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БИЛТЕН

OIL COMPANY AND CLEAN ENERGY TECHNOLOGIES

Petroleum Products Quality Management and Regional Market Integration

István Pásztor:

We are a society of trapped resources

Ivo Vajgl:

The energy sector is a key factor of climate change

Tihomir Simić:

Energy Transition of Serbia –
A Prerequisite for Sustainable Development

Pierce Riemer:

Industry has to become even more innovative
in ensuring future growth

Artur Thernesz: Customers want mobility and
quality

Snežana Ristić: Introduction of quality
monitoring of oil derivatives in the Republic of
Serbia

Nikola Radovanović: COP 21 and what it
means for a company in the oil and gas sector
- the NIS jsc perspective

Aleksandar Nedučin: Multinational Oil
companies and clean energy

X INTERNATIONAL FORUM FOR CLEAN ENERGY TECHNOLOGIES

ENERGY TRANSITION OF SERBIA



Novi Sad, 27th - 28th September 2016





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Editor-in-Chiefs note:



The Programme Committee of the International Forum for Clean Energy Technologies has decided to dedicate the 10th Forum to concrete identification of the level of energy transition of Serbia and countries in the region in accordance with established European goals by 2020.

Without a doubt, the goals set, as well as the generally accepted concept of decarbonisation of energy, require harmonised responses from the oil industry in the form of an on-going improvement of the research process, production, oil processing, quality of oil derivatives, as well as seeking new forms of its transformation into energy companies needed for the 21st century.

This year, the National Petroleum Committee of Serbia – NPCCS has dedicated its participation in the 10th Jubilee Forum to monitoring fuels of petroleum origin and regional market integration, all in compliance with requirements specified under standard SRPS EN 14274 and Article 8 of Directive 898/70/EC, i.e. Serbia's international assumed commitments in this field.

Although monitoring the quality of fuels of petroleum origin is only a small step on the road to harmonisation of the oil industry with the decarbonisation strategy, introduction of this system presents a guarantee of fuel quality in compliance with contemporary environmental requirements and limiting

emission of pollutants which are a by-product of combustion of fuels of petroleum origin.

This issue of the Bulletin is dedicated to the theme oil companies and clean energy technologies, as well as finding answers to the following questions:

1. Low Oil Prices a Potential Obstacle To Clean Energy Sector
2. PARIS COP21: KEY ISSUES FOR THE OIL Company
3. Oil company and investment to renewable energy technologies
4. Low - carbon technologies in oil sector
5. Fuel quality and new environmental tendencies
6. Fuel quality monitoring system case study
7. Oil market in the region – integration yes or no?

In addition to interviews with the founders and host of the 10th International Forum on Clean Energy Technologies, the Bulletin brings interviews with Dr. Pierce Riemer, Director General World Petroleum Council and the participants coming from abroad for the session Petroleum Products Quality Management and Regional Market Integration, as well as contributing features by experts related to the thematic areas this issue is dedicated to.

Slobodan Sokolovic

INTERVIEW

István Pásztor, President of the Assembly of the Autonomous Province of Vojvodina

We are a society of trapped resources

By *Vladimir Spasić*

If we look at Vojvodina's potentials and resources, there is much room for optimism. However, when it comes to implementation, the optimistic perspective fades because we are a society of trapped resources. The 10th anniversary of the International Forum for Clean Energy Technologies is a time to recapitulate and create new strategies, in order for the energy transition to be understood through a perspective of a quality and scientifically based utilisation of resources, as an important building block of a humane and "smart" environment in which citizens of Serbia deserve to live in, said István Pásztor, President of the Assembly of the Autonomous Province of Vojvodina.



Q: The principal motto of the 10th Forum is "Energy transition of Serbia". Where do you see Vojvodina in light of this message?

A: The 10th anniversary of the International Forum for Clean Energy Technologies is an appropriate occasion to recapitulate, analyse the progress and achievements made, but also to formulate a different approach to problems of (most often) many decades, which can be identified as unaccomplished goals. As it is senseless to waste energy on unsuccessful attempts, just like when for years you unsuccessfully attempt to jump over a wall, in the same place, with no support, in an unapproachable spot. What is needed here is to apply a different technique: find either a lower part of the wall, or a decrepit part of the same from which you can pull out a brick. Therefore, what is needed is a change of perspective.

The transition, understood in terms of complex economic and political changes and processes of a democratic and institutionalised consolidation, presents an attempt of one society to find answers to a wide range of questions: how to be most efficient in building institutions and securing living conditions worthy of man, how to secure premises of a quality existence in a secure and safe environment. An issue which often comes up in a transition analysis is the matter of the first step, we are faced with a dilemma, having to choose an area in which to initiate changes in, and, unfortunately, we are witnesses to the fact that the area of improving clean energy technologies is most often not seen as a priority.

If we look at the process of energy transition from such a standpoint, a question which arises is do we evaluate Vojvodina's place in these processes based on what it "is" or what it "should be"? If we wish to perceive Vojvodina's place in a developmental perspective, what we want for it by the mid-21st century, there is ground for optimism – based on potentials and resources. However, when we come to the implementation part, namely transforming of resources and potential into standards of living in a highly developed and progressive society, the optimistic perspective fades. This is because we are a society of trapped resources.

In my opinion, the 10th anniversary of the International Forum for Clean Energy Technologies is exactly the right moment to recapitulate and create new strategies, in order for the energy transition process to be understood through the perspective of a quality and scientifically based utilisation of resources, as an important building block of a humane and "smart" environment in which citizens from Serbia deserve to live in.

Q: What are Vojvodina's highest potentials in terms of renewable energy resources?

A: Research shows that of the total renewable energy resources in Serbia, approximately 64% accounts for biomass, and that its biggest potential is found in Vojvodina, approximately 9 million tons, however, with an all too low degree of utilization of merely 7%. So the possibilities are almost boundless, and if taken into account that one bale of hay replaces 3.5 kilograms of oil, it is clear what would be the scope of savings by going back to heating using biomass, at least in the countryside.

However, the mere fact that Vojvodina disposes of a respectable biomass potential does not provide an answer to the core problem: how to go from a bale of hay to scientific institutes which would present a bridge between research and implementation of technological innovations in all segments of life and work, how to go from a bale of hay to scientific institutes employing well paid researchers?

Of the 1,790,000 hectares of agricultural land in Vojvodina, 1,580,000 is arable land. The most important crop residues which could be used for energy production are: corn, stubble, soybean, rapeseed and sunflower. In addition, significant potential lies in residues of pruning of orchards and vineyards.

X INTERNATIONAL FORUM FOR CLEAN ENERGY TECHNOLOGIES

ENERGY TRANSITION OF SERBIA



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Corn cob, particularly from small and medium farms, represents the largest energy potential from agricultural production residues in Vojvodina, immediately followed by wheat and soybean straw.

According to the 2008 report "Possibilities of Combined Production of Electrical and Thermal Energy from Biomass in the AP of Vojvodina", the quantity of biomass available for energy production are: agricultural production residues of 1.7 million tons; residues of orchards and vineyards 325,000 tons; forest residues and residue from fast-growing trees 50,000 tons (Institute of Lowland Forestry and Environment estimated that fast-growing forests can be cultivated on 60,000 hectares in Vojvodina, and that the annual yield of air-dried lumber is approximately 8 t/ha, with potential for production of 2,000 **GWh** of primary energy); residue from drying plants, seed centres, fruit processing 54,000 tons.

There is growing awareness of the advantages of thermal energy derived from these sources: data shows that there are approximately 40 institutions in Vojvodina using as its principal energy source agro-pellet or raw biomass for heating. All this is supported by the start of building public biomass storages, with a capacity for storing around 4 million tons of raw material.

As a reminder, intensive use of biomass in Vojvodina started several decades ago, in 1981. That's when the first domestic designs were produced and the first thermal facilities were built for burning hay, corn cob, sunflower shells and residue from cereal grain. Worth mentioning is that during the '80s of the last century, the company "Sever" from Subotica manufactured generators for windmills in Denmark and Germany which, at the time, enhanced the installation of wind parks (today, 50% of electric energy in Denmark is derived from wind parks).

Also deserving attention is the fact that in 2012 the Provincial Government helped the thermal power heating plant in Sremska Mitrovica transfer from the costly imported gas to local biomass from the fields of Vojvodina. This enabled savings resulting from the difference of the cost of gas and biomass (in their case sunflower shells) of around 250,000 Euros per year!

Q: What are the principal reasons for the poor use of geothermal waters in Vojvodina?

A: Unfortunately, we have to agree that use of geothermal waters in Vojvodina is at a very low level, for example, 2009 analyses confirm that in that year the coefficient of utilization of



overall geothermal resources (existing 78 drill holes) was only 8%. Returning to my initial thesis: Vojvodina has potential in the field of geothermal waters, but we are still searching for answers to questions in relation to how to transform natural resources into an economic impetus.



VOJVODINA.EU
OVERVIEW OF SUCCESS STORIES
2007 - 2013

REPUBLIC OF SERBIA, AUTONOMOUS PROVINCE OF VOJVODINA
PROVINCIAL SECRETARIAT OF INTER-REGIONAL CO-OPERATION AND LOCAL SELF-GOVERNMENT



I am certain that the answer lies in one word: knowledge. It is necessary to incorporate the analyses and recommendations of scientific institutions, in other words, expert knowledge, into existing development plans at the local level; local self-governments need to prepare projections of benefits and optimum exploitation of resource, with a view to providing sustainable management of geothermal resources.

It is necessary to make use of the possibilities offered by the Danube Region Strategy and the IPA Cross-border Co-operation Programmes, and, merely as an illustration, let me mention some successful concepts:



1.

The "GEOCOM" Project (part of the CONCERTO initiative financed by the European Commission) in which the town of Subotica is included, and which was initiated with an aim to research the best technologies in the use of geothermal energy (this in combination with innovative measures of energy efficiency and integration of other renewable sources of energy), bringing together several partners from Hungary, Slovakia, Italy, Romania, Poland and Macedonia;

2. The Project "Integrated spa development strategy for the spas situated in the area of the main traffic route through the Hungarian-Serbian cross border region", bringing together as partners: **Mórahalom Város**

Önkormányzata, local self-government of the Municipality of Ada, the Agency for Development of the Municipality of Temerin and the Regional Development Agency of Bačka; the goal of the project is enhancing development of health tourism, a strategy was elaborated for developing 30 spas in this region, attracting about 2.5 million visitors annually;

3. The Project relating to establishing cross border cooperation between the Technical Secondary School from Székesfehérvár and the Technical Secondary School "Mihajlo Pupin" from Novi Sad, in order to apply a system of thermal pumps for heating classrooms with geothermal water.



I mentioned these examples because they are the future. The future which was strategically defined until 2050 at the 21st United Nations Climate Change Conference by adopting the global Climate Agreement by which 190 countries have committed to undertake specific activities relating to environment protection. According to the Paris Agreement, after 2050, oil and coal will no longer be in use. This is why it is important to consider new technologies, alternatives in civil engineering, traffic and other areas, it is important to reform education, to encourage social innovations.

However, most importantly, on the 10th anniversary of the International Forum for Clean Energy Technologies we should mark under achievements the lesson learned: it is pointless to invest in old patterns of work and behaviour, we need to invest in new strategies, the strategies which will provide an answer to the question: where we want to be in 2050. It is time we come up with a different strategy and start practicing a new tactic for jumping over the wall mentioned in the first question. The sooner the better, because it's a long wait to 2050, by which time the said wall will fall on its own!

Biography

Born on 20 August 1956 in Novi Kneževac.

He graduated from the Novi Sad Law School in 1981. He was employed with "Sigma" in Subotica and held the position of Director of the Institute of Informatics with the Faculty of Economy in Subotica.

A member of the Alliance of Vojvodina Hungarians (AVH) from 1995, member of the Presidency of the AVH – in charge of economic issues from 1997, and from 2007 – President of the AVH.

From 1996 to 2004 he was a Member of the Provincial Assembly, and from 1996 to 2000 – he was a Member of the Federal Assembly.

From 2000 to 2004 he was Vice President of the Executive Council of the AP of Vojvodina and at the same time the Provincial Secretary in charge of privatisation, entrepreneurship, small and medium enterprises, and from 2008 – Vice President of the Government of the AP of Vojvodina and the Provincial Secretary in charge of economy.

President of the Assembly of the AP of Vojvodina from 2012.

In addition to Hungarian and Serbian, he also speaks English.

He is married and has two children.

INTERVIEW

Ivo Vajgl, Chairman of the Forum and Member of European Parliament

The energy sector is a key factor of climate change

By *Vladimir Spasic*

The world's leaders agreement on the Sustainable Development Goals and the Paris Climate Conference (COP21) agreement are important because we witness more and more evidence to confirm the tight connection between the climate change and energy policy. Moreover, climate change directly influence the actual context of energy security, supply, market etc., and vice versa, the energy sector is a key factor of climate change, says Ivo Vajgl, chairman of the Forum and Member of European Parliament.



Q: Energy security of Europe - what are realistic projections?

A: Let me start by underlying that the energy policy is essential. Thus, every effort to discuss and articulate complex challenges in this field must be welcomed and supported.

In our time the issue of energy supply and research became, I would say unfortunately, the tool of geostrategic consideration, fragmentation of the world and conflicts. It is therefore of utmost importance to move this topic out of possible conflict field to the reflections how to ensure energy to be the generator of progress, peace and well-being of all people on our planet.

When speaking of energy policy as a sectoral policies we must bare in mind different levels of political decision-making process related to the management of public matters in all kinds

of social subsystems, including local, regional, national and supranational or international. The latter is most importantly represented by the United Nations actions and initiatives inter-relating in fields of energy, economic growth, sustainable development, climate change etc.

