



THE LEADING INTERNATIONAL GAS EVENT IN SOUTHEAST EUROPE WAS SUCCESSFULLY HELD IN OPATIJA, CROATIA, FROM 8th TO 10th OF MAY, 2019

The 34th International Scientific and Expert Meeting of Gas Professionals with an extensive international exhibition of gas equipment and technologies was successfully held in the Congress Centre of the Grand Hotel Adriatic in Opatija, Croatia, from 8 – 10 May of this year and organized by the Croatian Gas Centre Ltd and the Croatian Gas Association (CGA), member of the International Gas Union (IGU).

Over a period of three days, the largest international gas conference and exhibition in South-Eastern Europe gathered more than 600 participants from 21 European countries, USA and Kuwait. The event was attended by gas and energy professionals, managers from the leading European energy companies, scientists from reputable Croatian and European universities, transportation representatives, equipment suppliers, gas suppliers, gas producers and distributors, as well as representatives of large industrial



gas consumers and producers as well as representatives of gas equipment from countries and abroad. A total of 230 individual gas and energy companies and organizations were represented (of which 90 were foreign) and 50 equipment exhibitors (of which 16 were foreign). The meeting is covered by 15 journalists from 10 media companies.

The major gas event was organized under the high auspices of the president of the Republic of Croatia

Kolinda Grabar Kitarović, the Ministry of Environmental Protection and Energy in the Republic of

Croatia, the Ministry of Economy, Entrepreneurship and Crafts, the Ministry of Construction and Physical Planning also in the Republic of Croatia, and the Croatian Chamber of Economy. Organization of the conference and exhibition was supported by numerous sponsors: INA – Industrija nafte, d.d., Prvo plinarsko društvo d.o.o., Plinacro d.o.o., HEP d.d., Siemens d.d., Gradska plinara Zagreb-Opškrba d.o.o., Međimurje-plin d.o.o., Powernext SA, Monter-strojarske montaže d.d., Industrieservice d.d., IoT Net Adria d.o.o., Konvex gasna i vodo tehnika d.o.o., and Iveco. The co-organisers were Podzemno skladište plina d.o.o. and EVN Croatia plin d.o.o. Opatija Tourist Board also supported the organization of the traditional gas event.

During the three days of the expert meeting, more than 52 scientific and expert papers were presented (of which 3 were invited talks and 8 papers were presented at the poster session) along with 12 round table discussions addressing 10 topical units, and also 3 interesting panel discussions were held.

The Minister of Environmental Protection and Energy, Tomislav Ćorić, PhD, opened the 34th International Scientific and Expert Meeting of Gas Professionals. This year, the new Energy Development Strategy for the Republic of Croatia will be adopted, but it is not a document that will provide jobs and affirm any particular sector, instead by tracking trends in the neighbouring region, it should open prospects based on our advantages and insufficient development of the energy sector. Accordingly, the document does not put doubt on any single energy source that must assume a serious role in the energy future of the country, said the **Minister of Environmental Protection and Energy, Tomislav Ćorić**. He added that those who think that the use of gas is questionable during the period of transition to a low-carbon economy in the next 30-40 years are definitely wrong in their way of thinking. On the contrary, gas and the gas industry in Croatia has definitely a great future and **Ćorić said** he hopes production will increase in Croatia. Namely, he pointed out that Croatia currently imports about 60 percent of its required gas and 40 percent of its electricity, including 80 percent of its petroleum, hence the opportunity exists to change this, and the common goal is for that to happen. He said that the aim is to further increase the security of Croatia's energy supply and increase domestic production as much as possible. That is why he welcomes any research and exploration into energy sources, saying that he is delighted that INA and other companies are heading in that direction. After 35 years of discussions on construction of the LNG terminal on Krk, he also expressed his satisfaction with the commencement of specific implementation of this great energy project.



Work on that project began in April of this year, hence the terminal, as planned, will commence operation on 1 January 2021, said **Barbara Dorić, director of LNG Croatia**. She said that the risk as to whether the terminal will be built at all, has been eliminated, and expects an increase in the leasing of capacities next year. This will also be facilitated by the planned increase in use of LNG in transport, opening up a new market niche in Croatia, she added.

