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"Integral to a shared energy solution is developing new ways to explore and discuss energy issues with input from stakeholders across the value chain"

A VISION FOR THE FUTURE

ASIA

For a developing country like India, the vision of the energy industry is focused on reducing import dependency in the hydrocarbon sector and achievin 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 organisation and the lack of international knowledge transfer to India, to name a few. Youth in this industry are lookin to embrace new technology and tackle energy challenges. The industry is beginning to recognise th potential of early development of young professiona for leadership positions and the hierarchical structur is becoming more flexible towards future generation

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 bee picked. Consequently, failures have become commo in wildcat drilling. Only with the accumulation of knowledge and the upgrade of technologies can ne 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

Bucketwheel reclaimer at an oil sands mine in Alberta, Canada

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 remai a key contributor to the sustainability of the nationa economic and social model (23% of the value create 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 th price volatility.

The UK's oil industry future will be impacted b internal political factors. The Scottish independence referendum may considerably impact the developme 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 define 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 a increasing role in the national mix if they can meet th citizens low energy price expectations. In addition, the sustainability of the proposed energy mix will question the national energy security, due to growin exports from foreign countries.

Spain will face strategic energy policy reform 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 industri 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

Petrobras platform, Guanabara Bay, Rio de Janeiro, Brazil

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-bottlenecking 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

The Sky's the limit: It is up to the youth of today to build the energy industry of tomorrow

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.

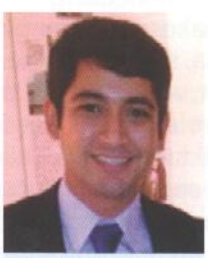
"What we have inherited is our future, it is up to us to utilise our blessings and build a future for us and the next generation. Not everyone must be an oil and gas employee, but everyone must know that no matter what sector they are in, they work towards a common goal of self-dependency." – Salim Mohammed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

Victor Alves (Brazil)

Georg Oftedal (Norway)

Joanna Desjardins (Canada)

Pablo Dueñas (Spain)



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