One of the characteristics that marks the EU energy policy fundamentally is its energy supply dependence, as we, by the data of European Commission (2015), import around 53% of our energy (in the case of crude oil more than 90% and natural gas 66%), what makes EU the largest energy importer in the world.

This is why we have adopted a special policy document European energy security strategy which was upgraded by the Energy Union strategy in 2015 in which goals of increasing the energy efficiency, the energy supply with internal resources and the production of renewable energy have been up-graded.

It is undoubtedly that we have to do everything to achieve these goals in order to increase the energy security, not only by using and developing new EU financial instruments, but also by searching for new opportunities to enter into new energy partnerships with different actors from all over the world. We have to be more aware that the world is becoming more and more globalized and that the geostrategic considerations have to be more in the centre of the EU energy policy.

Q: Does the EU can provide political and financial framework for the implementation of the Energy Strategy to 2030?

A: The European Union puts a lot of effort to tackle the comprehensive challenge of putting together goals of energy, climate change, economy and social policy in order to achieve as optimal results as possible in the context of sustainable development.



The major EU goals of the (sustainable) energy policy are:

- to provide a high level of energy security,
- to enable an efficient and competitive energy market for private, business and public sector,
- to assure energy consumption which enable to follow the goals of sustainability, including climate change targets.

In order to achieve concrete results within these goals the EU has adopted targets by years 2020, 2030 and 2050. At the moment we are bind to work on the operational action plan, titled "2020 Energy Strategy" which

includes measures to "reduce its greenhouse gas emissions by at least 20%, increase the share of renewable energy to at least 20% of consumption, and achieve energy savings of 20% or more".



It is still too early to give a final evaluation about how successful is the implementation of the strategy, but we have some data that encourage us to follow the defined path. For example, by the Commission progress reports, EU has managed to cut greenhouse gas emissions by 18% in the period of time between 1990 and 2012, so we can expect to meet the strategic target of reducing the greenhouse gas for 20% by 2020; another cause for optimism is the data that the EU has increased the consumption of the renewable energy resources up to 18% of the gross final energy consumption by the year 2005.

At the same time we have to recognize there is still a lot of work to be done in order to achieve the full functioning of the internal energy market of EU – we have not yet reached the goal of completing the internal energy market what was also very often a major remark of the European Parliament to the Commission in this context in last years.

Moreover, regarding the internal energy market, the European Court of Auditors has in 2015 found that we need "more and better targeted infrastructure initiatives". It is also worth mentioning that the European



Parliament's studies show that 'a more economically and physically integrated single market in energy could bring annual efficiency gains worth at least €250 billion'."

Q: What is Your comment on Commissioner Arias Cañete statement: "Close cooperation between the EU and the US is crucial in keeping up the global pressure to make what we agreed in Paris, and signed in New York, becomes a reality. This is the only way for us to lead the global clean energy revolution."

A: Most important actual strategic agreements at the UN level that directly affect and shape the energy policy at the EU level, as well as globally, are undoubtedly the world's leaders agreement on the Sustainable Development Goals (SDGs) (from September 2015) and the Paris Climate Conference (COP21) agreement (from December 2015).

The latter was marked as a historic, since it is the first global binding agreement of 195 countries politically prepared to introduce

action plans and concrete measures to combat climate change and assure investments to provide a sustainable low-carbon future.

Why do I see it important to mention these two global agreements? The answer seems to be very simple – because we witness more and more evidence to confirm the tight connection between the climate change and energy policy. Moreover, climate change directly influence the actual context of energy security, supply, market etc., and vice versa, the energy sector is a key factor of climate change.

As the global NGO Se4all claims, "More than 1 billion people around the world still have no access to energy. And more than 2.9 billion do not have access to clean cooking." This figure more than well illustrates the interconnection of different sectoral policies, or, when using the sociological terminology, the complexity and interconnection of different social subsystems. In other words, energy is of a key importance for the social and economic welfare on the global level.

Biography

Born on March 03, 1943, Maribor

Degree in agricultural engineering from the Biotechnical Faculty of the University of Ljubljana.

Journalist (1966-1980). Diplomat (1980-2004). Advisor to the President of the Republic (2004-2008).

Member of the National Assembly of the Republic of Slovenia (2008-2009).

President of the Foreign Policy Committee (2008-2009). Minister of Foreign Affairs (2004).

Slovenian Ambassador to Germany, Austria, OSCE, Sweden and all the Nordic and Baltic States.

Member of European Parliament since 2009:

Member of the ALDE Bureau (Alliance of Liberals and Democrats for Europe in the European Parliament) Committee:

[CRIS] Special committee on the financial and economic crisis (Member)

[SEDE] Security and Defence (Substitute)

[DEVE] Development (Member)

[AFET] Foreign Affairs (Substitute)

Delegation :

EU-Turkey (Substitute)

Euro-Mediterranean Parliamentary Assembly (Member)

Mashreq (Member)

INTERVIEW

Tihomir Simić, Chairman of the Forum

Energy Transition of Serbia – A Prerequisite for Sustainable Development

By Vladimir Spasić

Energy security of any country presents a strategic base for planning its own sustainable development. The concern for energy security marks both the beginning and the end of any contemplation of a better life for its citizens, a modern and developed economy, providing employment for all those who, today, await each new day with open fear. A synergy of new ideas, achieved technological solutions and advanced skills, incorporated into the context of devised and adopted strategies and programmes for their implementation brings hope and faith that we can still reach the future. This is the only way Serbia can catch up and achieve all of that which other European countries have accomplished long ago, and on which our neighbours have been working on diligently and consistently for a long time now, said Tihomir Simić.



Q: For the past ten years, through its work, presented innovative projects and conclusions, the International Forum for Clean Energy Technologies has been advancing the reached level of energy security in Serbia and countries of the South East Europe region. How are the messages projected by the Forum implemented?

A: This year, the Programme Committee of the Forum, in its jubilee tenth year of existence under the auspices of the Assembly of the Autonomous Province of Vojvodina, is committed to focusing the countries of the region and the Republic of Serbia on the most concrete and plastic identification of specific processes of their energy transition and the method for realising pre-set European goals by 2020. With this goal in mind, and as a symbol of the adopted national need to constantly compare what has been achieved with what

has been planned, this year's jubilee 10th Forum is entitled "Energy Transition of Serbia".

Indicators of growth of all relevant energy security performances were observed in those neighbouring countries who managed to initiate a wide joint state and social activity aimed at improving energy efficiency, large-scale use of renewable energy sources, to commit to the use of clean energy technologies and adopt synchronised operational plans of energy development on all levels, from local self-governments to national governments. At the same time, this process is followed by the introduction of a continuous education program for energy managers in local self-governments and the industry, as well as by establishing regional educational teams supported by educational institutions and scientific institutes.



What Serbia is lacking is that higher degree of nation-wide activity and joint common motivation, to use knowledge and an evident interest to effect savings, as well as technological achievements to ensure its so much needed progressive sustainable development. At the previous 9th International Forum for Clean Energy Technologies (Forum), members of the Forum concluded that the widely based platform of the Energy Sector Development Strategy of the Republic of Serbia can serve as a basis for joint initiation of operative processes which will, within the shortest possible time period, particularly in the domain of energy efficiency, bring huge material savings within the range of hundreds of millions of Euros. Such a partnership with the Government of Serbia for more than 400 members of the Forum does not imply merely a declarative approval, but also a uniquely prepared concept, operative solutions and programmes, which are based on realistic possibilities for our country, compliant with European standards.

Q: In past few years the focus of the Forum's activities has been identifying the Serbian energy horizon 2020. Where is that horizon at this moment and what are the limitations faced today?

A: The EU development plan by 2020 uncompromisingly focuses on highly set principles and goals. Within this plan, energy

presents the framework of the programme "Europe 2020". Serbia must work fast to undertake the key steps – from organising and establishing its goals relating to foreign, internal and energy policies, to establishing own internal system of values with legitimacy for international cooperation and integration into market processes.

At the same time, Serbia, with the highest authority of its state policy, must not allow the loss of even one kilowatt-hour which can be produced by clean energy technologies from renewable resources using water, wind, the sun, biomass, hydrothermal waters and geothermal potential, as well as by applying intensive measures for increasing energy efficiency. Energy security of the South East Europe region and its completeness is not possible without equal and decisive efforts on the part of all of the countries aimed at reaching the desired goal. Energy seclusion today means certain economic and investment-wise seclusion tomorrow. This is something Serbia must not allow, as our history and tradition, our potential and the perception of our country as a capacitive strategic partner must not be left unutilised, whatever the price. This is the only way we can contribute to the country's overall progress and fulfilment of a burning national desire to have our long awaited energy security and future, projected under the Serbian energy horizon 2020 finally become a living, better reality.

Q: Are fossil fuels and renewable energy resources compatible, and how so?

A: Relying on existing resources of fossil fuels in the next few decades presents the basis of Serbia's energy security. Our country must utilise all its available energy potentials, with full compliance of all the principles resulting from the 2015 Paris Climate Change Conference. Oil, natural gas and coal play an inevitable role in Serbia's energy balance, but with full application of clean energy technologies. It is important that the use of fossil fuels does not exclude the use of renewable energy resources, and vice versa, with harmonisation of the utilization of all available energy resources being our primary national interest.

For this reason, the 2016 Forum should be viewed as a continuation of efforts to encourage the realisation of our plans within a reasonable period of time. This year's programme topics should provide answers to challenges faced in applying clean energy

technologies under current circumstances by means of presenting the most successful and already applied new technological solutions, through international partnerships and seeking the most favourable method of financing initiated projects in the energy sector, as well as creating new ones.

Q: What expectations do you have of this year's Forum?

A: To place in the focus of interests the accomplishing of the goals of the process of energy transition, their realisation will enable increased energy security for Serbia and countries of the region. At the same time, the energy transition of Serbia according to EU standards and conclusions of last year's Climate Change Conference in Paris, should lead our country to an overall more dynamic sustainable development. Just for improving the quality of life of its citizens, Serbia is entitled to apply for significant funds available to EU member states and countries in the process of accession, as part of the project



“Horizon 2020” which amount to more than 28 billion Euros. This is why we are prepared to work together on the platform “Energy Transition of Serbia” and create and establish a national process for permanently initiating fundamental economic and social changes. This will be our contribution to ensuring a happier life for all the citizens of Serbia, as well as to creating a better and sustainable living perspective for the generations to come.

Our common vision is that the 2016 Forum “Energy Transition of Serbia”, owing to the credibility of presented concepts, technological solutions and scientific works, will encourage the use of available potentials in this part of the world and further stimulate cooperation and energy development in countries of the region. Under the title “Serbian Energy Horizon 2020”, last year’s Forum initiated general and



comprehensive action in vertical and horizontal operative linking of stakeholders in the energy sector, and in particular, efforts aimed at increasing energy efficiency in local self-governments. All activity undertaken in the period after the 2015 Forum have only shown our insufficient institutional and organisational readiness for significant improvements. In the period before us, these anomalies must be promptly overcome for the good of all the citizens of Serbia.



Biography

Born in 1958 in Belgrade. Graduated from the Military Higher Education Centre of the Military Academy in 1981, earning a BSc Degree in Telecommunications. He has been living and working in Novi Sad and Belgrade since 1981. He is of Serbian nationality, married and a father of two daughters. From November 2010 to October 2012 he held the position of General Manager of the Electricity Distribution Company „Elektrovojvodina” Novi Sad. From 1992 to 2004 he was General Manager of Bel Paggete, General Manager of Genel, General Manager of RTV BK Telecom and Vice President of BK Group for Strategic Projects and Media. From 2004 to 2008 he was Deputy Prime Minister of the Government of the Autonomous Province of Vojvodina in charge of economic affairs, finance, international and regional relations, and management of property of the Autonomous Province of Vojvodina. Since the founding of the Atlantic Counsel of Serbia in 2001 to this day, he has been active as a lecturer and participant of regional NATO conferences in South East Europe. His particular field of interest is energy security and its impact on sustainable development. With the INEA Institute for European Affairs from Düsseldorf he founded and has acted as Chairman of the International Forum on Clean Energy Technologies, the most influential international energy conference in South East Europe, since its founding in 2007. In June 2012 he was voted Best Manager of Central and Eastern Europe in the energy sector.

INTERVIEW

Pierce Riemer, Director General World Petroleum Council

Industry has to become even more innovative in ensuring future growth

By Vladimir Spasic

Meeting future demand for energy in a sustainable and socially responsible manner will require massive investments, leading edge technologies, the highest 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 youth, to become even more innovative in ensuring future growth. Through responsible operations and cooperation with all stakeholders the oil and gas sector will continue to be part in finding sustainable solutions, says Pierce Riemer Director General World Petroleum Council.



Q: Low oil prices a potential obstacle to clean energy sector.

A: No I don't think they are. There are still major projects going ahead, despite current market conditions with a social and environmental conscious.

WPC joined the World Bank's Zero Routine Flaring by 2030 initiative and has called upon its members to do the same. By using all the gas that is being flared today and converting it to power, we would be able to meet the electricity needs of all of Africa. The Council is also taking part in the UN methane reduction task force and supports the Global Gas Flaring Reduction Partnership (GGFR). Replacing higher impact fuels with natural gas can help countries move toward a more sustainable energy path that leads to the end of poverty and an increase in shared prosperity.

Alleviating energy poverty must take a key role in climate policies, as an estimated 1.1 billion people still do not have access to electricity or lighting and are literally left in the dark. The COP21 outcome calls for "the need to promote universal access to sustainable energy in developing countries."