An encouraging fact is that in recent years, the price of LNG has been falling, even though demand has increased, with consumption increasing by 20 percent in the last two years in Europe, said the **President of the Croatian Gas Association, Dalibor Pudić, PhD and assistant professor**. When a larger part of investment in capital works is repaid, the expectation is that the price of LNG will decrease significantly and that the terminal will have a future. He also stated in his talk titled “The Role of Natural Gas in Achieving the Goals of a Low Carbon Strategy” that gas consumption in the world from 2006 to 2016 increased by 23.5 percent, with relatively strong growth expected in the coming decades. The Croatian Gas Association (HSUP) believes that Croatia should head towards a low carbon future, but consideration should also be given to the competitiveness of energy sources, because economic competitiveness also depends on it, said Pudić.

Furthermore, had all thermal stations in that period operated on gas, they would have provided more advantages, he noted, for the environment than all other renewable sources. He also added that it is important to keep in mind that transferring to electricity will be difficult given that its share in the global consumption of energy is only 17 percent, and the proportion attributed to the sun and wind is



only 0.9 percent, which means that the electricity infrastructure is not able to handle more than five times the amount of electricity consumption. He cautioned that seven or eight years ago, domestic sources had almost 2.8 billion cubic meters of gas, today it is 1.1 billion, and that within two or three years, production will fall to 700 million cubic meters. This fall in production has resulted the GDP decreasing by almost 1%. “We must utilize our potential and initiate research after many years

of stagnation”, **Pudić** pointed out, because a quick and competitive transition towards a low carbon future can be met only with gas.

In terms of liberalisation of the market, currently a process of conglomeration of gas companies is occurring. Also getting involved in this process is HEP (state-owned power utility company), hence in the words of the **President of the Management Board, Frane Barbarić**, in April the company acquired in VTC gas from Virovitica and are considering also the possible acquisition of other companies for the distribution and supply of gas. It currently holds about 15 percent of the gas retail market in Croatia, and almost 50 percent of the wholesale market, he added. The future LNG terminal is also important for HEP as a new supply route because as a large consumer of gas in thermal power stations, a competitive and secure gas supply is very important. This is true all the more given their plans to build a new gas block in the Zagreb power station – heating plant where a highly efficient facility will provide fuel efficiency at more than 90 percent, thereby raising the economic feasibility of the investment. The construction of such highly efficient facilities running on natural gas is one of the strategic determinants in the ongoing development of HEP which is directed to low carbon sources, said Barbarić. **Member of the HEP Management Board, Peter Sprčić**, added that they plan to have a similar highly efficient facility in the thermal power station – heating plant in Osijek. HEP spends 500-700 million cubic meters of gas annually in thermal power stations, and they require 1-1.2 billion cubic meters of gas annually, as they are also a supplier on the wholesale market.

Leasing some of the capacity from the future LNG terminal is also something considered by Prvo plinarsko društvo (PPD) and they will surely follow through on it when that new supply route will offer

a competitive price to existing gas pipelines, said **Antonija Glavaš**, member of the management board belonging to the largest gas importer in Croatia. They expect an increase in gas consumption in Croatia, but also emphasise that greater growth importantly requires greater use of the energy source in industry and power stations as well as reducing infrastructural costs.

A Member of Plinacro's Management Board, Darija Krstićević, announced one of the more important and current projects which the company will implement by the end of this year which is completing construction of the 4.2 MW compressor station in Velika Ludina. A total of 209 million kuna has been invested into the project and will enable bidirectional transport of gas using existing gas pipelines between Croatia and Hungary, which has already been made possible this year on the gas pipeline between Croatia and Slovenia. Included in some of their large investments is the 18-kilometer long Omišalj–Zlobin gas pipeline valued at approx. 300 million kuna (more than half of the money was ensured from EU funds), whereby gas from the LNG terminal will be transported to the existing gas pipeline system, and should be completed in November 2020. She also announced the start of construction of the Donji Miholjac–Belišće gas pipeline. The **Director of Podzemno skladište plina (underground gas storage), Ratimir Orešković**, spoke about investments which will improve operation of the existing Okoli underground storage. For the planned peak underground gas storage facility at Grubišno polje, final steps have been taken in drafting the main design and the location permit has been sought. This facility has been included in Croatia's strategic projects, the importance of which will become evident at times of peak consumption, as well as in case of breakdowns or problems with European gas pipelines through which gas is imported into Croatia.

