time also maintain low energy prices with zero or little tax. How will energy prices or incentives need to change to promote and drive consumers to conserve energy?

The industrial activities that keep our economies strong and our communities vibrant require reliable and cost-effective fossil fuel energy sources. Alternative energy sources such as renewables are often intermittent and insufficient without fossil fuel as backup. The game changer in the renewables scenario is energy storage, and the industry continues to refine and identify technologies to advance this space.

Integral to a shared energy solution is developing new ways to explore and discuss energy issues with input from stakeholders across the value chain. This conversation must include energy producers and users, as well as policy makers. Understanding the dynamics of supply and demand from various perspectives is one method by which to uncover a catalyst for change. Energy literacy and energy awareness are crucial to make viable decisions.

Media can be utilised effectively to disseminate key facts about the industry, with the intent of encouraging balanced solutions and understanding. The intent of “finding a balanced solution” is important, as compromise itself is a victory. Compromise as a collaborative approach will lead to solutions that are most likely achievable, measurable, and fair. A shared action also means
that we understand the impacts of decisions on the environment, economies, and people.

The energy industry looks for the younger generation of professionals to become stewards and ambassadors of honest conversation. This generation is primed and eager for direct conversation on our energy future, and will continue to champion unique avenues for discussion.

**EUROPE**

**The vision for the European oil and gas industry future: Beyond commonalities**

Considering the diversity of the European countries’ situation, the future of our industry will be plural. In Russia, the main challenge will certainly be to define the proper regulation model to build up a sustainable industry capable of maximising the earnings of the 523.5 million tonnes of oil produced each year. This requires a progressive disengagement of the State (in 2013, 55% of production belonged to the companies, with 50% of state participation). Despite the size of the Russian industry, its influence on the global market is limited due to the absence of the country within the world trade mechanisms. The contractual structure of the world oil market forms present a significant number of risks for Russian companies. Risks related to the inability to predict the price in the short term due to significant price volatility. These price fluctuations lead to ambiguous economics in the area of large investment projects, as well as significant losses in short-term supplies for Russian oil companies. The liberalisation of the Russian industry is expected to increase competition and restore the competitiveness of the national players.

In Turkey, the focus will be to reinforce its position on the international scene by capitalising on its strategic position between the Middle East and the European market. This unique position should provide the country with the adequate resources to build its development model and serve the ambition of future generations. The sustainability of the Turkish model will rely on the political strategic decision to be made in the context of price volatility.

In Norway, the oil and gas industry will remain a key contributor to the sustainability of the national economic and social model (23% of the value created in 2012). However, the regulation will become increasingly binding for the oil and gas industrialists and may decrease company investments in new projects considering both the increased costs and the price volatility.

The UK’s oil industry future will be impacted by internal political factors. The Scottish independence referendum may considerably impact the development of the industry in England to limit the impact on the national wealth. In addition, the decision of the British Parliament whether or not to stay in the European Union will affect the trade balance and the market outcome for potential shale gas exports.

The perspectives of France will also be defined by political decisions. The national debate on the future of the energy sector defined the objectives of a renewable and nuclear-driven energy mix, without releasing a clear roadmap on the means to achieve this. Alternative energies will certainly play an increasing role in the national mix if they can meet the citizens low energy price expectations. In addition, the sustainability of the proposed energy mix will question the national energy security, due to growing exports from foreign countries.

Spain will face strategic energy policy reforms in the next few months. Besides struggling with the economic crisis, Spain has accumulated €30 million of debt with the electricity utilities and an increasing energy trade deficit (over €46 million in 2012). The current exploration ongoing in Spain in respect of shale gas as well as offshore fields may change the future of the Spanish economy. With international upstream, midstream and downstream players, Spain can build a sustainable model for reinforced industrial growth by combining unconventional resources and its renewable potential.

In conclusion, the interdependencies of and uncertainties faced by the European countries will require increasing cooperation between nations. This will be achieved through an increased integration of the European energy market and a growing participation of Russia in world trade. Within the industry, changes are also foreseen with a growing
participation of NOCs in the global competition and a growing cooperation between IOCs and NOCs to meet the increasing challenges offered by new industry frontiers (new discoveries, unconventional energies).

LATIN AMERICA

Looking forward and being the generation responsible for the next decisions, it’s very easy to be optimistic in South America about the future. In Brazil, only 5% of the area of sedimentary basins are currently being explored (under license), and the pre-salt province was discovered in 2007, yesterday in oil industry terms. With this outlook, there has been a major increase in industry-related graduation and technical courses, and also the number and size of companies throughout the value chain. They create opportunities for new entrants, the interns and trainees of today, to learn best practices from more experienced professionals, in order to become the consultants and managers of tomorrow, and in this process, doing their part to build the energy industry in Brazil. Nevertheless, being optimistic does not mean blind. Brazil needs major upgrades in its infrastructure, a better basic education, wider higher education and de-bottlenecks of its notorious bureaucracy that makes everything go slower.

In Venezuela, the end of the rainbow sits on the Orinoco Belt, where one of the largest, if not the largest petroleum reserves in the world is concentrated. It will take great challenges and new technologies, from current and future generations, in order to develop and extract this heavy and extra-heavy crude. There are exciting times ahead, with the development of gas wells in deep water reservoirs, EOR techniques for mature fields and exploration of new areas. The main issue troubling the industry is the migration of qualified young professionals towards other countries in the hope of better job opportunities and a better quality of life. This is a challenge to the current heads of government, and PDVSA, to create engaging policies to reverse this trend. A few examples of how reversing this trend can be achieved would be increased investment in education and research, competitive salaries, personal and professional safety, and employment opportunities for young people. This is even more relevant given the importance of the oil industry in the development of the country.