WPC is cooperating with the OPEC Fund for Development (OFID) under the Sustainable Energy for All (SE4ALL) umbrella in creating a platform to actively engage the energy sector in using its expertise and capacity to develop practical solutions for access to energy in the places where they operate. Through responsible operations and cooperation with all stakeholders the oil and gas sector will continue to be part in finding sustainable solutions.

Q: Paris COP21: Key issues for the oil company.

A: Governments agreed at COP21 last year to keep the increase in the global average temperature to well below 2°C above pre-industrial levels. This will require technological

The Paris Agreement provides an effective platform for international cooperation by establishing mechanisms for financial support and technology transfer from developed to developing countries for GHG emissions reduction.



innovations, and massive additional investments in energy efficiency measures, renewable and other low carbon options.

Oil and natural gas will continue to be the world's leading energy resource for the foreseeable future. Meeting future demand in a sustainable and socially responsible manner will require massive investments, leading edge technologies, the highest 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 youth, to become even more innovative in ensuring future growth.

Q: Oil company and investment to renewable energy technologies.

A: Renewables will grow more than any single fossil fuel. But they start from a low base of around 2.0% and are only expected to account for around 6% of energy by 2030. Despite these increases in renewable energy, all predictions show that the majority of energy will continue to be supplied by fossil fuels in the coming decades. The energy industry will be at the forefront of developing technologies to create cleaner energy solutions, reduce harmful emissions and introduce energy efficiencies to help achieve the targets set by the Paris Agreement.

Q: Low - carbon technologies in oil sector.

A: Renewable energy technologies have a role to play, but on their own they are not a silver bullet since they vary in availability and in intermittency. More significantly, the new technologies primarily produce electricity which is currently the vehicle for less than one-fifth of total primary energy use.

Even if we stretch the limits of current technology the world cannot live on renewables alone. The production of chemicals and polymers will continue to rely on hydrocarbons, and where high temperatures or

without any emissions anywhere. It is a world where remaining emissions are offset elsewhere in the system. This means that we will need 'negative' emissions in some sectors to offset remaining emissions. One way to do this is to combine sustainable biomass gasification with the capture and storage of carbon dioxide in power generation. Other ways include agricultural practices that raise the carbon content of the soil, and reforestation. And for power generation using oil gas or coal with carbon capture and storage a technology that can have the maximum effect in reducing greenhouse gas emissions in a future fossil fuel world.



energy storage are required, such as in many industrial processes or iron/steel/cement manufacture or heavy freight or air transport, we will almost certainly see the continued use of fossil fuels.

There are also likely to be regions that will decarbonise at a slower pace, either for political and economic reasons or because they have a particularly high or low population density.

So there will be an integration of the hydrocarbon and renewable components of the energy system, and it is inevitable that some level of emissions from certain sectors and regions will remain for the foreseeable future.

It is important to recognise, however, that a zero emissions world is not necessarily a world

Q: Fuel quality and new environmental tendencies.

A: The answers so far have revolved around promoting tougher fuel efficiency standards in light- and heavy-duty vehicles and increasing renewable energy in transport. Policymakers in many countries such as the US, Canada, Japan, China, India, South Korea, Mexico and the EU are pushing tough new fuel efficiency standards for gasoline- and diesel-fuelled vehicles. For renewable energy in transport, the top options encouraged by governments and favoured by some citizens are mainly electric and biofuels.

As battery prices continue declining, electric vehicles sales are projected to take off with some studies bullishly projecting they will represent 35% of all new global car sales by

2040. Hydrogen fuel-cell vehicles sales are expected to grow more slowly, representing not even 1% of new vehicle sales by 2020. While the GHG-emission reductions with these vehicles at final use are substantial, the challenge with these two options are cost of the technologies used, consumer interest and acceptance but most especially fuelling infrastructure. In places where electricity production is in surplus, like Norway, then the market will grow. Alternatively, in the UK where there is pressure on energy resources the market will be very slow. Also in the case of hydrogen the GHGs produced in making hydrogen and the subsequent energy loss when looking at the combustion and thermodynamic cycle need to be considered.



That leaves biofuels, which are arguably the only true viable renewable energy transport pathway right now that is compatible with existing fuelling infrastructure with a more straightforward implementation.

Q: Oil market in the region – integration yes or no?

A: The worldwide trend in energy projects is highly complex and capital intensive, due to new frontiers and non-conventional resources where cooperation between players is essential, not only between energy companies but also with governments, regulators, international institutions and local communities. Industry participants and governments should create an attractive investment environment in which risk premium can be reduced and investment maximized.

Companies have developed innovative solutions to challenging projects. NOCs, IOCs and SOCs have to cooperate to reduce the technological challenges, improving processing, safety and also capital efficiency.

With the scale of organisations within the oil and gas industry, antitrust concerns and the importance of national energy security, joint ventures are a useful way of gaining the benefits of collaboration. They can help to manage cost inflation and investors pressure on limiting CAPEX and increasing cash flow. In Joint Ventures, the success is based on understanding and agreement between partners, ensuring optimal efficiency through the collaboration of IOCs, NOCs and SOCs.

Biography

Dr. Pierce Riemer was appointed Director General of the World Petroleum Council in 1999. He is responsible for the WPC secretariat and looking after its 60 member countries. He moved to the World Petroleum Council after eight years with the International Energy Agency, where he set up the Greenhouse Gas Programme in 1990 and was responsible for carbon dioxide capture and storage activities as well as other climate change related projects. Dr. Riemer holds a PhD in Applied Chemistry (Gas to Liquids). He is a Chartered Chemist and a graduate of the Royal Society of Chemistry. Dr. Riemer is the author of over 200 technical papers, more than 60 magazine features and 15 books. He also holds 8 patents

INTERVIEW

Artur Thernesz, CEO ÁMEI Petroleum Products Quality Company, Hungary

Customers want mobility and quality

By Vladimir Spasic

Today's motor fuel are hydrocarbons: they offer long range at low total costs. Newer solutions will take the market, if they can compete with that preferences. The pace depends rather on the technological breakthroughs and is less impacted by today's oil price. The need for low-carbon fuels increases on the fuel producer side, while strict carbon emission standards will push car producers to grow the ratio of carbon efficient vehicles in their fleets, said Artur Thernesz, CEO ÁMEI Petroleum Products Quality Company.



Q: Do low oil prices impact the clean energy sector's development?

A: I see this question through the customer's pragmatic lense. Today's motor fuels are hydrocarbons, because gasoline/diesel cars are affordable to customers, service station networks cover full geographies with one station within every 40km reach, refuelling takes max 5 minutes and with one filling an average car can take 600 kilometers ...efficient diesel cars even a thousand kilometers distance with one fill, offering much improved carbon economics.

When those preferences are neared by newer and cleaner mobility solutions, customers start shifting to the new alternatives. As one said, the stone age has ended not because we have ran out of stones, but because a better set of tools have been found. If newer and cleaner solutions offer better value for serving our mobility demand, they will be taking the market.

The pace depends rather on the technological breakthroughs and on the emerging power trains, and is less impacted, I believe, by today's oil price....that can change at any time as often did in the past.

Q: PARIS COP21: are there key issues for the oil company?

A: The growing global energy demand and the risks of climate change need to be handled parallel. When global challenges face us, global view and alignment should be there. I believe, market based carbon pricing offer a faster and more effective way versus sector specific regulations and mandates. For the last decades, the EU industry has been in leadership position to reduce environmental impact and GHG emissions. Need to make sure, that global programmes are pursued with same commitment and no carbon leakage occurs. I am looking forward to the upcoming COP22 in Marrakesh this year that will tell us how much progress has been made.

**Q: How fuel quality accommodated new environmental tendencies?**

A: Fuel quality standards are agreements between customers, fuel producers and car makers, where customer's interest is represented through governmental authorities. When higher attention got paid by customers to the environment, so became environmental regulations stricter by governments. In the last 10 years, fuel quality has rapidly evolved to accommodate those tendencies. Today, only low sulfur motor fuels with bio-components are to be marketed in the EU. The bio-component can either be bio-alcohol in motor gasoline, or bio-diesel (FAME) in automotive diesel oil and the components must come from a sustainable source. The European Commission has recently published the strategy on low-carbon transport with the proposal of 60% GHG emission reduction by 2050 for the sector. To meet that target, the Commission expects to propose specific measures for both car manufacturers through stricter CO2 standards for new vehicles, and GHG saving requirements for fuel suppliers. Investigation of emission reduction possibilities in maritime transport and aviation are also ongoing.

The need for low-carbon, advanced biofuels seems to increase on the fuel producer side, while strict carbon emission standards will push car producers to increase the ratio of carbon efficient vehicles in their fleets.

Q: How fuel quality is rolled-out and monitored in a market?

A: It is not enough to have good standards, care should also be taken how they are followed in everyday's life. A proven practice is to monitor the fulfillment in a country by a market-neutral and competent service provider. The process includes collecting fuel samples on service stations. Such sampling is to be representative by sales, players and geography. The samples are then delivered into the lab and registered anonymously for control. When analysis is completed, statistical tools are used for compliance reporting to supervising bodies. Such system has been in operation in our country. The well-working fuel quality monitoring system indicates that market sells up-to-the-latest-standard motor fuels that work reliably in the customers cars and meet environmental expectations.

Biography

Artur Thernesz is an internationally renowned downstream manager, leading now the Petroleum Product Quality Company, Hungary. He has served executive positions in MOL Refining and Marketing (MOL Group Development, INA) and in Petrochemicals (TVK of MOL Group) divisions from 2005. Before invited to MOL, he had been on international management assignments in ExxonMobil's Fuels Marketing and Supply organizations.

He is member of the Congress Programme Committee of the World Petroleum Council since September 2014, member of the BoD of Hungarian Innovation Association from June 2005 and is an active university lecturer.

He has an MSc degree in chemical engineering from the University of Veszprém and earned an MBA in financial management from Budapest University. He speaks fluent business English, German and basic Russian languages

EXPERT ANALYSIS

Introduction of quality monitoring of oil derivatives in the Republic of Serbia

By **Snežana Ristić**, Head of the Department for Legal and Economic Affairs in the Fields of Oil, Oil Derivatives and Natural Gas, Ministry of Mining and Energy

Implementation of Directive 1999/32/EC relating to a reduction in sulphur content of certain liquid fuels and Directive 98/70/EC relating to the quality of petrol and diesel fuels is an international commitment assumed by the Republic of Serbia.



This commitment was also assumed with the *Law on Ratification of the Treaty Establishing Energy Community between the European Community and the Republic of Albania, Republic of Bulgaria, Bosnia and Herzegovina, Republic of Croatia, Former Yugoslav Republic of Macedonia, Republic of Montenegro, Romania, Republic of Serbia and United Nations Interim Administration Mission in Kosovo in compliance with United Nations Security Council Resolution 1244* and the *Law on Ratification of the Stabilisation and Association Agreement between the European Communities and their Member States of the one part, and the Republic of Serbia, of the other part*, which signify harmonisation of national legislation with *acquis communautaire* in the field of environmental protection. The above named Directives establish the key parameters regulating the quality of oil derivatives used for motor vehicles and as an

energy source, and an imposed commitment to monitor the quality of such oil derivatives, as well as an obligations to provide regular reports.

In the energy sector, the Republic of Serbia has confirmed its strategic commitment to EU accession by adopting an Energy Sector Development Strategy of the Republic of Serbia by 2025 with Projections by 2030, and establishing strategic goals in the energy sector in compliance with key principles established by the EU Directives. In the oil sector, this primarily relates to providing a secure supply of the domestic market with oil derivatives compliant with the highest EU standards, less dependency on import and securing new routes of crude oil supply. The new Energy Law, adopted in 2014, created the basis for the introduction of quality monitoring of oil derivatives in the Republic of Serbia. The 2015 Decree on Monitoring Quality of Oil Derivatives and Biofuels regulates in detail the conditions, method and procedure of quality monitoring of oil derivatives and biofuels, and based on the Rulebook on the Content and Manner of Conducting the Annual Programme of Quality Monitoring of Oil Derivatives and Biofuels, the Annual Programme of Quality Monitoring was defined. The adoption of these documents created conditions for work and establishment of the system of quality monitoring of oil derivatives and biofuels (quality monitoring).



Quality monitoring represents a set of activities relating to continuous quality assessment of oil derivatives and biofuels within the entire distribution chain by sampling and testing the pre-defined number of samples, performing statistical processing of test results and reporting on performed monitoring activities. Quality monitoring in the Republic of Serbia is performed in accordance with the standard SRPS EN 14274 and national requirements which exceed the requirements of the standard SRPS EN 14274. The established national requirements relate to a commitment under Directive 1999/32/EC on the continuous monitoring of sulphur content in gas oil extra light EURO EL (heating oil) and fuel oil. Quality monitoring may be carried out by any domestic or foreign legal entity meeting the requirements defined by the Decree on Monitoring Quality of Oil Derivatives and Biofuels and selected in a public tender procedure. The monitoring entity must be accredited in compliance with requirements defined by the standard SRPS ISO/IEC 17020 type A, for sampling in compliance with standards: SRPS EN 14275, SRPS EN ISO 3170, SRPS EN ISO 3171 and SRPS EN ISO 4257 and must be equipped with an accredited laboratory in compliance with requirements of the standard SRPS ISO/IEC 17025 and/or have a concluded agreement on business and

technical cooperation with at least one accredited laboratory pursuant to the relevant requirements under the standard SRPS ISO/IEC 17025. The laboratory's scope of accreditation must comply with regulations defining technical and other requirements relating to oil derivatives and biofuels.

In compliance with the standard SRPS EN 14274, it was established that the Republic of Serbia is a small country divided into 4 statistical regions and model B was chosen for implementation of quality monitoring of unleaded motor petrol and diesel fuel at petrol stations.