The President of Siemens' Management Board, Medeja Lončar, pointed out the need of adapting the company to new times and new technologies. The company Siemens has come to understand that only by investing in their own development can they survive on the global market, because the energy industry is rapidly changing and is increasingly demanding support from digital technologies. She cited numerous completed projects in Croatia and the world in which the company has successfully participated, and some of which were elaborated on in more detail in a prepared professional paper presentation. Mrs Lončar pointed out that Siemens has for a number of years supported the International Scientific and Expert Meeting of Gas Professionals in Opatija and intends to do so in the future.

The Executive director of INA assigned for research and production of oil and gas, Tvrtko Perković, believes that gas will not only be a transitional energy source in moving towards greater use of renewable energy sources, but will also have great importance in the coming decades. INA is the only gas producer in Croatia that produced 1.1 billion cubic meters last year. The company expects to commence a new investment cycle in searching for new gas deposits after the public tender for the granting of new concessions is completed in June. Last year, the company purchased from its Italian partner ENI its 50 percent in joint deposits in the northern Adriatic region, which increased production in Croatia by 10 percent, and also enabled development of some deposits, given that it has now become economically feasible for them, hence they expect to commence new drillings and exploitation of the gas fields next year in order to further increase production, said Perković. The mentioned acquisition, in his words, has increased INA's gas reserves by ten percent which is estimated to be 8-10 billion cubic meters. Besides production, the company is also involved in the importing and selling of gas, hence they have already leased some of the capacity at the future LNG terminal.

The President of the Governing Council of the Croatian Energy Regulatory Agency, Tomislav Jureković, pointed out that Croatia has ensured gas supplies thanks to its proprietary production, gas pipelines for importing, underground gas storage and an entire system which functions normally. He recommended to experts that they not oppose one another, but instead endeavour to create a symbiosis. He mentioned that the attitude that gas is only a transitional fuel leading towards a low carbon energy industry is somewhat doubtful. This will happen more easily in larger countries, but in

smaller ones like Croatia, it will not be essential. Especially given the fact that they have invested a lot in gas infrastructure, and it should be completed, as well as new market and financial preconditions created in order to show that gas is an energy source on which Croatia can and should rely. Our first challenge is smart decarbonisation at lower costs, emphasised Jureković.

In the talk titled “Geopolitical Influences on the Use of Gas Sources and Availability of Supply Routes”, **Prof. Igor Dekanić, PhD, professor at the Zagreb Faculty of Mining, Geology and Petroleum Engineering**, pointed out that in real circumstances of a free market and international competition in goods and services, the economic winners are countries that adapt their desired goals of low carbon development to low costs of their current energy mix and own competitiveness. This affects the strengthening role of natural gas, the economic and geopolitical importance of which grows on energy markets in the present and future. In speaking about the new strategy in the development of the energy industry in Croatia, he pointed out that its three main goals should be the security and competitiveness of supply as well as sustainable development. However, the strategy should be accompanied by a program for implementation measures, which, unfortunately, did not exist for the first two energy strategies, warned **Dekanić**.

In the talk titled “The Predictability of Gas Prices and Competitiveness of Other Fuels”, **Stevo Kolundžić, PhD, from the Croatian Gas Association (HSUP)** focused on the fact that the mechanism for determining gas prices, still remains linked to petroleum, and with some time delay gas prices follow the trend of oil prices. The number of influential factors on account of which forecasting gas and oil prices will be difficult in the future, has increased in the last decade. After 2020, new sources and destinations of gas will increase. Hence, the expectation is that the USA will endeavour to market its exports of gas to the European market. Tensions among large national powers in global positioning will continue, and it remains uncertain whether in achieving geopolitical goals other means may be utilised, meaning gas and oil. Consequently, forecasting prices will continue to be only a proximate measure, and will not be of much help to business executives who make long-term business decisions, said Kolundžić.