Finally, in Argentina, going unconventional is going forward. The recent example of the US producing hydrocarbons from tight and shale formations being economically viable has posed the question of whether it is possible to replicate this elsewhere in the world. And Argentina seems to have won one of the lottery tickets in this region. Its world-class rock formation, the now famous ‘Vaca Muerta’, is thought to have all the necessary characteristics to provide the country with a very promising future when talking about energy supply, recovering its energy self-sufficiency, and possibly becoming an oil and gas exporter. The government is also showing interesting recovery signs, giving differential prices to new investments, compared to the conditions that ‘conventional’ developments had. This could provide the stability the industry needs to attract foreign investment – a vital factor for success. Without it, the dream of the ‘Vaca Muerta’ development will not come true, and all the prosperity and development associated with it will fade. If the right policies are applied, the oil and gas
industry will experience a boom, providing the young generations with plenty of possibilities in one of the most challenging industries that exist.

Being the youngsters, we are always connected and aiming for the best. We strive to apply this mindset, making our countries better and more competitive. But for that to happen, some of the changes mentioned above need to happen. Aligning them with the energy of the younger generation, and the resources that we have in South America, we truly believe that forty years from now, looking back, we can say: we did it!!

**THE MIDDLE EAST**

**Voice of the Youth: Inheritance and future**

There is a seemingly overwhelming awareness within the young population of the GCC of the importance of oil and gas in our past and future. Views on how to diversify our economies differ, however, the consensus amongst the educated lies within the reality that they must be. Where some support renewable energy, others find the financial markets more stable. Regardless of their views, the mere presence of educated debate amongst locals solidifies and represents the great effect that energy has had in the lives of the young. Where 50 years ago, the people relied on expatriates for mass support, the youth has begun to take matters into their own hands.

The towers that have replaced tents and the cappuccinos that have replaced the thirst for water throughout the GCC come from the energy sector. It is essential that these truths remain known under the umbrella of youth development and self-dependency. The whole world depends on the next generation to carry its existence forward; the GCC has realised this and invested in human capital.

“What we have inherited is our future, it is up to us to utilise our blessings and build a future for us and the next generation. Not everyone must be an oil and gas employee, but everyone must know that no matter what sector they are in, they work towards a common goal of self-dependency.” – Salim Mohammed Al-Ruzaiqi (Young Business Analyst, Oman)

*The Sky’s the limit: It is up to the youth of today to build the energy industry of tomorrow*
WPC MENTORING CIRCLES:
POOLING INTERNATIONAL EXPERIENCE

WHY MENTORING?
We are now communicating faster in an era of high technology and innovation, which brings great motivation and excitement to every issue we deal with. Young people have different learning habits lately, with more interaction, early engagement and long-term career planning. Keeping these in mind, the WPC Youth Committee realised that mentoring is a great tool to bring together senior and young people with different, international experiences in the oil and gas industry.

DIVERSE COMMUNICATION
With the aim of attracting and retaining young talents to the oil and gas industry, the WPC Youth Committee developed a Mentoring Programme to provide an arena to discuss the challenges and opportunities among young people and their senior colleagues.

After a trial period and splendid feedback, we are now approaching the end of the 1st WPC Mentoring Programme, which will come to an end in Moscow during the 21st WPC, with a face to face Meeting. There are 18 mentors from 13 countries and 74 mentees from 21 countries in the most recent programme. Skype calls, Twitter, Facebook and WhatsApp groups and individual calls were all added when needed. Besides which, an online platform was established at the WPC website so that each Mentoring Cycle can post ideas, trigger discussions and share documents.

FABULOUS OPPORTUNITIES
It provides incredible networking experiences and a knowledge-sharing platform, including open dialogue and informal discussions. It provides a win-win opportunity; the “mentee” becomes more proficient at work life and it is good for the “mentor” to learn and share wisdom. Besides, there are many opportunities to present the discussions at the WPC Youth Forums, Congresses, Stands and Publications. The participants in the end will be receiving a Letter of Recommendation from their mentors.

The participants agree that learning from experience is a very valuable asset. With senior-youth interaction, the programme attracted great interest due to its uniqueness in providing an informal platform for exchange of ideas rather than adopting a technical approach.
Young women in the oilfield industry: Pursuing full integration

Oil and gas companies are missing out on the potential of women. Now that the industry is thirsty for talent, due to increasing technical challenges and the advancement of exploration frontiers, it cannot disregard this issue any longer. Although the growing number of female students pursuing technical careers suggests that women are a strategic asset to capture for the industry’s labour force, statistics show that hiring and retention of female talent is lagging behind.

Today, the petroleum industry is a male dominated area, where women only represent approximately 20% of all workers. However, this number may vary significantly depending on the country: females comprise only 9% in the UK, 18% in Spain, 26% in Sweden and 20% in Italy, according to the European Labour Force Survey. Most importantly, these numbers fail to reflect the true integration of women in the industry, based on their position within the value chain. Most women in the oil and gas industry work in peripheral positions, which do not comprise revenue-generating units.

The question that arises is why women have less representation in the field. In the first instance, women have to overcome gender-specific challenges. Some women live in cultures where it is not permitted for them to engage in professional activities beyond the classic chores of a household. In other countries, women only have access to peripheral positions in a company, because their country’s law forbids them to work in a producing field.

In addition, women are facing the same issues as their male colleagues that choose to work in the field, including the exposure to health and
safety hazards specific to an operating facility. Field work also has an important impact on people’s lifestyle, as it involves frequent traveling to isolated locations with a working schedule that requires them to be in the field for weeks at a time. Being away from major cities for a long time is a wearing experience for the majority of rig workers and not that many people are willing to accept these challenges. Surprisingly, although man and women face a similar choice, the working conditions are generally perceived as harsher for women than for men, even in more progressive societies. Women on the rigs, however, rarely subscribe to this view.

Such perceptions have led to the preconceived idea that women are less adequate candidates for field jobs. This is exactly where the oil and gas industry misses out on a tremendous opportunity. Women, a growing share of the engineering population, shouldn’t be excluded from the hands-on experience which is essential to the gaining of solid technical know-how. There is a consensus amongst the companies that people with field experience are more likely to grow professionally than those who spend most of their career in an office. Having an increasing number of women with field experience in the industry, besides increasing the pool of human resources to tap from, it is an advantage, if not a must when exploring new technological frontiers.