The number of samples of oil derivatives taken at petrol stations and wholesale facilities is determined on an annual level (Annual Programme) and is published in the Rulebook on the Content and Manner of Conducting the Annual Programme of Quality Monitoring of Oil Derivatives and Biofuels. Determining the number of samples complies with the principles defined by the standard SRPS EN 14274, also taking into account the need to ensure consumer protection on the domestic market. As a result, the number of samples on an annual level exceeds the requirements determined by the standard, and each petrol station on the territory of the Republic of Serbia is the subject of inspection at least once a year.

Establishing the number of samples outside of petrol stations is not region related, but is defined based on the total quantity of oil derivatives placed on the market from a single energy facility in a calendar year. The current number of samples taken at petrol stations is presented in Table 1, and the number of samples at wholesale facilities in Table 2.



Table 1

Region	Number of samples of unleaded motor petrol				Number of samples of gas oil			
	Period of the year				Period of the year			
	winter		summer		winter		summer	
	EURO PREMIUM BMB 95	EURO BMB 98	EURO PREMIUM BMB 95	EURO BMB 98	EURO DIESEL	GAS OIL 0.1	EURO DIESEL	GAS OIL 0.1
Belgrade	174	15	174	15	163	8	163	8
Vojvodina	208	18	208	18	219	11	219	11
Šumadija and Western Serbia	209	18	209	18	214	11	214	11
South and Eastern Serbia	159	14	159	14	154	8	154	8
Number of samples per grade	750	65	750	65	750	38	750	38
Number of samples by type	1630				1576			

Table 2

Type of oil derivative	Grade	Number of samples per grade	Number of samples by type
Unleaded motor petrol	EURO PREMIUM BMB 95	110	140
	EURO BMB 98	30	
Gas oil	EURO DIESEL	300	350
	Diesel fuel GAS OIL 0.1	20	
Fuel oil	GAS OIL EXTRA LIGHT EURO EL	30	40
	MEDIUM EURO S	5	



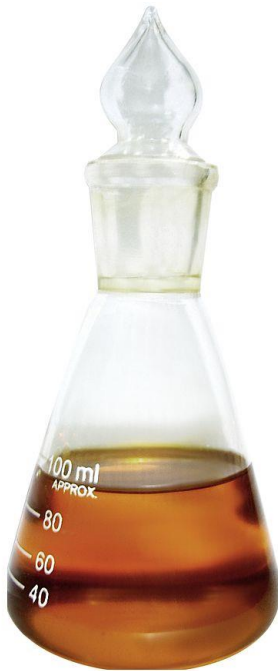
Republika Srbija

MINISTARSTVO RUDARSTVA I ENERGETIKE

Supervision of quality monitoring is carried out by the Ministry responsible for trade affairs. Inspection of quality monitoring is carried out by the Ministry responsible for trade affairs through market inspectors.

The Ministry responsible for energy affairs, in cooperation with the Ministry responsible for trade affairs determines the list of locations from which samples required for quality monitoring are to be taken.

Applying the random sampling method, the Ministry responsible for trade affairs makes a daily selection of locations from which oil derivative samples for quality monitoring are taken.



Market inspectors are responsible for taking samples of oil derivatives and labelling (coding) of samples. Sampling is performed by the entity conducting quality monitoring (in the presence of the market inspection). The said entity must have accreditation for sampling oil derivatives. In compliance with the standard EN ISO/IEC 17025, coded samples are delivered to a laboratory accredited for testing oil derivatives for monitoring purposes. Upon completing the testing, the accredited laboratory issues a test report.

If deviation from the prescribed quality parameters is established, the market inspector has the authority to:

- temporarily ban placing on the market of the Republic of Serbia oil derivatives and biofuels for which deviation from quality parameters has been established;
- order withdrawal or recall of oil derivatives and biofuels for which deviation from quality parameters has been established;
- upon written request from the energy entity, to order handling of oil derivatives and biofuels for which deviation from quality parameters has been established in line with the principle of proportionality;
- upon written request from the energy entity, submitted within not more than 15 days from receipt of the market inspection notice on established deviation from quality parameters, to order testing of arbitrary samples in possession of the market inspector.

Testing of the arbitrary sample is carried out by the competent body for compliance assessment which did not participate in the procedure of establishing deviation from quality parameters, nor in the procedure for issuing a Declaration or Certificate of Conformity.

Introduction of the quality monitoring system in the Republic of Serbia presents an important step towards compliance of internationally assumed commitments, making a significant contribution to the negotiation process within Chapter 27, enabling continuous monitoring of the quality of oil derivatives.

If requested, the Republic of Serbia is ready (even before a formal commitment) to submit to the European Committee respective reports on the quality of oil derivatives.



Biography

Snežana Ristić graduated from the Faculty of Economics in Subotica in 1997.

Employed with the Ministry of Mining and Energy since 2003.

From 2007 holds managerial positions in this Ministry as a Senior Advisor.

Professional training in the country and abroad (*Oxford Princeton Programme, Mangenta Global, World Refining Association, Faculty of Economics Belgrade, Human Resource Management Service, Chamber of Commerce ...*).

Participated in the implementation of a number of projects in the fields of oil and gas (*Sustainable Energy Development – Clean Fuel Quality Monitoring, Implementation of Sub Regional Cooperation and Coordination Mechanisms and Frameworks for Clean Fuel and Vehicles in SE Europe, Mandatory Oil Stocks and Oil Crisis Management in Serbia, FUELPAGE...*).

Participated in preparing a number of laws and by-laws and technical regulations in the energy field, participated in establishing the system of obligatory oil reserves, the system of marking and monitoring oil derivatives, opening of the natural gas market, regulating and monitoring regulated prices in the energy sector, etc.

Actively participates in negotiating Chapters 3- Right of establishment and freedom to provide services, 14- Transport policy, 15-Energy, 16- Taxation and 27-Environment, as well as in other international integrations.

**EXPERT ANALYSIS**

COP 21 and what it means for a company in the oil and gas sector - the NIS jsc perspective

By **Nikola Radovanović**, Chief Legal Officer for EU Legislation of NIS



The 12th of December 2015 stands for what is considered to be a global landmark date for combating climate change. This is when the COP21 Conference gathering 40.000 participants from 195 countries and the EU negotiating in the name of its Member States, signed the so called Paris Agreement – the first of its kind – a partially legally binding global climate deal. The essence of what was agreed comes down to limiting the increase of global warming to 2°C above that of pre-industrial levels with the aim of putting efforts towards limiting this increase to 1.5°C. The necessity of reaching the global emissions of greenhouse gases (GHG) peak as soon as possible was stressed, as it was perceived as precondition for reaching zero net emissions in the second half of the 21st century. Prior to and during the conference itself, the countries submitted intended nationally determined contributions (INDCs) which represent targets and actions to be taken by the countries in the post 2020 period. At the moment, we are in the phase of awaiting the ratification of the agreement which will come into force after ratification from at least 55 countries accounting for a minimum of 55% of global emissions.

In the past couple of decades, the EU has, through its policies and legal framework, most certainly set the standards on reduction of GHG emissions, increasing renewables in its energy mix, decarbonizing the economy, and so forth. But it is more than obvious that

combating climate change cannot be successful as a solely individual effort, albeit an effort of the EU as a whole, and that results can only be reaped with a joint global endeavor.

COP21 made it clear that traditional oil and gas companies cannot continue to perform their operations in the same manner they have been doing so for the past century or so. On the contrary, a proactive approach and altered business models ensuring both profitability and enhanced environmental protection contributing to tackling climate change is seen as a must. Having realized this, NIS jsc started its transformation from one such company into an energy holding back in 2011 when it established its youngest internal unit responsible for heat and power generation and trade.



Although the global nature of combating climate change is undisputable, we have to bear in mind that the Western Balkans carry a number of specificities and that these cannot fully be overlooked when assessing the burden that needs to be carried to meet the COP21 requirements. Namely, the region is faced with a lower level of economic development and as a result consumption of energy per capita is 43% lower than in the EU, industrial consumption in Serbia is much lower than in the late 80s, there is a high level of consumption of households, 50% of the region's primary production comes from solid fossil fuels (mainly coal), while energy intensity in the Western Balkans is 6 times higher than that of the EU.



Leaving aside the ongoing debates on whether or not the current EU policies and regulations are enough to meet the COP21 goals and whether and how these would need to be adapted due to recent Brexit developments, we have to move in the realm of what is known and set out and this would be the overall EU energy and climate policies. To portray how a company such as NIS, headquartered in a candidate country for EU membership, but with a regional presence in both EU Member States (Romania, Bulgaria, Hungary, and Croatia) and those aspiring to become full-fledged members one day (Bosnia and Herzegovina), apprehends these policies and the regulation stemming out of them, it seems sensible to run through those pillars of the Energy Union which, with their interlaced nature and in their entirety, pave the way for meeting both energy and climate change requirements.

Before I do that, I need to underline that we are the only company in Serbia that has a dedicated unit following EU affairs – the EU Liaison Office. The reason behind this is two-fold and stems out of the fact that the EU path of Serbia has been the strategic orientation of the country for quite a while. This has already led to a massive overhaul of the local legal system in the process of its harmonization with the legal order of the EU, and the job is far from being over. In these circumstances, internally, the idea was to be fully prepared for what is yet to come out of this process, to be proactive and analyze the upcoming obligations, but also the benefits and opportunities that stem from therein. This was seen as the only approach in which we could make sound business decisions, both strategic and operational. On the other hand, given the model of accession negotiations chosen by the State, where very little space was left for the

industry, we realized that we needed to support the negotiation process with our profound analytics. After all, we are the ones who deal with issues on the ground, the ones that have to invest and maintain employment and profitability. So far, our approach has been more than welcomed by the State – especially when it comes down to negotiation chapters 15 on energy and 27 on environment.

Going back to the main focus of my deliberations on the topic of COP21, the IEA recently called energy efficiency “the main weapon”, “the arrow in the quiver” in the fight against climate change. We fully share this view and in this respect have made tremendous fertile efforts to increase our energy efficiency.

The company has already implemented energy management system ISO 50001:2012. In 2015 our energy efficiency action plan foresaw some 63 separate measures to be applied to our largest energy consuming installations. This in



return led to energy savings of 610.000 GJ which represents around 3.3% of our total energy consumption in 2015, while this year's action plan foresees another 65 measures which should lead to an additional saving of around 150.000 GJ. In total, the planned measures for the period 2016-2018 should bring about an energy saving in the realm of 550.000 GJ. If we take a closer look at the Energy Performance Indicator which is used to measure energy intensity, in 2015 alone the consumption of energy per unit of production

was decreased by 7,7 % relative to the planned values for this year. Overall in the period 2012-2015 NIS has achieved a total increase of energy efficiency of 25%, while the increase in the refining part of our business reached a whopping 35%.



Two years ago NIS commenced the construction of small cogeneration plants in its oil and gas fields. The so far constructed 13 plants with an installed capacity of 11.5 MW (our total installed capacity is around 23.5 MW) has brought us to the point that we can fulfill a bit over one third of our electricity consumption needs from our own generation, which represents an increase of 14,4% relative to 2014. On top of this we have initiated the construction of a last generation 140MW CHP plant in Pančevo, with the possibility to increase the capacity to 208 MW. The planned commencement of operation is the end of 2018 and it will lead both to reliable and efficient supply of the refinery and full compliance with all environmental standards, including stringent thresholds on emissions set by the Industrial Emissions Directive of the EU. Finally, in terms of energy efficiency, we utilize geothermal energy from our depleted oil and gas wells for heating our infrastructure. We are currently talking about 10 wells and 8 geothermal systems with an installed capacity of 8.5MW.

When it comes down to research, innovation, and competitiveness we take great pride in our Scientific Research Center (NTC), which we consider to be one of the best in the region.



We are proud to boast being part of several projects related to groundbreaking technologies such as carbon capture and storage (CCS). One such EU funded project is MIRECOL (Mitigation and remediation of CO₂ leakage in the gas field) where NIS is sharing experience with its project partners which, among others, include the Netherland Organisation for Applied Scientific Research (TNO), the French Institute of Petroleum, German Research Center for Geosciences, Statoil, Shell and Weatherford. Actually, our field in Bečej is one of the two fields where the practical testing is performed. The project commenced in March 2015 and is now in its second year, by the end of which we are expected to have the technical results available and finally in the following year, formulated guidelines for mitigation and remediation measures.

The other example is our now operating Amine Treating Plant for CO₂ extraction from natural gas utilizing CCS technologies under the notion of enhanced hydrocarbon recovery. The goal was to indirectly decrease the CO₂ emissions. Namely, the high CO₂ content in natural gas is sequestered leading to a reduction of the CO₂ content from 10-30% to below 3%, while the

captured CO₂ is permanently injected into a nearby oil well formation thereby preventing the emission of CO₂ into the atmosphere, while at the same time increasing the pressure and level of utilization of the oil field. The multifold benefits are obvious – environmental protection and enhanced business operations, a clear win-win.

This is a probably the best point to move on to decarbonization of the economy, as it is most closely linked to mitigating climate change and reduction of GHG emissions, an area with a lot of potential, an area where we have done a lot, and at the same time an area where most of the challenges still lie. Several different aspects of what decarbonization encompasses can be covered: renewables, cleaner and higher quality fuels, industrial emissions and the EU emissions trading system (ETS).

Regarding renewables the EU targets are clear on the general plain - 27% of final consumption by 2030 which accidentally, in terms of the value, coincides with the obligation of Serbia to meet the same national target by 2020 according to the National Renewable Energy Action Plan (NREAP) adopted under the umbrella of the Energy Community, and where it appears that Serbia is currently lagging behind. On the other hand, NIS is part of a project which is to become the first and largest windpark in Serbia with an installed capacity of 102 MW. This investment worth around 160 million EUR will represent an important contribution to reaching the abovementioned target and at the same time reduce the company's carbon footprint.