Prof Dr Gerhard Schmitz from the Hamburg University of Technology, Institute for Thermodynamic Engineering, spoke of the resilient energy systems incorporating a large number of renewable energy sources. The presentation showed the results of the research project on modelling transitional energy sources. In terms of the project, financed by the German Ministry of Economy and Energy, a group of modules in the program language Modelica titled “TransiEnt” was developed. Simulations using this group of Modelica modules are used in the new project in order to determine the resilience of an energy system. Emphasis was placed on the role of gas as an energy medium which can be stored. The term “gas” refers to its thermodynamic state. Gas can be natural gas, LPG or hydrogen and biogas in the future. Prof Dr Schmitz also highlighted new opportunities relating to new storage facilities for electricity such as high-temperature storage facilities.

Igor Grozdanić, from the Sector for Energy and Environmental Protection at the Croatian Chamber of Economy, presented a draft of the Croatian integrated energy and climate plan and compared it with the German energy climate plan in the natural gas segment. These plans enable EU countries, and also Croatia, to provide an overview of the current energy system, national goals, policies and measures in the area of energy and climate policies for the period from 2021 to 2030. The plan in terms of five dimensions – decarbonisation, energy efficiency, energy security, internal energy market and research, innovation and competitiveness – provides an overview of national goals and plans. The emphasis is on integrated management of energy and climate policies in order to ensure that all activities related to energy at the EU level contribute to the goals of the Energy Union.

Representatives of large European companies attending the symposium presented new technologies conforming to new, increasingly stricter energy and ecological EU regulations. **Mario**

Opačak from the company Vaillant pointed out that the global energy system is currently undergoing significant changes. That is why his presentation titled “Changes in the Energy Industry and Examples of Adaptation of Production Programs by Equipment Manufacturers” provided examples of adaptation to such new trends. It involves a new generation of Vaillant devices for regulating heat, cooling and ventilation which are found on the market under the name of sensoCONTROL, said Opačak. **Vladimir Turina from the company Viessman** highlighted the economic and ecological advantages of developed gas cogeneration systems offered by the company Viessman and devised for use in commercial and public facilities, providing high performance and adapted to operating processes for safe and effective supply of electricity, heat/cooling and hot water. In addition, special innovations and development of energy efficiency in thermal systems were presented.

At the press conference, in responding to questions from journalists on gas prices for household and the economy in the future, **the President of the Croatian Gas Association, Dalibor Pudić, PhD and assistant professor**, said that market determines prices and that they will be fully liberalised in 2021, and that the issue of energy poverty for consumers who will be unable to pay for gas at market prices should be resolved, as was done for electricity. In his opinion, a mild increase in gas prices on the stock markets will occur and forecasting possible changes to prices in Croatia is difficult given that prices on European markets are continually changed in both directions. When questioned about gas competitiveness, Pudić replied that natural gas for average consumption is about 30 percent cheaper than petroleum derivatives (in the EU somewhat more) and that increasing the use of gas in transport automatically reduces the tariff item for the transport and distribution of gas. If infrastructure is developed, gas in transport has a future, he said.

Speaking about the use of natural gas in transport, **Davor Matić, MSc, from the company Energetska akademija**, said that currently it is mostly used for buses in public city transport in Zagreb, Rijeka and Pula, new filling stations are being constructed, and there are plans to use the fuel in certain other cities like Slavonski Brod. In Rijeka, for instance, about one million cubic meters is used each year in transport, which is five percent of the total annual local consumption of the energy source. Though about a million cars run on natural gas in Italy, based on Pudić’s figures, there are about 300 cars in Croatia and the expectation is that this will quickly increase. But the precondition for that is construction of the necessary infrastructure, foremost filling stations and the introduction of incentives for the use of this eco-friendlier fuel made from petroleum derivatives.

The former Director of the Natural Gas Vehicles Association Europe (NGVA Europe), and one of the founders and former President of the International Association for Natural Gas Vehicles, Dr. Jeffrey M. Seisler, pointed out that governments have a key role in encouraging and preserving the commercialisation of such alternative fuels. Without financial and market incentives, powers and resources for research and development, perhaps only some alternative fuels may acquire adequate credibility on the market and service as a legitimate replacement for petroleum and associated derivatives, warned Seisler. That is way, he added, it has been a welcome for the European commission to become more active in granting various incentives, of a political and financial type, for commercialisation of alternative fuels which will be supplemented, and in certain cases, replace the use of petroleum in transport.