Nowadays, with the potential of women in the field being underrated, many workplaces are not sufficiently prepared to receive them. A key factor for successful integration of women in a predominantly male environment is acceptance: personnel in the field must be open-minded and accept females as their equals. Companies can support this process by increasing the female presence on their rigs (if necessary only for short periods) and continuously increasing the awareness of their presence.

There are many other options to create a more friendly work environment for women at a rig site. A company can establish separate accommodations as a rule, wherever it is possible. It can also make use of survey tools to inquire how working conditions for women can be improved, thereby incorporating the ideas of the working women themselves. Any idea that can make the quality of life of their employees better and decrease employee turnover at a reasonable cost, can be a win-win situation for the oil and gas companies.

In 2013, women mentioned “more interesting work” and “insufficient opportunity” as their top reasons to leave their jobs in the oilfield sector, emphasising therewith the potential of the women that the oil and gas companies are losing. There is still a lot to be done to reverse this trend, and for the oil and gas industry to fully capture the talent women have to offer to the industry. However, with creativity and motivation it is possible to pursue full integration and bridge this gap.
THE OUTLOOK FOR OIL: IS A SUSTAINABLE FUTURE POSSIBLE?

Since prehistoric times, humans have had to rely on resources to survive. By the very definition of existence, we consume and emit, and with every subsequent century, our inflows and outflows are becoming ever more complex. Sustainability is the ability of society to continuously function and to continue a varied and fruitful existence. In order to progress, the world needs economic growth to provide acceptable living conditions, ensure global security, and focus on mitigation as opposed to adaptation to adverse environmental conditions down the line.

According to the International Energy Agency, fossil fuels currently constitute about 80% of the global energy mix and no revolutionary changes in source distribution are projected in the near future. Thus, as one of the major energy sources today, the oil and gas industry carries the responsibility to ensure that we transition to a sustainable future.

Just as the stories of humankind and energy have intimately been intertwined over the centuries, so have the chronicles of environmental impact and degradation. Prior to the invention and successful implementation of high-volume transport in the second half of the 20th century, pollution and detriment have matched the massive growth of energy consumption around the globe, with oil and gas being a major contributing factor. Such challenges as exhaust fumes, acid rain, and oil spills have affected the globe and have lead to swift technology development and rapid globalisation. However, due to swift technology development and rapid globalisation, pollution and detriment have matched the massive growth of energy consumption around the globe, with oil and gas being a major contributing factor. Such challenges as exhaust fumes, acid rain, and oil spills have affected the globe.

Kseniya Shelkovskaya,
BA in Economics from Barnard College, MSc candidate in Sustainability Management at the Earth Institute, Columbia University
to name a few, have been well documented and closely scrutinised, by both governments and the people, putting public pressure on the sustainability aspect of the industry.

As energy constitutes a strategic priority, governments have been exploring opportunities and options for high-efficiency, low-impact, low-cost energy sources, driven by a combination of energy security, costs, and public pressure to meet the growing global energy demand. Although nothing, as yet, competes with petroleum products in the realm of energy density. In the past decade, renewable resources have attracted an unprecedented amount of public attention. This makes them the world’s fastest-growing energy sources, growing from 9 to 12% of the global energy mix over the past decade. This type of energy would significantly minimise adverse effects on both our immediate local and global environments, as well as diminishing costs and providing much needed energy security.

The tarnished image and adverse environmental impacts of the business, coupled with developments in renewable energy and energy storage may constitute strong drivers for significant and permanent alteration of the energy landscape. These changes may not be limited to the power business, an early adopter of renewable energy sources, but even in sectors that have historically been dominated by oil, such as the transportation sector which consumes 70% of the crude oil produced. Both industries are investing heavily in energy storage, aiming to solve the intermittency and reliability issues, thereby increasing the competitiveness of renewable energy sources.

What are the future opportunities for the petroleum sector in the face of increased competition? In anticipation of this increased competition, the oil and gas industry should improve its financial and environmental performance by addressing the gaps between effectiveness and safety, demonstrating palpable results and a tangible commitment to sustainability through additional investment in the necessary infrastructure to prevent operational leaks and malfunctions currently. In addition, the industry has a higher mortality rate than all other industries combined, and this is just on a North American scale, so a significantly amplified attention to safety practices is needed.

However, the largest opportunities could be found by diversifying the business, and investing into the branches that have not received sufficient attention so far. Plastics, particularly with biodegradable additives, constitute an enormous market potential, both on the production and waste management side, and it’s something that should be closely investigated by the research and development departments within the industry. Plastic should remain a pliable, strong, and robust material, but its impact on the environment could be diminished, and the change profited from. While there would be a need for more government regulations, recycling standards, and customer education, it is a new field with virtually limitless opportunities and capitalisation potential.
The whole history of anthropogenic energy deals with the development of interfuel competition. The continuous search for applications of new energy sources widens the range of options to satisfy energy needs. At first, people had only their own muscular energy. Anthropogenic energy appeared when they started to use the muscular energy of tamed animals, and afterwards wind and falling water energy. Fossil fuels have been intensively applied as energy sources only for about 150 years. During this relatively short time the image of civilisation changed dramatically – its energy needs grew 35 times [1] and the population increased almost 6 times [2,3]. The coal and then oil era led us to industrial, and now to post-industrial society. Most of the countries passed through a first and second demographic transition. According to the results of research conducted by the Energy Research Institute of the Russian Academy of Sciences [1] the slowdown in world energy consumption means a transition to a new stage of world energy development.

It is important to mention that every new applied energy source has been more concentrated than the previous ones, until our recent turn towards renewables. And, crucially, it was technological development that enabled this intense increase in use of new energy sources. In fact, energy-efficient technologies promote energy consumption growth – personal computers would never have become so widely used if their function was still based on vacuum tubes.

On the one hand, we have approached a new stage of energy development with slowing energy consumption growth. On the other, we don’t see prospects for commercialisation of any new highly-concentrated energy source (e.g., IEA research on energy technologies reveals very little hope for a hydrogen economy [4]). Opportunities for switching between fuels are considered to be quite limited now. On the whole, there is little information available on multifuel equipment. The first estimates of substitution elasticities made by D. Noel [5] and then R. Pindyck [6] are much higher than gained in more recent studies, based on more complicated and less aggregated by time and place models [7]. The
contemporary world energy consumption is much larger and more sophisticated; does this mean that interfuel competition is no larger a topical issue?