We are also fully committed to constantly improving our product basket in terms of cleaner and higher quality fuels. After finalizing our MHC/DHT unit in 2012, an investment worth 500 million EUR, we were able to provide the market with EURO 5 standard

fuels. At the moment we are engaged in further upgrades to our refining capacities through what is to become our deep refining unit, based on the delayed cocker technology.



This, so called Bottom of the Barrel project is planned to be finalized and fully operational by the 2nd quarter of 2019. The benefits in this case are also both environmental, expressed through the possibility of full elimination of fuel oil from our product basket or alternatively producing low sulphur fuel oil with a sulphur content of less than 1%, and commercial, in terms of an increase to our diesel and gasoline output while producing coke.

We have also started the production and sale of compressed natural gas (CNG) which has 15% lower CO₂ emissions as a transport fuel than diesel and 25% lower than gasoline. A production unit in Palić and two filling stations are in place - Novi Sad 10 and Čačak 1, with works underway on another production unit.

With regards to biofuels, we are doing our best to accommodate the production. So far we have constructed facilities which make it possible to blend 600.000 tons per year of biodiesel with a 7% bio-component. On the EU policy side, however, there needs to be clarity and even more so stability of the framework. We were witnesses of long debates on the thresholds on caps and floors on first generation biofuels and we have a valid 10% target for final consumption in the transport

sector by 2020 – this is an obligation of Serbia as well in line with the NREAP. At the same time we are aware that there is currently no target in place for 2030 and there are signals coming from the European Commission which go towards omitting this sub-target and placing it under the overall 27% target on renewables in final consumption, thus giving flexibility to the Member States, and subsequently to the Energy Community Treaty Contracting Parties towards achieving it. This, in our mind has to be stated clearly, as only stable and clear rules can give rise to sound business decisions and avoid having stranded costs and assets.

There is still some work ahead of us when we consider the ETS and industrial emissions which include CO₂ as well as other GHG gases – nitrogen oxides, sulfur dioxide, and particulate matter. Namely, the Industrial Emissions Directive sets more stringent thresholds than the previous seven directives it replaces, and we are currently striving to meet all of the foreseen parameters. Of course, we



have a plan in place which will allow us to meet even these more demanding thresholds, but it is realistic to say that we might need a transitional period, in terms of Serbia's accession to the EU, to do so. Some of the reductions in emissions will be a result of shutting down certain installations (e.g. power



unit in the refinery which will be de-commissioned once the new CHP plant is in place), while other measures are directly related to the installations/equipment which we operate.

The ETS is a somewhat different cup of tea, and we are in a rather specific position. Namely, Serbia not being a member of the EU and as such is not taking part of the ETS as we speak, but will have to fully integrate into the system once it becomes a member. The million dollar question is in which phase of the ETS this will happen and how the industry will participate in the procedure of allocation of emission allowances or their auctioning. In the meanwhile, the national legislation will introduce a system based on the ETS in which the participants will gain the relevant experience in its application, while the market will get a local price of emissions. Generally speaking, we could say that we want to see the competitiveness of the EU(ropean) refiners retained, and that the issue of carbon leakage is properly addressed, until equally binding obligations in terms of climate change and environmental protection are in place in other regions of the world. But, as a company headquartered in Serbia, we do not participate in the ETS and are mere sideliners in the process. I could openly say that we have, together with reputable consultants in the field, done the utmost possible on our side to prepare for the future. In this respect we performed an analysis which identified all the sources and activities which lead to GHG emissions and defined the responsibilities of each internal unit of the company once Serbia becomes a part of the ETS.

If one was to draw a conclusion, it could be said that energy and climate goals are rather ambitious, perceived from the perspective of

an operator in the sector. Yet we firmly believe that they are achievable if the right effort is put in action. With the right, i.e. clear and stable framework in place, all of us, as individuals and as companies have to make our own contributions to attaining the set targets. It is the only way to get the job done and preserve the environment for generations to come. In this process the intention of NIS is to retain the frontrunner position that we have already assumed.

Biography

Nikola Radovanović earned his bachelor degree (LLB) at the Faculty of Law - Belgrade University in 1999 (section for International Law) and passed the Serbian Bar Exam in April 2002. His professional experience spans from being a judge assistant at the III Municipal Court in Belgrade (2000-2002) to being engaged as a local legal expert for renowned consulting companies on EAR funded projects: KPMG and KEMA Consulting (now DNV GL) from 2002 to 2005. In this period, he was the legal advisor to and part of the official negotiating team of the Republic of Serbia on the Treaty establishing the Energy Community. From 2005 to 2014 he was the Lead Lawyer of the Energy Agency of the Republic of Serbia (AERS), covering the legal framework for regulatory issues, licensing, and pricing methodologies and tariff systems, following the developments of EU law in the field of energy, agreements and other acts of contractual character concluded on regional level or between energy entities, as well as assessing other acts from the aspect of legal system solutions. He was a member of the Electricity Working Group of the Energy Community Regulatory Board, the Coordinator of the National Program for EU Integration in front of AERS, a member of the Licensing and Competition Committee and the Chair of the Legal Regulation WG of ERRA (Energy Regulators Regional Association). As of February 2014, he is the Chief Legal Officer for EU Legislation in the EU Liaison Office within the CEO Office of the Petroleum Industry of Serbia (NIS j.s.c.)

EXPERT ANALYSIS

Multinational Oil companies and clean energy

By Aleksandar Nedučin, NPCS Bulletin's Permanent Contributor



Alternative energy resources will surely not present serious competition to fossil fuels for still a long time (at least in relation to its reserves as, according to expert appraisals, of the 45 billion¹ barrels of oil and gas equivalent, so far only 2 have been produced). The share of renewables in overall energy consumption by 2040 is projected at 29% (from 22% in 2012)². Turning to them is, therefore, not conditioned on the growing strong need for substituting traditional fuels in the foreseeable future, but rather brought on by the all too present dangers the world is exposed to because of past irresponsible behaviour that resulted in climate changes. Reducing emissions of the so-called "greenhouse gases" as the principal generator of global warming (in 2012, the average temperature was by 0.89°C higher in comparison to the average temperature in the 19th century; if these emissions continue at the present day rate, by the end of the century temperature will rise by 1.3 – 5.3°C) has become an issue of the utmost importance for the future of the planet. There is general consensus relating to this issue (United Nations Climate Change Conference – the 2015 *Paris Agreement on Climate Change*) to keep the increase in global average temperature to below 2°C, with

recommendations to limit the increase to 1.5°C above pre-industrial levels. This is achieved primarily by reducing carbon dioxide emissions (not long ago, it was common to measure economic development of a country in terms of the quantity of consumed fossil fuels as its



principal impeller, practically, the measure of success of an economy was determined by the amount of carbon dioxide emitted into the atmosphere). An interesting fact here is that food production globally "contributes" to emissions of "greenhouse gases", accounting for 30%, with expected 67% originating from fossil fuel production and its use. It is precisely because of all of all of this, not in the least bit promising for the future of our, still, only planet, that leading *BP* economists see as the solution to achieving this goal leaving one third of proven oil reserves in the ground. By definition, clean energy technologies, according to *IEA*, include energy from renewable resources, electrically generated transportation, nuclear energy and biofuels.

¹ 10¹², as opposed to British 10⁹

Renewable energy resources which will be discussed here at large include energy generated by hydropower, geothermal waters, wind (eolic energy), solar energy, tidal power, and biomass. There is divided opinion on the inclusion of nuclear energy in this group. Use of ocean generated energy is in its infancy.

the oil crisis of the 70s. However, in the following years, research was, more or less, and not in continuity, directed at using solar energy (*BP, TOTAL*), wind energy (*BP, SHELL*), research and development of fuel cells (*BP, SHELL, TOTAL*), geothermal energy (*CHEVRON*). However, they were for the most



Cost of energy generated in this way is, generally speaking, still higher than the cost of "fossil" energy, although, in the U.S. some of the new technologies are becoming economically competitive with traditional ones. Furthermore, in favour of renewable resources is the fact that in the U.S. its production creates more jobs per unit of energy produced and per dollar spent than fossil fuel technologies do.

Price stability is a characteristic of this energy (as opposed to the price of oil e.g. which, as we have witnessed, can oscillate dramatically), since operative costs are very low, and the fuel is, depending on the technology applied, free for the most part.

The approach of large international oil companies (IOC³) to the challenge of present day, not only potentially competitive, clean energy technologies has varied much in the past, with most of them taking a positive turn today. The first actions taken in this direction date back to mid-80s as a delayed response to

part oriented towards production of biofuels, particularly *EXXON, SHELL* and *BP*. Today, they are bound by restrictive regulations to work on increasing efficiency of their fossil fuel-based technologies and they believe that by reducing the cost of oil and gas production and by reducing emission of harmful gases (among other things, by relying more on natural gas to make them "greener") they can overcome the turbulent period in which it is unlikely that the price of oil will be returning to what it was before, and, thereby, enable them to avoid, without greater investments in renewable resources, the diversification of its businesses, and relatively painlessly enter the low-carbon emission era. With an a priori sceptical attitude towards the future of alternative energy and, therefore, without an appropriate strategy for tackling the new challenge, considering their primary and sole task to be securing market provision of energy generating products, they assessed that they would do best to stick to doing what they have proved to be best at – which is production and processing of fossil fuels. All of this did not prevent them at one time from bombastically announcing great investments

³ In English referred to as "Supermajors", "Big Oil", „IOC – "International Oil Companies": BP, Chevron, ExxonMobil, Royal Dutch Shell, Total, ConocoPhillips

into alternative sources of energy, a trend at one point, securing them a positive image, only to quietly pull away from it all later on. This was primarily the case with U.S. oil companies which could not see themselves stepping outside the area of production and distribution of fossil fuels, or making greater investments in less efficient and less profitable renewable resources (*EXXON* as the loudest opponent, was even a leader in solar energy research during the 70s and 80s of the last century). Their perception of the transition from a traditional oil company to a company basing its operations on renewable resources is



interesting: "It is more like gender reassignment surgery than it is like changing from *PC* to *Mac*". Or the statement made by the Vice President for Strategic Planning at *EXXON*: "It's like asking why *GM* isn't in the aircraft business". Or even a statement of *EXXON* CEO that there is no quick replacement for oil and that sharply cutting oil's use to reduce greenhouse gas emissions would make it harder to lift 2 billion people out of poverty, making his point cynically: "What good is it to save the planet if humanity suffers?"

IOCs remain yet to be billed for projects which could be considered risky or even strategic disappointments (costly oil production in the Arctic is cited as an example). Too much time

has been spent on finding and proving the existence of reserves, while at the same time activities relating to its basic business have been ceded to specialised companies. Bad business moves include, besides investments in the coal industry and nuclear energy which are after all in the energy domain – however, outside of their "core" business, investments in hotel and supermarket chains, in answer to the market demand for diversification of its business. Extensive investments in risky and costly new technologies for production of unconventional oil and gas at one point further drove attention away from clean technologies. Furthermore, state-owned oil companies have become serious competitors on the international market, particularly the ones coming from *OPEC* member countries. Even before the drastic fall of crude oil prices and mentioned stricter regulations, even more stringent today, energy experts are of opinion that IOCs must undergo restructuring and completely switch over to another business model in order to survive, and this must be done within the next 10 years. The question is whether this will be carried out through orientation on "green energy", drastically reducing operations, consolidation through large-scale associations (mergers), or, by selling the majority share.

The situation is even more alarming if we take into account the fact that in the first eight months of last year the stock value of the world's five largest oil companies dropped by one third (for example, *BP* alone marked a loss of \$6.5 billion, whereas in 2014 it made a profit of 3.8 billion).

According to the *Financial Times*, leading IOCs find themselves today at a cross-road, practically put in a situation where they have to make a choice whether to stay "loyal" to their primary business (all stages of

exploitation and use of oil and gas), or to commit to renewable resources, clean technologies, moving away from fossil fuels. Some even go as far as to think that their decision will shape the future of the industry, means of securing energy, and, ultimately, affect the climate. Lord *Browne*, the former Chief Executive of *BP*, who is credited with this company's answer to the challenge "beyond petroleum" by entering into the renewable

energy derived from solar PV (*PV - PhotoVoltaic*) systems, representing an increase of almost 30% in comparison to 2014. Global investments in "clean energy" in 2015 have also been record high, reaching \$328.9 billion.

In May of this year, Saudi Arabia, one of the world's biggest producers of crude oil, declared its intention to sell shares in its state oil company in order to diversify its economy



energy resources sector, says that the oil industry should learn from the fate of the U.S. coal companies driven into bankruptcy. It is quite certain that the mere fact that on the one side we have non-renewable and on the other side renewable resources, imposes the rational need for a timely orientation in the direction of the latter, regardless of how long the former are expected to last. The relationship between IOCs and clean energy technologies is becoming less contradictory and more complementary.

Last year was a record-high by the construction of facilities for the production of energy from renewable resources – installed 64 GW of wind-derived energy and 57 GW of

outside of the oil business⁴, its ambitions headed towards becoming a global player in the field of solar and wind energy⁵, which confirmed to those IOCs who have long ago entered this business that they are on the right track, and to the sceptical ones that that is the road to the future. Hence the announcement

⁴ *Green really is the new black as Big Oil gets a taste for renewables*, Terry Macalister, The Guardian
<https://www.theguardian.com/business/2016/may/21/oil-majors-investments-renewable-energy-solar-wind>

⁵ Countries richest in oil and gas also have abundant renewable resources

of a number of investments in “green” economy which followed.