The increasing importance and entry of digitalisation in tracking trends in the gas business was explained by **Bruno Crnički from the company IoT Net Adria**. The digital economy places an emphasises on tracking data as essential, because speed and information provide companies the necessary strength in an increasingly complex market. He believes that only those who provide a simpler and more transparent service will survive, because direct communication with customers is a precondition for survival. He described the setting up of the global Sigfox network and its compatibility at the national level which can successfully meet the needs of the gas sector where emphasis is placed

on the remote reading of gas consumption data. Every “Sigfox national network” provides coverage, scalability, energy efficiency and reliability for all users.

Following a number of delays, after 2021 with the deregulation of gas prices for households, gas as an energy source may become more expensive for this category of consumers – as anticipated by experts gathered at the 34th International Scientific and Expert Meeting of Gas Professionals. **Igor Šadura, director of Gradska plinara Zagreb – Opskrba**, said that prices for natural gas lower than those in Zagreb among EU metropolises for households are only found in Budapest and Bucharest. But following the deregulation of prices for households, it will probably no longer be possible to maintain prices at existing levels, and the competitive battle between suppliers for this category of consumers will intensify, something in which we are leading in Croatia, highlighted Šadura. He also announced that the consolidation of distributors and suppliers will continue, given that larger and more successful companies will acquire other companies. Households paying more expensive gas after the deregulation of prices, naturally if in the meantime the gas prices do not fall on the European market, becomes evident in the additional financial burden which suppliers, who supplied to end users in 2017 more than 300 GWh, will face from 2020 and onwards with the passing of the new Energy Efficiency Act which stipulates obligations for energy savings. That is why suppliers, in the words of **Nenad Hranilović, director of Međimurje-plin**, are asking how to cope with the new financial shock and what measures for improving energy efficiency can they implement to fulfil that specific obligation. That is why all suppliers are intensively preparing for a competitive battle on the market after the deregulation of prices for households.

Ivana Miloloža from Prvo plinarsko društvo (PPD) in Vukovar said that the price structure of gas for end users changes every year. According to the annual report by the Agency for the Cooperation of Energy Regulators (ACER), the proportion of energy costs is decreasing, whereas regulated items such as costs of transport, distribution, excise duties, taxes and other contributions are increasing. The price structure of gas in Croatia follows European trends. Besides the cost of energy, suppliers are also paying the costs of storage, transport, distribution, market organisation, energy balancing, etc., she stated in her talk on gas prices. **Marko Blažević from HEP Trgovina** pointed out that HEP’s role as a supplier on the wholesale market, depending on the Government’s decision, will end on 1 April 2020 or 2021, meaning that HEP is also preparing for liberalisation and deregulation of gas prices for households, and announced that they will be offering consumers joint delivery of electricity and gas along with other services such as telecommunications. He also warned about excessively high fees which may jeopardise suppliers in terms of the Energy Efficiency Act, where such fees are a number of times greater than the price of the goods.

Nenad Švarc from HEP Proizvodnja stated that entrepreneurship and the economy are disadvantaged with respect to households given that they pay for more expensive gas and thermal energy. That is why that part of the market should also be opened up as soon as possible, since numerous negative effects have been created by previous incentives for renewable energy sources, he noted. The entire Croatian gas market was fully opened up on 2008, and all consumers are able to choose their supplier, and all prices are determined by the market, except those regulated for households which accounts for 25 percent of consumption, because those customers want it as a public service, said **Nikola Vištica, member of the Governing Council of the Croatian Energy Regulatory Agency**. To help customers get more information about offers and choices, they intend to prepare an application for comparing gas prices as is already the case for electricity. However, it probably will not rank all of the more complex offers which includes various services, as it is a legally sensitive issue, noted the **President of HERA’s Governing Council, Tomislav Jureković**.

Nikola Vištica also noted that, when possible, it is best to let the market act on its own accord because that is when the quality of companies and energy sources is best displayed. Whenever there is any legislative, methodological or tariff intervention in market mechanisms, an artificial imbalance

occurs which at a certain point in time may be well intentioned, e.g., encouraging the development of renewable energy sources to mitigate climate changes or to encourage greater use of natural gas in transport. On the other hand, if a certain policy direction is lost or it lasts too long, then the effects may be negative, then everything should be left to the workings of market rules. It is a good thing that gas prices, except for VAT, are not further burdened with various taxes and other levies, as is the case with electricity, where there is a fee for incentivising renewable energy sources, a solidarity fee and other burdens, except for excise levies which could lead to freeing up the market, noted **Marko Blažević from HEP Trgovina**.