Indeed, interfuel competition terms differ by sector. In the industrial world, energy consumption is quite diversified and is characterised by the growing share of electricity. Oil, oil derivatives, and especially coal drive industrial growth in developing countries, but their share tends to decrease. In households and the commercial sector the growing share of energy consumption is also occupied by electricity, as the most easy to handle energy source for all energy needs.

Probably the most interesting tendencies in terms of interfuel competition are occurring in the transport sector, where for the last 35 years the share of oil products hasn’t changed much. In recent years, the governments of the majority of developed countries, and a lot of developing countries, to promote consumption of alternative motor fuels. The prospects for development of GTL, CTL, biodiesel and biogasoline technologies differ by region, but taking into account moderate oil price growth, these technologies won’t lead to sharp changes in the world energy balance of the transport sector [1]. Another technological breakthrough that can affect the world transport sector concerns the development of electric cars. The main restrictions to the mass use of electric cars are their price, battery efficiency, and underdeveloped infrastructure. But even without a substantial upgrade, electric vehicles will occupy a rising share in the world transport sector. To some extent, the growth of electric vehicles will smooth out the unevenness of electricity consumption.

The main area for interfuel competition nowadays is the electricity sector. For the last 35 years, the fuel basket of the world’s electricity sector has been the most dynamic among other consumption sectors. Oil products were largely substituted by coal, the share of natural gas grew twofold, the share of nuclear energy more than fourfold. According to the ERI RAS projections, the share of electricity will approach half of world energy consumption of primary energy [1].

Although there have been no huge technological breakthroughs in the energy sector recently over the last few decades important steps were made in the commercialisation of unconventional fuels (deep and hard-to-recover oil reserves, different types of biomass) and technologies – gas turbines, wind and nuclear power stations, photovoltaics, batteries, etc. As a result, the resource base has been expanded considerably. These expansions have also contributed a lot to the widening of opportunities for energy source substitutions.

The ecological orientation of energy policies in most countries became another promoter of substitution between fuels. The consumer’s choice of energy is influenced not only by tax, subsidies and the price of CO2 emissions, but also through different non-price policy measures.

Eventually, the analysis demonstrates that interfuel competition strongly influences energy balances and, through rapid growth of electricity use, promotes the integration of all markets for energy sources.

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Each country aspires to be self-sufficient in its energy needs, but there exist many gaps, which thwart nations in their efforts to achieve energy security. To achieve any vision for the country it is required to have a proper plan and policies in place, which should be complemented by resources, technology, infrastructure and other factors. Exploration and exploitation of hydrocarbons are mainly carried out by National Oil Companies (NOCs) and International Oil Companies (IOCs) with the support of service providers. In many parts of the world the dominance of National Oil Companies is diminishing, and the hydrocarbon sector is offering a more level playing field for both public and private sectors. But still, the government body plays a crucial role in forming policies at national and international level, whereas the organisational policies govern the functioning of the companies. Both are necessary to drive the change in the industry from top to bottom.

Each nation has its own history, politics, energy requirements and other pressing agendas. In this situation, the energy policy of any nation should be well defined and interconnected. In many countries the different forms of energy resources (coal, oil and gas, wind, solar, etc) are controlled by different ministries or sections. At times the different leadership styles, lack of coordination and cooperation within different governing bodies can be a cause for concern. To overcome this an Integrated Energy Policy is the solution, which will not only unify goals for different sections but also create
a platform where, under one head, all the sections will work together towards the same goal. One other pressure point at the national level is defining its fiscal terms. The country needs to modify its fiscal terms to be investor-friendly, so that the interest of investors and international companies can be maintained. At the national level, signing a Memorandum of Understanding (or tie-up) with other nations is a beneficial tool for knowledge sharing. It gives a chance to tap into the latest advances in other countries, and it is one way of learning from their experiences. Furthermore, with the global nature of the industry and acquisition of equity oil and gas abroad, it is essential to update the foreign policy of the country according to the evolving geopolitics, and the national companies should also be involved in this process. Another important gap in national policy is to link academia with industry. To create a good education foundation is key to the future, and for this it is essential to share the industry experience with the universities and colleges. For this a platform should be created through education policy which will enable companies, universities and policy makers to understand each other’s needs.

The organisation policy is another important key driver, which is directly linked with the working professionals. Non-inclusive growth of young professionals, an ageing workforce and lack of skilled manpower are the main gaps which can be filled by organisational policy. The challenge for the energy sector is to break away from conventional models of employment and build alternative models which provide the new generation with platforms which enable them to network in the workplace, have flexi-work arrangements, offer work schedules which require them to travel and gain experience with different departments. Lastly, and perhaps most importantly, provide meaningful and challenging work. Organisations should have firm development plans for their employees and also provide exposure to varied industry aspects while preparing them for specialist expertise. Good direction and mentoring can launch great careers, and mentorship at every level should be part of organisational policy. Developing talent is a critical skill – invaluable for the newcomers, critical to the organisation, and also essential to the career advancement of higher management. The industry is now recognising the importance of early development of youth for leadership positions. But the youth should be fully equipped with the knowledge and properly trained to take up the decision-making roles. This can be done through identifying leaders at every level in the organisation and then nurturing them suitably.

In conclusion, given the fact that the hydrocarbon sector will continue to occupy the lion’s share of the energy mix, fostering a supportive policy and regulatory framework for its development will continue to be of paramount importance. Organisations reorienting their company policy will help in closing the knowledge transfer gap from previous generations and developing skilled professionals for the future.
The previous generation of oil and gas professionals walked into an innovative and resource-abundant industry. What is has your generation left for the youth to inherit within the oil and gas sector?

The main legacy from my generation is the management and technological knowledge, which has made feasible enormous amounts of resources, such as the discovery and development of the pre-salt fields in Brazil and the expansion of non-conventional resources in the USA. Among the main responsibilities of the next generation of leaders is to ensure that these resources are properly managed in the best way possible, making sure that the societies involved get the best possible benefit. My generation worked hard to develop solutions to the oil crises in 1973 and 1979. Since 1980, Petrobras, as an example, has focused on increasing domestic supply through technological development, and being at the cutting edge of exploratory frontiers and offshore production, which is the foundation of Petrobras’ current leadership in deep-water oil and gas offshore.