IOC investments in clean energy:

SHELL, the biggest oil company in Europe, established a new division this year (*New Energies*) whose primary task will be investing (it has been given 1% of the \$30 billion expenditure into oil and gas) in low-carbon



Shell creates green energy division to invest in wind power



emission technologies. This spring it participated in a tender to build two offshore wind parks in Denmark which are planned to satisfy energy needs of 825.000 households. It also expressed interest in nine wind-based project in the U.S. and Europe. The metamorphosis of the company’s business policy is even more significant if taken into account that hydro, wind and solar projects were stopped in 2009, and that significant solar capacities were sold off in 2006.

EXXON, for years a rigid opponent of investing in renewable energy (even though they expect a slower rise of energy demand by 2040, they are projecting an increase of oil share to 19% and gas to 51%, whereby the share of solar and wind energy will not exceed 4%),

announced its plans for research in the field of fuel cells technology and building facilities for “capturing” and storing carbon emitted by energy facilities using traditional fuels. Testing of genetically modified algae is under way, as a potential source of raw material which could be processed in existing refineries.

TOTAL has shown, for a long while now, to be the most ambitious of the largest international oil companies in the field of renewable energy resources. It is the majority owner of one of the world’s largest manufacturers of solar panels (*SunPower*, \$1.4



billion) since 2011. Beginning of May of this year, it announced that it is buying a battery maker with a hundred year-long tradition (*Saft*) for \$1 billion. The motive behind this deal is finding a solution to the “storage” of electrical energy which, according to them, will play a key role in the future development of energy from renewable resources. Last year, they invested \$200 million in adapting one non-profitable refinery into a facility for the production of biofuels. There have been some smaller investments in wind parks and tidal energy, even though this is not the focus of the company’s interests. Plans include investing €500 million a year in renewable energy⁶.

BP sold its solar energy business in 2011. Production of biofuels is still dominant – last year, in its three facilities in Brasil, it produced 800 million litres of bioethanol, thereby

⁶ *ibid.*

(according to their estimate) avoiding emission of approximately 0.7 million tons of carbon dioxide, which is equal to 334,000 fewer European cars on the road for a year. In the meantime, it has been developing biobutanol together with *Du Pont*. The company generated 677 GWh of power from sugarcane waste for Brazil's national grid. BP is co-owner of 16 onshore wind parks in the U.S. (enough to meet the needs of a city the size of Dallas). *CHEVRON* is one of the leaders in exploitation of geothermal energy (in Indonesia a total of 647 MW, in the Philippines 692 MW). Investments in solar and wind energy have several times so far been, what can be described as, "hot/cold". The project of photovoltaic systems in New Mexico is based on focusing sunrays with a lens onto three-layered solar cells, resulting in production of 7.2 million kWh from 2011 until the end of 2015. Currently, they are working on building a solar thermal facility for the production of steam, which is to replace natural gas, in the production of oil. Wind energy is used in a park equipped with 11 turbines, total capacity 16.5 MW. The company is also active in the area of production of biofuels.

CONOCOPHILLIPS is the first of the large oil companies to become a member of the *United States Climate Action Project* and it has started re-positioning in the direction of becoming "something more" than just an oil company. In one of its refineries in Ireland it is engaged in commercial production of hydrogenation-derived renewable diesel ("renewable diesel fuel") produced from soybean, rapeseed and other plants.

STATOIL (even though not one of the six "big" companies, is one of the most consistent international companies in terms of clean technology strategies) is doubling its investments in the exploitation of open sea

wind, in comparison to last year, making it clear that it is transforming from a company focused on oil and gas into a company which is becoming more engaged in the production of energy derived from renewable resources. Recently, with *E.ON* as their partner, they expressed their readiness to invest €1.2 billion into a wind parks in the Baltic Sea. In February, they announced the establishing of a \$20 million investment fund for financing, over a period of 4 to 7 years, ambitious companies



with attractive plans and programs for production of wind-derived energy (one of them is offering software for operating wind parks which could reduce operating costs by 10%, another is claiming that it can cut the weight of wind turbines by half, a third one is working on improving the foundations of turbines in the open sea), solar energy, energy storage, transportation (electrically powered vehicles), energy efficiency and smart networks.

Even *ENBRIDGE*, a world leader in pipeline transportation of oil and gas, has invested \$5 billion in 2002 in wind energy, solar energy, geothermal energy and use of waste heat. The last investment from end of last year, amounting to \$200 million, was implemented into a wind park of 103 MW.

We should also mention here *NIS GAZPROM*, a company taking an active part in the sector of

renewable resources with a project for building 34 wind turbines in the territory of the Municipality of Plandište. Total capacity of the new wind park will be 102 MW (it is estimated that this will cover the needs of 42,000 households), with capital investments being €160 million.

An answer to the question what are the principal motives leading oil companies to decide to invest in clean technologies (at present, this accounts for only a few percent of their investments in the industry) lies (if we overlook the fact that they are being forced to do so) in resistance to climate change, ensuring energy security and a business opportunity presenting both a challenge and a possibility for making profit. However, the key factor is governmental policy of the country they operate in, and the relation between the



government and the oil company⁷. The reason for past greater activity and investments of

IOCs headquartered in Europe, when compared to U.S. companies in the same industry, lies certainly (and maybe solely) in the energetic EU and Norway policies aimed at mitigating the effects of climate change.

ⁱ *BP Technology Outlook*, 2015., стр. 8

ⁱⁱ *International Energy Outlook 2016*, May 11, 2016., EIA – U.S. Energy Information Administration, стр. 10

ⁱⁱⁱ *BP Technology Outlook*, 2015., стр. 25

^{iv} *BP admits climate concern makes some oil unburnable*, Megan Darby, Climate Home News

<http://www.climatechangenews.com/2015/10/13/bp-admits-climate-concern-makes-some-oil-unburnable/>

^v *Renewables Becoming Cost-Competitive With Fossil Fuels in the U.S.*, The Worldwatch Institute, August 23, 2016.

<http://www.worldwatch.org/renewables-becoming-cost-competitive-fossil-fuels-us>

^{vi} *Can Big Oil Go Green*, Walter Russell Mead & Jamie Horgan

<http://www.the-american-interest.com/2015/06/01/can-big-oil-go-green/>

^{vii} *Big Oil: From black to green*, Ed Crooks & Kiran Stacey, June 28, 2016., Financial Times

<http://www.ft.com/cms/s/0/922add24-3d12-11e6-9f2c-36b487ebd80a.html#axzz4HOW23Q2B>

^{viii} *Exxon CEO concerned about world's poor? Tillerson says cutting oil use to fight climate change would make poverty reduction harder*, May 30, 2013., Financial Post,

http://business.financialpost.com/news/energy/exxon-rex-tillerson?_isa=65b3-6998

^{ix} *Oil firms have 10 years to change strategy or face 'short, brutish end'*, Terry Macalister, The Guardian

<https://www.theguardian.com/business/2016/may/05/oil-firms-environment-energy-climate-change>

^x *Clean energy defies fossil fuel price crash to attract record \$329bn global investment in 2015*, Jan 14, 2016., Jennifer MacDonald, Bloomberg New Energy Finance

<http://about.bnef.com/press-releases/clean-energy-defies-fossil-fuel-price-crash-to-attract-record-329bn-global-investment-in-2015/>

^{xi} *Green really is the new black as Big Oil gets a taste for renewables*, Terry Macalister, The Guardian

<https://www.theguardian.com/business/2016/may/21/oil-majors-investments-renewable-energy-solar-wind>

^{xii} *ibid.*

^{xiii} *Renewable energy - 2015 in review*, BP Global

<http://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/renewable-energy.html>

^{xiv} *The Oil Companies' Approach to Renewable Energy*, May 2009., Ana Penha, British Institute of Energy Economics

http://www.biee.org/wpcms/wp-content/uploads/2010/OIL_COMPANIES_APPROACH_TO_RENEWABLE_ENERGY_2010_pap.pdf



FROM OUR MEMBERS

NIS j.s.c.

NIS Releases Consolidated Business Results for the First Half of Year 2016

NIS Group releases consolidated results for the first half of year 2016, prepared in accordance with International Financial Reporting Standards.

In the first half of year 2016, NIS has maintained profitability and generated the net profit of 3.1 billion RSD, despite the challenges in business operations, which primarily arise from low prices of crude oil in the global market. The achieved results are even more significant if one takes into account the fact that in the first three months, the net profit amounted to 261 million RSD.

We have recorded success in a majority of operational indicators. The total turnover of petroleum products amounted to 1.552 thousand tonnes, which is an increase of 6 percent compared to last year. Foreign assets turnover increased by 38 percent compared to last year, while at the same time the share in the retail market in Serbia increased by 1 percent and now stands at 43 percent. The total volume of oil refining and semi-finished products is 1,750 thousand tonnes, which means an increase of 16 percent. Oil and gas production stood at 743 thousand equivalent





tonnes, while at the same time hydrocarbon reserves increased by 3.7 percent. In addition, electricity production reached 74,336 MWh, or 27 percent more than in the first half of year 2015.

In the same period, NIS Group's direct and indirect tax liabilities amounted to 76.3 billion RSD, which is 13 percent increase compared to the same period in 2015.

In the first half of this year, in cooperation with renowned international partners, we also continued preparations for the implementation of the Company's strategic investment projects, such as the "Bottom of the Barrel" project in Pancevo Oil Refinery. Also, the activities continued on the preparation of the project of cogeneration plant (TE-TO) Pancevo, which will be implemented in cooperation with "Gasprom energoholding".

Nonetheless, the long-term crisis in the oil sector has left traces on the Company's results for the first half of 2016. EBITDA (earnings before interest, income taxes, depreciation and amortisation) at the year-half totalled in 13.2 billion RSD, which is 37 percent less compared to the same period in year 2015.

As a socially responsible company, NIS has declared 2016 as the year of HSE (Health, Safety, Environment) because the care about the health and safety at work and environmental protection are our absolute priorities. In the first six months of this year significant results were achieved in this field. Thus, the indicator of injuries with lost days (LTIF) declined by 51 percent compared to the first half of last year. The number of traffic accidents from the RAR (Road Accident Rescue) category has been reduced by the same percent.

On the occasion of release of results from the first half of 2016, Kirill Kravchenko, NIS CEO, stated:

"The righteousness of the path on which NIS has embarked itself in the circumstances of global crisis in the oil and gas industry has been once again validated by the good results achieved in the first half of 2016. NIS has found a response to the extended crisis in the oil and gas sector in the continuation of a consistent implementation of programs for increase of operational efficiency in all business areas, whose effect in the first half of 2016 amounted to 4.4 billion RSD. Also, we have not abandoned any key investment projects and, despite the crisis, in the first six months of 2016, the value of our investments is threefold the amount of our net profit i.e. total of 9.1 billion dinars. I would particularly point out that our focus remains on HSE. As in any large international company, we will strive to make HSE policy in NIS the basis of all processes, from the selection of potential partners to critical business decisions. In this manner not only do we care about the environment and employees, but also contribute to better business results of the Company. "

NIS Expands Compressed Natural Gas Retail Network

Compressed natural gas (CNG), considered to be the fuel of the future due to its environmentally-friendly properties, has started selling within the retail network at the NIS Petrol station "Čačak 1" as well.

Two years ago, NIS started selling compressed natural gas through the wholesale system, while the retail was launched in the middle of 2015 with the opening of the first filling station for this energy-generating product at the NIS Petrol station in Novi Sad.

Being the company with the largest petrol station network in Serbia, NIS recognized the advantages of using compressed natural gas. In addition to its wide application in industry, this energy-generating product is also used as an alternative fuel in all types of motor vehicles. It is called the fuel of the future both for its environmentally-friendly properties and for the excellent performance it provides to vehicles. Furthermore, compressed natural gas is also considered to be the most cost-effective conventional fuel for motor vehicles, compared to gasoline, diesel and liquefied petroleum gas, since its use as motor fuel ensures significant financial savings.



NIS is the first large petrol station network in the country to include compressed natural gas in its product range, thus confirming once again its position of the leader in innovations on the market of Serbia and the region. NIS continues to develop this activity further, planning to make this type of energy-generating product available to its customers at around 20 locations throughout Serbia by end of 2020.

Compressed natural gas is natural gas compressed (compacted) to the pressure of 220-250 bar. Its main component is methane, which, compared to other petroleum products, has the lowest CO₂ emission coefficient per unit of energy released.

NIS and Road Traffic Safety Agency Launch "Drive Well Rested" Campaign

NIS and the Road Traffic Safety Agency have launched the campaign "Drive Well Rested" aiming to increase safety of passengers who travel through Serbia during the summer season by motor vehicles.

At more than 60 NIS petrol station located on transit routes, drivers are distributed leaflets informing them of the importance of safe driving in summer conditions, when traffic accidents are most frequent due to long distances and tiredness.

The leaflets contain practical instructions and regulations for safe driving. For the purpose of their own safety and that of their fellow travellers and all other traffic participants, the drivers are advised to start their journey well rested, take a break every two hours and avoid driving at night and during the hottest part of the day.

Given the fact that an increased number of local and foreign passengers travel our roads during summer, the traffic safety leaflet has been made in four languages – Serbian, English, German and Turkish.

The road traffic safety campaign during the summer season is implemented within the framework campaign of NIS and the Road Traffic Safety Agency "We Care for You" which is focused on increasing the safety of all traffic participants. The cooperation is implemented based on the signed protocol, on account of which, among other things, the campaign "Traffic Safety Week" with more than 800 participants was successfully implemented last year.