Damir Škugor from INA noted that they have experienced a decrease in gas production in recent years, hence they are continuing to invest in research, development and production, investing 11.4 billion kuna in the last 10 years. They have also acquired ENI's share in the joint gas production project in the northern Adriatic, which has enabled them to increase reserves by 10 percent, and that the decrease in production in the first quarter of this year was only 1 percent compared to the same period the previous year, despite the fact that the gas fields on land are on average 40 years old, and 18 years old on the Adriatic, hence the logical decrease in production. He warned about the excessively long process of obtaining petroleum and mining permits, where the time from verification of the commercial deposit to commencing production covers a period of five years on average. He announced that INA will continue to participate in the wholesale of gas and supplying gas from large customers to households, once prices for that category of consumer have been regulated.

Given that the announced deregulation of gas prices for households will further encourage market competition among suppliers, **Gradska plinara Zagreb – Opskrba** (Zagreb gas utility company) as the leading supplier in Croatia is preparing for that very situation. Hence, **Ena Ercegović** from that company presented their new online platform for incentivising customers, devised after their web application called "Moj račun" for tracking natural gas consumption, which provides balance alerts and analyses all customer obligations, achieved goods results, with about 70 thousand customers already using the application. That is why they are the first in Croatia who decided to offer a new form of benefits along with basic services in supplying gas, hence the new application GPZO klub serves as a platform which connects about 300 thousand of their customers from the households and businesses category and offer specific benefits. This will allow those purchasing gas from GPZ-Opkrba to receive benefits at various retail places, and the companies involved will receive new users and free-of-charge advertising.

Wouter Koppman from Shell highlighted the potential for importing LNG into Europe through the LNG terminal. In 2019, the global supply of LNG should increase by 35 million tons, and the expectation is that Europe and Asia will receive new increases in supplies without much difficulty. LNG trade increased by 100 million tons in 2000 to 319 million tons in 2018. Given that LNG has played an important role in the global energy system in recent decades, there is an increasing number of countries that have turned towards natural gas to meet their growing energy needs. From 2014 to 2017, LNG customers increasingly sought smaller, shorter and more flexible contracts. What is encouraging for long-term growth of the global LNG market is that the average duration of signed contracts has more than doubled from about 6 years in 2017 to about 13 years in 2018.

The current and future role of the Arab region in meeting Europe's requirements for gas was presented by **Wael Abdel Moati, MSc, from the Organization of Arab Petroleum Exporting Countries (OAPEC)**, from Kuwait, who said that natural gas has contributed to creating long-term economic links between the Arab region and Europe. This connection ensures mutual economic benefit and effective creation of the energy security goal for both partners: security of supply for the stability of entire consumer market and securing demand for investments in producing countries. Even though the expectation is that demand for gas in Europe will increase only slightly, dependency on gas imports will increase due to expected falls in gas production in the Netherlands and in Great Britain, as well as

a decrease in production in Norway compared to the high levels in 2015. This will require greater cooperation between the Arab region and European partners in the future, investments in the export sector of Arab countries in order to encourage production, while at the same time ensuring a more reliable source of gas supplies in Europe in addition to its conventional gas suppliers.

The actual subject on the issue of gas in transport was initiated by **Zoran Dojčinović from the Croatian Gas Association** and **Davor Matić, MSc, from Energetska akademija** who gave a talk titled “Natural Gas as an Essential Motor Fuel in Improving Air Quality” and stated that in many European metropolises, diesel fuel, due to its harmful effect on air, has been declared undesirable, and public city transport has been intensively overhauling towards alternative fuels, especially compressed natural gas due to its excellent operating and ecological parameters. Namely, this fuel compared to diesel, when undergoing combustion creates far lower emissions of nitrogen dioxide and floating particles which are the major cause of bronchitis, allergies, pneumonia as well as heart and circulatory illnesses and lung cancer. However, in Croatia buses on compressed natural gas in public transport operated only in Zagreb and Rijeka, and this year Pula is also expected to get those buses. As long as our cities (despite European experience) continue to procure diesel engine buses, advertising Croatia as a tourist and ecologically clean country is difficult.