Is there anything that you wish has been done differently (on a global scale, not within your own
company) in your time as an oil and gas leader? Do you believe the youth have inherited the consequences of global mistakes?

I don’t think things should have been done differently on a global scale, nor that there have been global mistakes. Nevertheless, dealing with oil and gas projects demands a great deal of responsibility, especially with the increase in size and complexity of exploration and production activities in new frontiers. It is important to identify the social and environmental consequences of such projects, so that possible negative impacts are avoided or minimised in such a manner that the benefits of acting in a socially and environmentally responsible way represent an important legacy for future generations. In addition, delays in anticipating these impacts are causing costs overruns and missed deadlines in projects’ execution.

What is your vision for the future of the global oil and gas industry? Will it be more or less appealing for the brightest youth to join in the future?

Younger generations are more connected to technology, are more informal and have a naturally entrepreneurial bias. Therefore, they seek values other than stability or total remuneration, such as personal recognition and better quality of life. Companies must be able to break their formality and hierarchy in order to seize the potential of such new talent, identify opportunities to insert new technologies and also to act proactively in terms of social and environmental policies. With such an approach, oil and gas companies will be appealing to a large share of the brightest youth of the future.

How do you see the dialogue of the industry with – and particularly, communication efforts towards – society evolving over the coming years?

The oil and gas industry will strengthen its communication capacity with all its stakeholders, as a way to overcome its production bottlenecks, to implement cutting edge technologies, to guarantee the continuity and security of its operations and to optimise its costs. In order to achieve that, it is critical that companies proactively understand the interactions between their operations and the well-being of local communities, and the quality of the environment around them. This will be achieved through constant, agile and transparent communication.
What are the key aspects that define the energy industry that the youth has “inherited” from previous generations?

From more than half a century of working experience in the oil industry, I would summarise the spirit of ‘triple pursuit’ as my motto: pursuit of victory, pursuit of ambition, and pursuit of honour. Pursuit of victory means being always striving to be the first. Pursuit of ambition means being ambitious, courageous and wise to succeed for the sake of one’s motherland. Pursuit of honour means being persistent in pursuing excellent achievements to bring honour to your country, your industry, your company, and your family. I take the ‘triple pursuit’ spirit as the extension of ‘Daqing Spirit’ and ‘Iron-Man Spirit’ in my own thinking and behaviour.

The energy industry is an attractive and challenging career, which requires courage and wisdom. Young people should inherit all the valuable merits of their predecessors, such as hard work, never giving up, being innovative and pioneering, etc. In the period of reform and opening-up, we should carry on all these merits, accept our responsibilities and think globally, in order to accomplish every task with the ‘triple pursuit’ spirit and make contributions to our country’s progress and prosperity.

What would you consider the key aspects of a vision for the future of the energy industry that are not sufficiently addressed at present?

Now, and from now on, three issues are closely related to the sustainable development of the energy industry. The first is how to establish an international...
cooperation system. This system should satisfy the needs of both producers and consumers, aiming at the comprehensive management of increasing energy consumption, with more emphasis on cooperation than on conflict. The second is how to achieve better energy substitution, including regional expansion of energy production, exploitation and utilisation of alternative energy sources, etc, which requires technological cooperation. The third is how to deal with ecological and environmental problems closely related to energy development.

What is the most efficient way to advance change in this “inherited” industry towards the youth’s vision of a sustainable energy future?

Currently, a new phase of the energy revolution is just getting started. Talent and technology competition among countries grows ever more intense. The concept of combining energy exploitation with eco-environmental protection is becoming increasingly rooted in people’s minds. International cooperation in the energy field is continuously expanding. Some people think that the integration of new energy and the internet is the symbol of the ‘third industrial revolution’. As far as I’m concerned, to achieve sustainable development of the energy industry, scientific progress and technological innovation are the key, while outstanding talents are the core. Therefore, I believe it’s very important to create a positive environment for talented people. First of all, access should be provided for them to take part in cutting-edge technological innovation and research into the clean utilisation of both new and traditional energy sources, based on the reality of our country. Secondly, their horizons should be broadened to learn about the current situations and problems of the international energy industry, and to know about technological development trends in other countries with an open mind, instead of being “a frog living at the bottom of a well”. Thirdly, they should have a strong sense of conscientiousness and responsibility, in order to overcome all the difficulties and meet the challenges in the process of energy industry development. Generally speaking, young people should take full advantage of the opportunity of the coming ‘third industrial revolution’, and try to become the pathfinders, exploiters or pioneers of the new age.

What should be the role of the youth, and women, in bringing about this change?

The youth are the future of our country, as well as the future of the energy industry. Just as Comrade Mao Zedong said to Chinese students studying in Moscow: “The world is yours, as well as ours, but in the last analysis, it is yours. You young people, full of vigour and vitality, are in the bloom of life, like the sun at 8 or 9 in the morning. Our hope is placed on you.” The youth are also the hope of energy industry innovation and sustainable development. Women are becoming more and more important, infusing some new colours into the energy industry. With the rapid development of information technology, an increasing number of women will be attracted to join the energy family. Women’s resilience and wisdom will make a difference to the energy industry, and eventually change the external impression of this industry.
FEEL THE ENERGY:
A SUMMARY OF THE 2013 YOUTH FORUM

After a successful bid in Doha, Qatar in 2011, a team of young energy professionals set out to create the largest and most memorable WPC Youth event yet. Calgary followed on the heels of Beijing, Paris and New Delhi, and had a home advantage of being the largest energy hub in Canada. There’s also something unique about Calgary – it’s a city where volunteerism and ambition thrive. That is exactly what set the vision for how the event would be organised.

Under the theme “Unconventional Solutions for an Unconventional World”, the 4th WPC Youth Forum was determined to highlight topics that are relevant to both aspiring young professionals and our experienced role models and mentors. Three pillars were identified as the basic foundations of all energy issues: Technical Innovation, Business Leadership, and Sustainability.