NIS has presented the Report on Sustainable Development for 2015

NIS has presented the Report on Sustainable Development for 2015, which is in accordance with the standards of Global Reporting Initiative (GRI), world's leading organization in the field of sustainable business. According to these rules, NIS' Report is compliant with G4

Kravchenko, NIS CEO, also by Stephen Fish, a partner in the audit firm Ernst & Young, Irena Sollorano, permanent representative of the United Nations Development Programme in Serbia (UNDP) and Ana Trbović, professor at the Faculty of Economics, Finance and Administration (FEFA) in Belgrade.

The emphasis in the Sustainable Development Report for 2015 is on what NIS achieved in



standards and guidelines for sustainability reporting for Oil & Gas Sector.

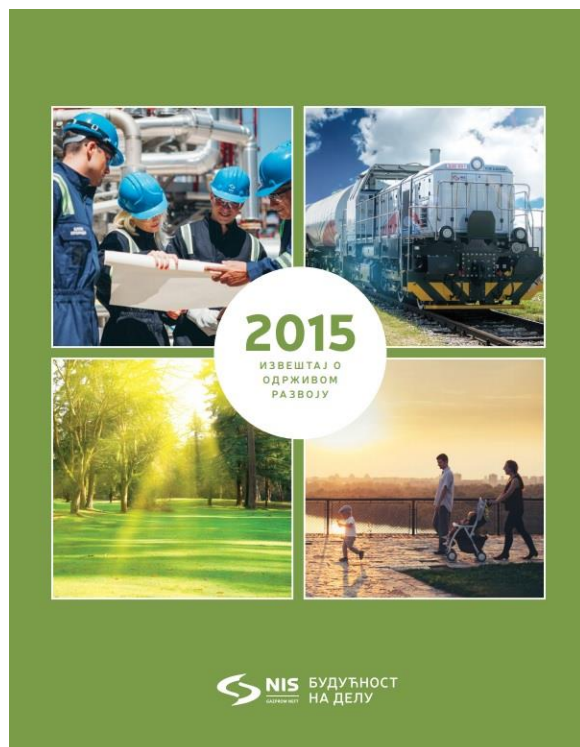
In addition to being the first company in Serbia to publish a verified Sustainable Development Report, NIS continued to improve the transparency of reporting in this area in 2015, so the number of indicators has increased from 69 to 80.

The report was verified by the independent auditing firm Ernst & Young in Serbia and it was traditionally presented at the dialogue of stakeholders, attended, besides Kirill

implementing the HSE policy, i.e. in the area of health and safety at work and environmental protection. NIS has also declared 2016 as the year of HSE at the company, indicating that the issues in this area are an absolute priority in the business.

This is why, after an introductory discussion, a panel was held on the topic of "Year of Safety (HSE) in NIS and Activities in the Field of Employee Safety and Environmental Protection", which was attended by

representatives of NIS, state institutions and the largest companies in Serbia



The Sustainable Development Report of NIS provides information on important aspects of business and achievements, which NIS, as a socially responsible company, achieved in the previous year, and which are aimed at improving life in the community through the realization of economic, cultural and social growth. Dedicated to application of the highest standards in reporting, the basis for the preparation of the report of NIS was again the Materiality Matrix, which represents a comparative overview of the key topics for the business from the perspective of the company and stakeholders.

Kirill Kravchenko, NIS CEO, stressed that sustainable development represents strategic commitment of NIS.

"We are certain that we will progress further and maintain the leading position in the region also in terms of the attitude towards sustainable development which is based on four pillars – economic development, human

resources, responsibility towards the community and environmental protection. The success of the Company is measured by its financial results, but today, it largely depends on transparency of business operations and dialogue with the public, as well. That stresses the importance of the fact that NIS, as a company with over two million shareholders, is maximally open and nurtures dialogue with all interested parties. We will also try to help other partners we cooperate with to get involved into the process of opening themselves towards the society", underlined Kravchenko.

Irena Sollorano, Resident Representative of the United Nations Development Programme in Serbia congratulated NIS on the Report which shows what a large company can do to support not only the society, but also the future of its environment. "What NIS is doing in this field is also a good feeling for business as it demonstrates that it is a company with a long-term vision which is trying to preserve the resources it is using. That demonstrates the Company's stability and it is achieved through the process of consideration and in a sustainable way. As for the UNDP, we cooperate with the private sector around the world, including in Serbia, and we see that more and more companies are following the example of NIS since care for the environment and support and care for your employees is showing a good feeling for business, added Sollorano.

Professor of FEFA Ana Trbović explained that NIS had made a brave decision to present the Sustainable Development Report according to the highest international standards, as this is the way to share the picture of the company's business with the others.

"The report says how NIS is organized, what it plans to invest in, but only in this way, when

you conduct your business operations responsibly, may you expect long-term success," said Trbović.

She stated that only few companies in Serbia invest in the development of personnel education as NIS does, adding that NIS also invests in supplier training, which represents good international practice.

Director of Ernst&Young in Serbia Stephen Fish underscored that only 11 companies in Serbia prepare Sustainable Development Reports, while four apply international standards and international audit, which is, he assessed, a small number.

"Standards are important for the sake of comparing the companies and their competitiveness", stressed Fish, adding that many companies would now take NIS to be their model in terms of reporting.

NIS published its first verified Sustainable Development Report in 2011 and has adhered since then to GRI guidelines, which are generally accepted framework for reporting on economic, environmental and social performance of the organization.

The complete Sustainable Development Report for 2015 of the company NIS can be found on the company's website: www.nis.eu. (More information on standards in corporate reporting can be found at the following Internet address: www.globalreporting.org).

NIS participated at Serbia's National Oil Committee Session

Srđan Bošnjaković, deputy NIS CEO and Strategy and Investments Director, attended an expert workshop session of Serbia's National Oil Committee (SNOC) entitled „Outlooks of oil sector in the energy mix of the future”, taking place on June 16 in Belgrade.



Bošnjaković spoke at the panel "Global Oil Industry Trends between 2030 and 2050: a business view", elaborating the current situation and challenges that would face oil companies in the coming decades. In his speech, he asserted that the forthcoming period will not bring any clarity in the crude oil prices fluctuations on the world market. Having this in mind, he stressed, the oil industry representatives ought to focus on drafting a strategy boosting their companies' flexibility to prepare them to rise to the challenges of the ever changing business environment. Concluding his talk, Bošnjaković pointed out that, in the future oil companies ought to respond swiftly to challenges, by boosting its efficiency, while reducing costs and abandon low profit projects, and be ready to vigorously spring into action and attract additional capacities should the crude prices go up. Other than NIS representatives, this panel was also attended by Mehmet Ogutcu, Chairman of the "Partnership for Global Resources", and Ali Rahneshein of the Iranian petrochemical company BPC. The panel was moderated by Tor Fjaeran, chairman of the Programme Council of the World Oil Committee Vuk Rajović, Specialist for Energy Blocks and Exploitation, Energy, NIS j.s.c., also participated in the activities within the gathering of the NPCCS, presenting the results of the study published in the renowned international magazine "Energy Conversion and



Management". Collaboration between NIS and the Faculty of Technology in Novi Sad brought the results which demonstrate environmental sustainability of co-generation units in oil fields.

In the panel discussion titled "Perspectives of Young Leaders: Best Works", Rajović spoke about the method in which, by constructing co-generation modules, NIS successfully resolves the problem of dissolved petroleum gas which, until now, was burned on the flare and partially used in boiler rooms. It was concluded that, apart from the production of electricity and thermal energy, NIS is trying to ensure, in addition to economic profitability, that the projects are also acceptable in terms of environmental protection.

The workshop of the National Petroleum Committee of Serbia (NNKS) in Belgrade was attended by representatives of the international and regional oil companies and associations. The list of participants included the representatives of the International Energy Agency, the Energy Charter Secretariat and the Energy Community.

The expert workshop was opened by Dr. Joseph Toth, President of the World Petroleum Council and Prof. Dr. Petar Škundrić, President of the NNKS, while the conference participants had an opportunity, within the scope of several panel discussions, to hear the opinions of the renowned world experts on the current and projected global trends in the oil industry, their estimates regarding the sources of energy which will prevail in the energy mix in the future, with the focus on the period between 2030 and 2050, as well as the proposed solutions to the challenges faced by the oil sector.

After the first panel discussion on global energy trends observed from the perspective of the industry and leading international

companies, which was also attended by Srđan Bošnjaković, Director of the Function for Strategy and Investments at NIS, the topic of the institutional perspective of the oil sector was discussed by Kristine Petrosyan from the International Energy Agency, Adrian Jasimi from the Energy Community Secretariat and Dmitry Mordovenko from the consulting firm PwC, while the discussion was moderated by Marat Terterov, Chief Coordinator of the Energy Charter Secretariat from Brussels. The last panel discussion "Perspectives of Young Leaders – Best Works" was dedicated to the presentation of the selected works by young professionals, among whom the representatives of NIS, the University of Novi Sad and the National Institute of Chemistry of Slovenia, and was moderated by the Presidents of the Committee of Youth of Serbia and Hungary.

According to Dr. Goran Radosavljević, General Secretary of NNKS and advisor to the Director of the Function for External and Governmental Relations of NIS, overproduction of oil and the fall in world demand have led to a significant drop in prices, which can have long-term consequences on the oil sector due to the reduced investments. While the issues like climate changes and lack of human capital have become increasingly important in the establishment of the energy mix, there are real indicators that fossil fuels will be gradually losing their market share, even though they will retain their primacy in the distant future. Dr. Radosavljević also emphasized that, just because of these reasons, it is necessary to make a joint effort to improve the response of oil companies to new challenges, where primary importance should be attached to the increased efficiency and greater flexibility, as well as to faster response mechanisms to changes in the environment, which will be

future topics in the focus of the national committees and the global agenda of the World Petroleum Council.

Presentations and official conclusions of the expert workshop are available on the website of [the National Petroleum Committee of Serbia](#).

NIS declared corporate energy superbrand

The NIS Company has been declared a winner "Number 1" in the category „Energy" at a prize awarding ceremony Corporate Superbrands Srbija 2015/2016, which has taken place in Belgrade.

NIS has won the corporate superbrand title for the second time in this category, confirming yet again its power and brand awareness.

On behalf of the company the award was received by Sanja Lubardic, the corporate PR



Director. NIS was included in the publication Corporate Superbrands Srbija 2015/2016, which promotes the most powerful corporate brands in Serbia.

Award in the category „Energy" reflects the realm of the NIS Company business activity and is a symbol of its transformation from an oil and gas producing company into a regional energy holding, which constantly broadens its

business activity. By the same token, this award reflects a strategic objective of the NIS Company to operate pursuant to sustainable development principles. With its support to young talents, science, education, culture, local communities' development, as well as to humanitarian projects, NIS provides the „Energy, which drives towards the better".

It is extremely important that NIS as a leading brand in the category „Energy" was recognised both by the members of the Professional Council and by 1.000 Serbian citizens, who took part in an opinion poll. This award will serve as a great impetus for the company in its quest to reach its strategic objective of becoming a leading regional energy holding and continue investing in the local communities' development, in particular the young, testament to this being the motto of the NIS Company „Future at Work".

This year, around 2.000 companies, organisations and institutions operating in Serbia competed for the prize. They were split into 34 categories by their respective business activities.

Superbrand is a licenced programme activated in 1994 in Great Britain and is world's leading brands promoting platform, active in more than 80 countries. In Serbia, it was organised for the third time, aiming at promoting the most powerful companies, organisations and institutions in Serbia.

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AT WORK**



FROM OUR MEMBERS

ОАО LUKOIL

FINANCIAL SUPPORT FOR THE CONTINUANCE OF DKC RENOVATION

By the end of July, Andreja Mladenović, Deputy Mayor, Andrey Mihailovich Kuku, General Manager of "LUKOIL SRBIJA" AD and Dragan Marić, Director of the Children's Cultural Centre (Dečji Kulturni Centar - DKC), signed the



Contract on Financial Support for the implementation of the DKC Reconstruction Project in *Stari Dvor* Belgrade City Assembly. This cooperation has been a part of the Cooperation Agreement signed with the City of Belgrade for the year 2016. The event was also attended by Goran Vesić, the City Manager.

Mladenović announced that the contract worth ten million dinars was signed, with another one million dinars required for the execution of the second reconstruction phase invested by the City of Belgrade.

– This Contract has been the result of a sound and successful cooperation between the City and LUKOIL Company. The Children's Cultural Centre was founded back in 1952 by the City of Belgrade and ever since, there had been no investments in that facility. This house

manages a number of significant manifestations, one of them being *Radost Evrope* (the "Joy of Europe"). This is a great help coming from the Company that recognized the significance of this institution in which children have been the main focus. So far, we have signed several contracts with "LUKOIL SRBIJA" Company that this year, together with the City of Belgrade, participated in and supported holding of FEST, the Festival of Documentary and Short Films, the exhibition "Naše Blago" (Our Treasure) including the multi-media Project "Negujmo srpski jezik" (Nurturing Serbian Language)" said Mladenović.



He thanked LUKOIL for recognizing the importance of this investment that displayed the "great responsibility and awareness that each dinar invested in culture and education will pay off in many ways". This has set an example to other companies, to get involved in such aid programmes, added Mladenović.

Andrey Mihailovich Kuku said that this meant another step forward in the development of

cooperation between the Company and the City of Belgrade.

– We are very happy to have the opportunity to support the development of Belgrade. This is the beginning and the cooperation will most certainly be continued – asserted Kuku.



Dragan Marić thanked "LUKOIL SRBIJA" and the City of Belgrade on their understanding of the significance of the institution that has seen no reconstruction investments for almost 50 years.