Prof Dr Daria Karasalihović Sedlar from the Faculty of Mining, Geology and Petroleum Engineering in Zagreb mentioned that natural gas is considered an acceptable alternative fuel, the use of which in the transition period can relatively quickly best replace conventional fuels in order to reduce their impact on the environment. Gas is easily accessible; pricing is competitive and utilises technologies which are already in wide use in the transport sector. Besides in road transport, it is also increasingly used in maritime and railway transport. The new rules of the International Maritime Organisation, the application of which commences in 2020, prescribes a manifold decrease in the quantity of sulphur in maritime transport fuel, thereby encouraging the use of natural gas which has very low SO_x and NO_x emissions. But increasing the use of this energy source in the transport sector is essential to developing supporting infrastructure for supplying road vehicles and maritime vessels, she said, and questioned whether the government through targeted subventions, such as those for electric vehicles, should encourage the development of natural gas as an alternative fuel.

Zlatko Budrovčan from the company EVN Croatia Plin, which has been investing in expansion of the gas network in three Dalmatian counties for more than ten years, in his talk titled “Constructing the Gas Network in Dalmatia: Support in Preserving the Environment and Health”, stated that current and previous construction of the gas network in the mentioned part of Croatia has shown not only the potential of gas for energy savings and comfort, but also that the energy source is much better for the environment than other fossil fuels. This characteristic makes it a desirable energy source in the region, which is continually directed towards tourism, and on account of the strong increase in electricity consumption, is facing challenges for the electricity grid which is quickly reaching the limits of its endurance. Gas is especially suitable for use in public institutions such as hospitals, children’s nurseries, schools, retirement homes which mostly and continue to use (heavy) fuel oil, an energy source which due to its emissions of harmful gases, has a negative impact on human health, the environment and architectural heritage, warned Budrovčan. He pointed out that in 2018, EVN’s ten largest customers moved to gas as an energy and made savings of 28 million kuna, and over a six-year period reduced CO₂ emissions by 26,401 tons. That is why, over the long term, gas is a natural partner in relieving and strengthening the security of supply in Dalmatia, along with protection of health and the environment, he said.

Mario Jelić from Gradska plinara Zagreb cautioned that the existing Flammable Liquids and Gases Act does not conform to other laws from the legal framework in Croatia, it lacks clear directions for the actions of operators of gas distribution systems and also places them in an unlevel position with respect to distributors of other forms of energy and energy sources. According to the Act, in the event

of an accident on an installation, the operator is required to prove the correctness of his actions after which the actions of other entities including the end customer are to be verified. The uniqueness of the existing Act in relation to the legal frameworks in the country applying the DVGW standards and lack of compliance with other Croatian laws have as its consequence an urgent and immediate need to make changes in order to achieve legal security for the operator in fulfilling his legal obligations, said **Jelić**. Gradska plinara Zagreb has about 520 kilometres of steel gas pipeline in its distribution system, of which most of the larger diameter pipeline is older than 30 years, and the remaining pipeline section with a smaller diameter is more than 40 years old. This longevity of the gas pipeline can be attributed to good quality construction, and above all, good quality maintenance, said **Nikica Dujmović** from the company in his talk titled "Proper Maintenance of Steel Gas Pipelines – A Prerequisite for Long-Term Use".

At the end of the conference, the president of the Croatian Gas Association, Assist. Prof. Dalibor Pudić, PhD thanked all the participants at the conference and exhibition, who through their participation contributed to the success and quality of this traditional and for the gas industry important event. This year in Opatija the event was able to gather even larger number of professionals and maintained a high level of professionalism and quality. **The next jubilee 35th International Scientific and Expert Meeting of Gas Professionals will be held in Opatija, Croatia from 6th to 8th May 2020.**

If you did not attend the 34th Meeting, and are interested in the addressed topics, you can order the Proceedings (hardcopy and online edition) in which all papers and round table presentations presented at the Opatija meeting are published. We kindly request that you send us a request to the e-mail address: opatija@hsup.hr .