Joanna Desjardins
Chair, 4th WPC Youth Forum Organising Committee, Canada

“the results speak for themselves: 1,611 participants enjoyed the largest North American event to date”
Calgary created ‘Fusion Talks’: small, intimate sessions with top level executives that allowed closer access to inspirational leaders. Calgary also débuted ‘Ignite’ sessions: brief, high-energy segments on topics that captivated the audience and kept them hanging on every word.

Prior to the programme opening, seven unique tours and technical courses were offered to participants. Private and chartered tours to the Canadian Oil Sands in Fort McMurray were unique opportunities for delegates, and an amazing offering by sponsors to allow exclusive access to their state-of-the-art facilities.

Evening social events were enjoyed by all – whether at the historical and famed Glenbow Museum in the city centre, or at the home for Calgary’s well-loved hockey team, Flames Central. But the days weren’t all work and no play. The exhibition hall, dubbed the “innovation centre”, hosted exhibitors, knowledge cafés, fine dining and entertainment.

The results speak for themselves: 1,611 participants enjoyed the 4th WPC Youth Forum, the largest North American event to date. 120 speakers, many of whom were in leading government and industry roles, joined in the programme to share their perspectives with eager delegates. 61 countries were represented and 100 international students joined us through generous sponsorships.

The legacy of the 4th WPC Youth Forum is one of empowerment and inspiration for future leaders of our industry. It shows that young professionals have the influence and knowledge that can already impact our industry. They are capable of leading profound conversations, and are significant contributors to the future that is evolving before them. Current leaders and organisations are not only receptive to young leaders, but willing to support them as they challenge themselves to such new heights. Leadership does not have an age or level. It is the beautiful result when capability and motivation strike.

In closing, one couldn’t reflect on the 4th WPC Youth Forum without giving tremendous credit to those that gave so much of their time and energy to make this a success.

To the Youth Forum Team: Thank you for your countless hours of hard work, your dedication, and for sharing your many talents with us. The networks forged through this journey are a testament to your influence and capability. What a pleasure it was to watch you develop your leadership skills.

To our Sponsors, Employers and personal champions: thank you for supporting us, the young professionals and future leaders of your organisations. Thank you for believing in us, and entrusting us with that amazing support, which allowed us the opportunity to hone our skills and discover new ones!
Today, Russia is considered the largest global oil producer and exporter. In addition, it has the world’s largest natural gas reserves. The Russian petroleum industry has been the most stable and consistent part of the national economy and possesses a vast potential for further development. And there is no surprise that the 21st World Petroleum Congress is taking place in such a big country, rich in natural resources, advanced technologies, territory, historical heritage, culture, arts, cuisine and warm-hearted people.

Since 2010, the Organising team has been working hard to make this event happen and attract more than 5,000 industry leaders and around 25,000 visitors to the 21st World Petroleum Congress in Moscow on 15-19 June, 2014 under the theme “Responsibly Energising a Growing World”. As the world population increases, access to affordable, safe and reliable sources of energy will be a key factor in promoting economic development and well-being for humankind. Fossil fuels will continue to be the world’s leading energy resources in the near future. Meeting future demand in a sustainable and socially responsible manner will require massive investments, leading-edge technologies, the most highly skilled human resources, and superior ethical business practices. Producers, consumers, governments and societies need to cooperate responsibly to develop all energy resources. To do so, the industry has to energise its professionals; in particular develop and retain youth, to become even...
more innovative in ensuring future growth.

Thus, we see that the 21st WPC Youth Programme is becoming one of the key pillars of the Congress Programme overall. We are inviting students, PhD researchers and young professionals in the energy sector aged under 35 from around the world to seize the opportunity to be engaged with global energy experts, industry leaders, public authorities, members of NGOs and peers in different sessions, expert workshops, round tables, forums and other networking events at the Congress. The main theme of the 21st WPC Youth Programme is “Responsibly Energising a Growing World: Role of the Youth” which is divided into three blocks: “Unconventional look at the energy future”, “Health, safety and environmental protection as future generation’s crucial challenge”, “Education and Careers in the energy industry: join us today”.

During the Congress, the young participants will be able to take part in the daily discussion sessions and leadership training in the Youth Lounge area that is located in the centre of the Exhibition Hall. In addition, youth delegates will meet senior energy colleagues at networking sessions, participate in the technical tours at the stands of the major petroleum companies, express their opinions in the Youth Profiles sessions, share their views and experience with the leaders of the petroleum industry in fusion talks, attend the social events, and benefit from networking with other colleagues from energy companies. All young delegates will have a chance to deepen their knowledge of new technologies that will change the petroleum industry in the future, to learn what they can do to promote sustainable solutions for the modern world, to be involved in the next cycle of the WPC Mentoring Programme, get more information on the next WPC Youth Forum or volunteer for other WPC youth activities, such as the WPC Youth Magazine Writing Fellowship Programme, WPC on-line platform www.wpcyouthconnect.com.

Moreover, do not miss the Special Youth Session in the main Congress programme that will take place on June, 18 at 16:00-17:30 under the theme “Youth: steering their inherited energy industry towards a sustainable energy future”. The session is focused on sustainability, investment in oil and gas development, the big picture of the petroleum industry challenges and opportunities for the young generation. Rest assured, we have secured a few very high-level speakers for this session, so join us and have your say.

Finally, I need to say that the 21st WPC Youth Programme couldn’t have happened without the constant support and contribution of the Russian National Committee, WPC Youth Committee members, the Russian Youth Team, WPC Secretariat and taskforce volunteers who pooled together their professional experience, enthusiasm, passion, communication and management skills to achieve these high results. We hope that all young leaders will derive value from taking part in the Youth activities at the 21st World Petroleum Congress – and put their mark on the global energy agenda!
THE WPC YOUTH COMMITTEE WELCOMES THE WRITING FELLOWS!