– The funds will be used for the refurbishment of the big hall. Only last year, around 80,000 children from Belgrade and Serbia, including the children coming from all around the world, visited this institution. The reconstruction of the Children's Cultural Centre started last year and its second phase is expected to take place now. The institution has not been closed during the reconstruction works, and we will continue to keep it open this time as well, said Marić.

LUKOIL LOYALTY PROGRAM FOR NATURAL PERSONS

"LUKOIL SRBIJA" AD has prepared as of 6th June 2016 a new benefit for its customers - the loyalty program for natural persons.

Any customer that buys minimum 20 litres of oil products shall immediately receive their LUKOIL card that is money saving and offers rewards. In addition to discounts for fuel and

LPG auto gas of up to 6 dinars per litre, lower prices for products at mini shops, voucher-gifts for the purchase of goods at partner companies at special prices, by collecting the specific number of points in one month, customers will become eligible for new benefits already in the next month.

Each month, in addition to regular benefits that the customers will acquire by collecting points obtained when buying oil products, LPG and consumables at "LUKOIL SRBIJA" AD filling stations, the owners of LUKOIL card will get surprise benefits. Each 100 dinars of purchase will bring 1 point, while the number of points is doubled for buying ESTO products. The discount scale applied to oil products will be based on their spending in the previous month.



The customers may get their LUKOIL cards at all the retail facilities of "LUKOIL SRBIJA" AD throughout Serbia.

Uvek pruža više od sebe.



Do 6 dinara popusta
na premium ECTO gorivo

Štedi·Nagrađuje·Iznenaduje

FROM OUR MEMBERS

JP SRBIJAGAS

LOWER PRICE OF BLUE FUEL BRINGS NEW CONSUMERS

SRBIJAGAS AND GASPROM REVIEW PROSPECTIVE COOPERATION IN THE GAS SECTOR

Once again, the summer period at Srbijagas was marked by a good work atmosphere, rich with many activities and awards. All this is the result of great effort and joint commitment by our entire staff. Some of the good news in the past few months have certainly been praises by the IMF, good reviews of the Fiscal Council and independent auditors, as well as acknowledgements in the form of the Business Partner 2016 Award, and the June Award awarded by Novi Sad's Regional Chamber of Commerce.

June was thus a month of important meetings, among which stands out the one held in St. Petersburg. Namely, a working meeting between Dušan Bajatović, Chief Executive Officer of the Public Enterprise Srbijagas and Alexey Miller, Chairman of the Board of Directors of Gasprom PAO, took place at the International Economic Forum 2016. The parties discussed a wide range of issues relating to the bilateral partnership in the gas industry, focusing on Russian gas supplies and transmission routes to Serbia. In addition, the meeting participants addressed the prospects of cooperation in the NGV and small-scale LNG sectors.



It was also pointed out at the meeting that the Public Enterprise Srbijagas is engaged in gas transportation storage and distribution in Serbia, and that the Banatski Dvor UGS facility plays a key role in securing stable gas deliveries to European consumers.

To recapitulate, in 2013 a long-term contract was concluded for gas supply to Serbia over a period of 10 years, and in 2015 Gazprom supplied Serbia with 1.7 billion cubic metres of gas. On October 28, 2015 Gasprom and Srbijagas signed a Memorandum of Understanding which reflects the parties' interest to consider possible ways of promoting cooperation in the areas of underground gas storage, natural gas vehicles and small-scale LNG, including scientific and technical cooperation. The storage facility has a working gas capacity of 450 million cubic metres, with maximum daily deliverability reaching 5 million cubic metres. Pursuant to the Memorandum, the parties will also address the possibility of expanding the Banatski Dvor UGS facility.

PROGRESS NOTED IN RESTRUCTURING THE PUBLIC ENTERPRISE SRBIJAGAS

Also, in the course of June, the Serbian Minister of Mining and Energy Aleksandar Antić met with an IMF mission headed by James Roaf, as part of the regular review of the current arrangement Serbia has with this financial organisation.



At the said meeting with the IMF mission, progress has been noted in the implementation of the project aimed at restructuring and financially consolidating the Public Enterprise Srbijagas.

SRBIJAGAS INCREASES COLLECTION

Vladimir Vučković, member of the Fiscal Council, said at a press conference held in June at the National Bank of Serbia that he expects the PE Srbijagas' profit for the previous year to be RSD 3 billion, and that this is owing to some favourable circumstances, such as low gas price and better collection.

- We estimate that current collection is approximately 80 percent, which is higher than before, when it was 60 percent, but this would not be enough to secure a profit. It is a fact, however, that collection of old debts has led the company to secure a profit, said Vučković on this occasion.

POSITIVE BUSINESS TREND CONTINUES

In June, at a meeting of the Supervisory Board of the PE Srbijagas, chaired by Prof. Dr. Muamer Redžović, Chairman of the Supervisory Board, attended by the Chief Executive Officer of Srbijagas Dušan Bajatović and its Management team, as well as representatives of the independent auditor responsible for the audit of the financial statements.

On this occasion, members of the Supervisory Board adopted the independent auditor's Report on the performed audit of financial statements of the PE Srbijagas Novi Sad and the Report on performed audit of financial statements by energy sectors for 2015. The auditors had no objections in reference to the legality of work of the PE Srbijagas, i.e. they concluded that the reviewed financial results faithfully and objectively present the financial position and achieved results of the company

ending with December 31, 2015. The Supervisory Board also adopted the company's financial statements, as well as financial statements by energy sectors for 2015. In addition, the Information on operations of the PE Srbijagas in the first quarter of 2016 was reviewed and adopted. In connection with this,

LOWER PRICE OF NATURAL GAS – A PRICE DECLINE OF ABOUT 4%

At the end of May, the PE Srbijagas, Novi Sad, as a public supplier of natural gas, informed all customers eligible for public supply in 2016, whose supplier is PE Srbijagas, that as a result



it was pointed out that in the review period the PE Srbijagas continued its policy of secure and continued supply of natural gas to consumers, and that, in spite of the problems with current liquidity due to difficulties in collection of claims, the company realized a positive financial result and thereby continued the positive business trend set at the end of the previous year. Operating profit of the PE Srbijagas for the first three months of this year was RSD 6.04 billion, and net profit was RSD 4.7 billion.

of quarterly price trends of oil derivatives on the market and exchange rate of the dollar, there will be a drop in prices for public supply starting June 1, 2016 by 4.06% in average. Therefore, the new price of natural gas for public supply, VAT not included, for the group of consumers "small consumption", "small consumption-households" and "small consumption-other" is now RSD 32.28.

A DROP IN THE PRICE OF GAS UNTIL MID-2017

The Chief Executive Officer of the PE Srbijagas Dušan Bajatović stated that the price of gas in Serbia will be dropping until mid-2017 since, according to the "oil formula" the present rise of "black gold" prices on world markets, which may impact the price of gas, had a nine-month delayed effect on our market. In mid-May Bajatović said that the former drop in oil prices is still affecting gas prices.

- As for the price of gas in dollars, it is sure to drop ending with the last quarter of this year and the first quarter of 2017, which is certainly good news. I expect that we will not have such inflationary developments on our market, the value of the dollar to the euro is sure to change, this might affect the price of gas to some extent, however not to an extent that would prevent constant price reduction practically until mid-2017, which means good news for consumers, said Bajatović.

Srbijagas' CEO reminded that expectations of global companies for the three-year period starting with 2015 include an oil price of \$50 a barrel, adding, however, that if these expectations are exceeded, the price of gas would rise proportionally.

- Thereby, at \$50 a barrel, the price of a thousand cubic metres of gas would be \$170. If the price went up to \$60 a barrel, this would increase the price of a thousand cubic metres of gas to \$200, and in the worst case scenario – an oil price of \$70 a barrel would bring about a price of gas of \$230 for a thousand cubic metres, explained Bajatović. Oil prices have, in the meantime, reached a new maximum level for this year as the lag in drilling in the USA and increased processing in Chinese refineries has supported hope that global oversupply will be mitigated sooner than expected.

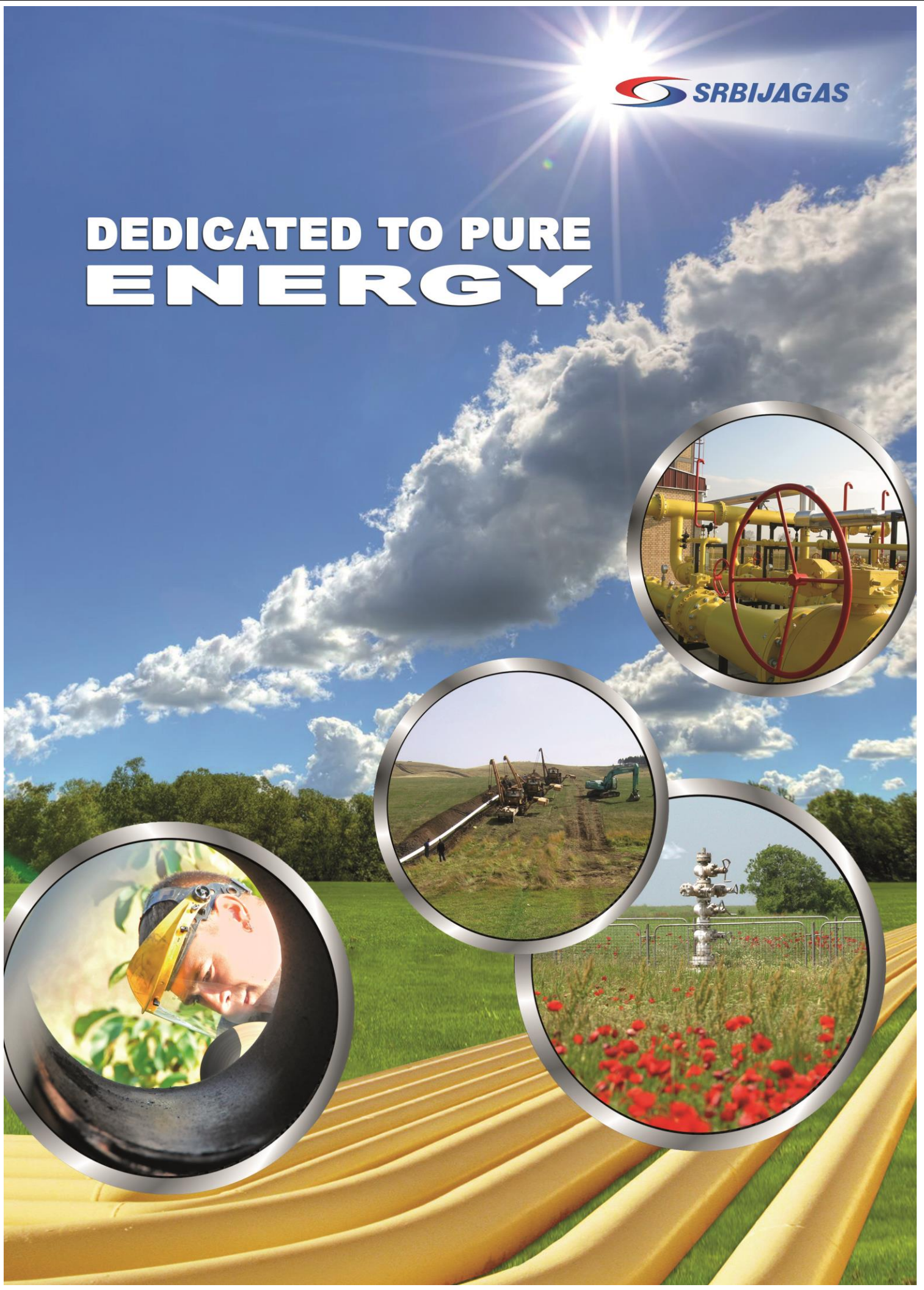
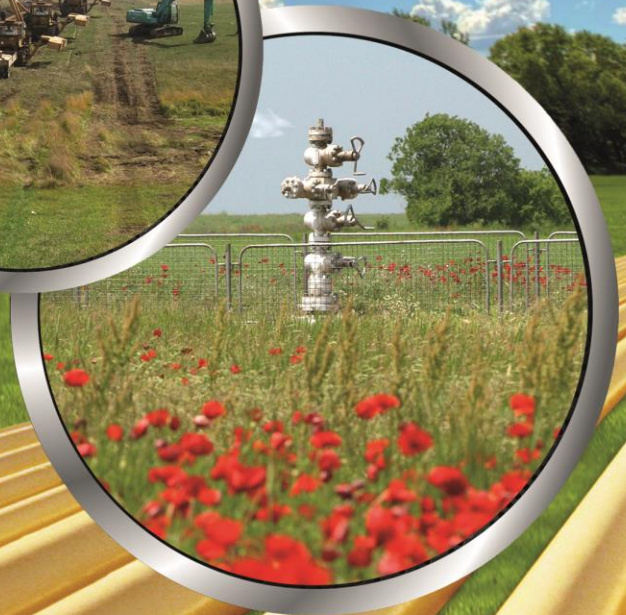
CONVENIENT PRICING INCREASES NUMBER OF "BLUE FUEL" CONSUMERS

With the drop in gas prices in 2016 and 2017, an increase of the number of consumers is a realistic expectation, since a lower price of gas has reflected overall gas sales. As a result, in the first quarter of this year Srbijagas sold 714 million cubic metres, which is 25 million more in comparison to the same period in 2015, said



Srbijagas' CEO Dušan Bajatović. According to him, the number of households connecting to the gas network has increased from 78,000 in 2010, at the time of the start of the new gasification period, to over 97,000 in 2015. This is an increase of over 20%, while the number of legal entities has increased by 34%, namely going from 1,100 to 1,480.

DEDICATED TO PURE ENERGY



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