“a crème de la crème”, Celine Rottier, chair of the Youth Committee, clearly set the expectations of the WPC Youth Writing Fellowship programme. This youth initiative is intended to stimulate discussions between youth and senior professionals (content writing, top executive interviews, etc). Four months, 40 applications and multiple interviews later, four fellows were chosen to actively nurture the ongoing debates on the industry’s legacy and future. All highly-skilled students and young professionals, they represent the diversity of the oil and gas industry. These are extracts from their stories.

1) Why have you applied and joined the WPC Youth Writing Fellowship?

**TG:** I hope to have the opportunity of furthering the goals of the WPC, by contributing to the development of a sustainable future for the energy industry, by researching energy-related economic and policy topics, developing the WPC youth network in my region and promoting discussion on the industry's future. Many exciting challenges!

**VA:** I believe the WPC Youth Writing Fellowship would be the best platform to raise young voices on current challenges faced by the industry and to share opinions. With the support and guidance from the team members of the programme, we can influence and attract more youth to provide their invaluable services to the industry.

**AL:** Through the WPC Youth Writing Fellowship, I am looking to explore emerging industry trends, and engage industry leaders in a meaningful dialogue about the main challenges facing the oil & gas industry.

**GO:** I applied to the WPC Youth Writing Fellowship based on the experience of engaging with hundreds of international young professionals in Norway and the WPC network, and the desire to engage in discussions shaping the future of our industry, which should be based on collaboration, finding compromises, but at a fair price, and addressing future
challenges that we, as young professionals are bound to inheritate at some point in our career from present senior executives, and the need to build an open and stimulating bridge between the generations.

2) What are your professional and personal ambitions?

VA: Upon graduating, I wish to join the upstream sector, exploring the North Sea as a drilling engineer, and carry on my voluntary services to the WPC. As a personal ambition, I would like to start up a small firm providing cyber-security services to the petroleum industry and motivating youth to take up research in STEM fields.

GO: As a professional I see myself as a “bridge-building engineer” in the energy industry, developing and contributing to safe, sustainable, cost-efficient and reliable operatorship where the young generation closes the political books from the 20th Century and defines our own ones. As a personal ambition, I would like to finish my plan of seeing all the remaining countries of the world by the time I'm 40, and publish a book about my travel experiences within the next few years.

TG: Currently working in the energy sector, I see myself getting more and more involved in the challenges it faces, whether geopolitical, economic or technical and I do not exclude the possibility of a return to academic studies (PhD) in order to delve further into these issues.

AL: I am looking to better understand the unique challenges that E&P operators are facing today, and, over time, I would like to establish myself as an authoritative voice on issues related to the oil & gas industry. In my personal life, I would like to learn more about science and technology, write a blog, run a full marathon every year and learn to fly an aeroplane.

3) How can the Youth have an impact on the industry?

TG: The Youth can lead a fertile dialogue as well as

Vijay Anne (VA) is currently pursuing a Master in Oil and Gas Engineering at Robert Gordon University (RGU) in Aberdeen. With a Bachelor’s from the Rajiv Gandhi Institute of Petroleum Technology, he worked in the refinery and chemical industry before joining RGU. With major interests in research and a zeal to tackle the challenges faced by the industry, he has been carrying out research on cyber-security for best key practices and secured operations. Vijay has published several papers on the topic for EAGE and SPE conferences.

Georg Oftedal (GO) is a Norwegian who has lived 20 out of 28 years outside Norway in 6 countries on 3 continents, has three majors with graduation from LSE on Managing of Natural Resources. He has 4 years’ working experience in the oil, gas and renewables sectors as well as international banking. His scientific interests cover international relations within geopolitical and energy perspectives, covering especially Europe, the Middle East and Asia. As a hobby, he enjoys traveling (and has so far “checked in” to 90+ of the world’s countries) and flying small aircraft.
thoughtful research on the challenges facing the industry. What is more, as a network of young and active individuals, in an industry often deemed ‘quaint’, the voice of the Youth holds even more clout.

VA: With the current depletion of conventional energy resources and climatic changes, youth with fresh minds and awareness of advanced applied science can only lead the centre stage to exploit and create safer, cleaner, sustainable energy. It’s the best time for the youth to tackle the current challenges, utilising the best opportunities.

GO: Take responsibility and dare to challenge accepted truths and standards. The young generation must not be afraid to speak up and try implementing its own solutions. Failing should not be seen as an obstacle but rather enjoyed, because one never learns from only having success.

AL: The oil industry is often perceived as out-of-date and irresponsible. The Youth can play a crucial role in reviving this public image of the industry. By questioning established practices and embracing new technology, the young generation can demonstrate that the industry is not lacking in innovation and dynamism. And with its relentless idealism and greater awareness of sustainability, the Youth can also prove that the oil & gas industry can play a constructive role in solving some of our global problems.
“I want to leave a legacy in which each employee feels a sense of pride in belonging to an organisation that deems them precious and irreplaceable”

Anna Illarionova
WPC Youth Committee member, Russia
If I were a CEO, I would focus on the operating activities of the company but wouldn’t forget to invest in developing human capital, and young talents in particular. In addition, I would promote innovative approaches within the company and encourage my colleagues to think strategically, improvise, propose new concepts, and be flexible to changes. We should not lack the long-term vision of the petroleum industry’s development and we need to manage our companies’ activities so as to ensure an affordable, sustainable energy supply for all our customers.

Anne Fleur Plassais
Apprentice Economist, Total, France
If I were a CEO, I would make sure that all the employees feel part of a community. That would include regular feedback on the company’s track record, cross-functional meetings and approachable management. In such an atmosphere, people would feel valued. As a result, they would give their best and the initial time investment would lead to increased efficiency for the company.
Varsha Suresh More  
**WPC Youth Committee Member, India, Project Head – Youth Relations**
If I were a CEO, I would focus on four main areas:
• Channelling young people’s energy and training them to solve complex problems. Providing them with exposure to varied industry aspects and developing them accordingly into technical experts, young leaders or other suitable roles.
• Implementing organisational policies that would be pro-employee and create work-life balance. Inculcating a feeling of belonging in employees to strengthen the human resources which are the real asset of any organisation.
• Diversifying the company into different energy segments, strengthening industry relations and increasing asset acquisition.
• Boosting research and development with the collaboration of universities.

Stephane Rousselet  
**Project Manager, Total E&P, France**
If I were a CEO, I would:
• Diversify my exploration and production portfolio by acquiring competencies and permits in non-conventional resources but also new energies such as renewables in order to build a new value chain model.
• Foster Corporate Social Responsibility at all levels of my organisation and implement integrated reporting to measure the actual performance of the company. CSR is not only needed for the acceptability of our business, it is a driver for competitiveness and growth.
• Renew the operating model of the company by initiating a 3.0 structure based on social networks and massive open online training, internet of things, big data, mobility (i.e. in the field for blue collar, on the road for white collar) and universality (i.e. Standardisation, Modularity and Simplicity).

Pablo Dueñas  
**Research Associate, Spain**
If I were a CEO, I would review the practice of employees being considered as mere productive assets, as sometimes happens in companies. They are emotional beings who must feel recognised in order to undertake their tasks with motivation and diligence. Beyond economic incentives, a sense of belonging can be promoted by making them participants in the decision-making process and hence an essential part of the company’s structure. This would result in a win-win situation for both the company and employees.

Victor Couto Alves  
**Brazilian National Youth Committee Chair**
If I were a CEO, I would create and invest in several Social Responsibility/HR programmes both internally and Externally, for the benefit of young people.
Internally, I would create an event like a Career Expo, where senior professionals would present to their young colleagues in order to share their experience and give guidance. This would be an annual or biannual event. One thing that I’ve noticed is that young professionals are usually not aware of the opportunities in their companies.
Externally, I would create something similar, but the objective would be to give opportunities to poor people.
to become potential members of the workforce. I would give guidance about the petroleum industry to the community about my company and our products, as well as basic guidance about work relationships and job qualifications. Those people who demonstrate potential and passion for the job would gain entry to my company as an apprentice.

Livia De Luca
MSc candidate,
State University of Campinas, Brazil
If I were a CEO, I would do my best to build a hard-working and creative team, provide them with good technical training and emphasise the importance of operational safety. I would encourage all team members to acknowledge that as we are part of the extractive industry, our role is to develop technologies and perform operations with excellence, therefore increasing the value of the company. Moreover, I would constantly seek ways to minimise the social damage that the petroleum industry can eventually cause.

Ekaterina Grushevenko
Energy Expert, Centre For International Energy Markets Studies, ERI RAS
If I were a CEO, I would:
• Invest more in research and development. Nowadays we are opening new frontiers of oil and gas resources and production methods: unconventional oil and gas, methods of enhanced oil recovery (EOR), Arctic and ultra-deep water resources. In this case, investing in R&D plays a huge role in the future of oil and gas industry.
• Focus more on strategic planning and long-term forecasting. Understanding the future is key to the sustainable development of our company and the industry in general.
• Cooperate with the countries where the company operates in order to deal with energy poverty. Provision of energy access is one is the biggest challenges facing us today. It will help achieve a more sustainable and balanced development of the world economy.

Fahad Ghadeer Abdullah Alajmi
Strategic Planning,
Kuwait National Petroleum Company
If I were CEO, I would concentrate first on aligning not only the processes within the organisation, but more importantly, aligning top management with the ‘rank and file’. This means that if every person in top management was familiar with the same strategy, then inevitably this synergy would cascade to the lower levels of the organisation and create a culture where everyone speaks the same language, even if the topics being discussed are different.

If I were CEO, I would not only verbally encourage the empowerment of our staff, but also put in place a system that enables the empowerment of others. Empowerment to me means sending a message of trust; it boosts confidence, it nurtures capabilities and most importantly it equips our staff with the fortitude needed to be responsible for the decisions they make, thus preparing them to become future leaders of our organisation.

Lastly, because I believe that people are our true assets, I want to leave a legacy in which each employee feels a sense of pride in belonging to an organisation that deems then precious and irreplaceable.
aligned with the objectives of the WPC and it is a collaborative effort within the WPC YC team, with their support of globally present volunteers.

Currently, the major projects focusing on Network building and sharing information via electronic media is Youth Connect (an online platform), Youth Relations and Knowledge Management. The Mentorship Project, after its huge success of the first round, is now developing global cooperation and a wider platform of discussion through its mentees & mentors. Similarly, the Youth Magazine project, now in its third edition is set to spread the words and views of the youth across the globe at various WPC events. To attract and retain young talent in the hydrocarbon industry by highlighting its contributions to the public and by providing a realistic image of the industry are the scheme's core objectives.

Russia, Qatar and China are already at the forefront with their established NYCs. Now, Argentina, the United States, the UK and India are joining the league of NYCs to strengthen the key objectives of the WPC. The guidelines to set up an NYC are handled through another YC project called the National Youth Committee. Apart from the above mentioned projects, the YC always promotes new ideas to achieve its objectives and support upcoming projects by volunteers and members.

The WPC YC is leaving its imprint in every continent of the world and growing with time. So far, the WPC's activities have been so successful that they have attracted bright men and women, with different backgrounds and cultures to create a global permanent network. WPC Youth Committee activities constitute a platform where the young people gain from the experiences of senior colleagues, share the views with worldwide counterparts, discuss the current and potential future issues, and get involved in the entire spectrum of hydrocarbon industry activities from upstream to downstream, from regulators to stakeholders, from profit to social responsibility and from energy to environment.

The WPC Youth Committee wants to lead the way for the youth, to get them interested in engaging in thought-provoking conversations. Our Youth Connect platform has a huge potential to poll the opinion of youth and to disseminate the vision of future from the youth to whom the future belongs. Our motive is to spread the message from the youth to the boardroom and to have a say in our Energy Future.

We are in the process of shaping the future and would request all our colleagues to support this initiative in your own way at WPC, National and individual level. The WPC–YC wing provides a great opportunity for the youth to cast themselves as future leaders. The Committee is trying to encourage maximum participation from youth around the globe to develop new ideas, to collaborate with senior colleagues and to shape the future of the oil and gas industry. There are many opportunities for youth to associate themselves with the World Petroleum Council through events, youth committees, 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
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