



Przemysł i handel naftowy
Oil industry and trade

2019

DEAR READERS,

The Report we are handing over to you today contains a summary of the significant events of the past year for the oil market and current data from this market, derived from POPiHN's monitoring activities.

The growing importance of environmental protection is changing the reality of the fuel sector.

Ursula von der Leyen was elected President of the European Commission after she presented the programme of an ambitious climate policy. The programme assumed, among other things, increasing the reduction of greenhouse gas emissions and moving away from fossil fuels.

The new European Commission proposed a Green Deal – an action plan to make the European Union the first climate-neutral region in the world by 2050. In addition, the European Investment Bank adopted a new energy lending policy, which aims to end the financing of investments related to the burning of fossil fuels from the end of 2021.

Last year, we experienced unprecedented events that might have upset the fuel market. In April, oil supplies from Russia to Central Europe were suspended due to contamination of the raw material with chloride compounds. Despite a month and a half of the pipeline being blocked, Polish refineries ran production thanks to launching reserves and increasing supplies through Naftoport.

Consumers at filling stations were unaware of this crisis. The oil sector passed this challenging test.

The escalation of conflicts in the Middle East, where most oil fields are located, is invariably associated with the risk of fuel price fluctuations on global markets. In September, for the first time in history, a drone attack was carried out in Saudi Arabia on the largest oil refinery in the world. Crude oil prices rocketed for several hours. However, most investors remained calm, and Polish

customers, thanks to the stabilisation on world markets, did not feel the consequences of this event.

Domestic consumption of liquid fuels increased by 4%. This was possible not only because of the continuing relatively good economic situation, but also thanks to further tightening of regulations and inspections carried out by customs and treasury officers. The reduction of the grey economy is most evident in diesel sales, which have increased by over 50% over the last five years. The main beneficiary, in this case, is the state budget. Traders running their businesses honestly have also benefited. The increase in recorded turnover translates into higher revenues for fuel companies, but at the same time revenues from excise duty, VAT and fuel and emission charges are also growing. Altogether, the industry paid over PLN 70 billion, i.e. approx. 20% of all tax revenues to the budget last year. At the same time, the costs of implementing tightening regulations, including the extension of reporting and shortened tax payment periods, are borne by traders.

Particularly noteworthy are the estimates of the record value of the fuel market in Poland, which in 2019 amounted to approximately PLN 150 bn. The value of retail sales at filling stations was estimated at around PLN 130 bn, with an additional PLN 20 bn being allocated to sales outside stations, directly to transport and industrial customers.

The information presented in the Report was prepared by POPiHN experts based on data provided by the Organisation's member companies and cooperating institutions, including the National Revenue Administration.

We wish you an interesting read of the 'Oil Industry and Trade 2019' Report. We would also like to inform you that this year the Polish Organisation of Oil Industry and Trade celebrates its quarter-century anniversary.

Leszek Wiwala

President & Director General



Krzysztof Starzec

Chairman of the Board of Directors



POPIHN MEMBERS



STRUCTURE OF THE ORGANIZATION

GENERAL MEETING

BOARD OF DIRECTORS

Supervisory body appointed by the General Meeting for a three-year term of office. Current term of office is May 2019 – May 2022.

Armen Konrad Artwich	– PKN ORLEN S.A.
Piotr Dziwok	– Shell Polska Sp. z o.o.
Rafał Galli	– TOTAL Polska Sp. z o.o.
Bogdan Kucharski	– BP EUROPA SE, Vice-Chairman of the Board of Directors
Paweł Maślakiewicz	– Grupa LOTOS S.A.
Mateusz Radecki	– PERN S.A.
Tomasz Rybczak	– Slovnafit Polska S.A. – MOL Group
Krzysztof Starzec	– Circle K Polska, Chairman of the Board of Directors
Krzysztof Strzelecki	– AMIC Polska Sp. z o.o.

MANAGEMENT BOARD

CHAIRMAN-DIRECTOR GENERAL – appointed by the Board of Directors for a three-year term of office.

Leszek Wieciech	– to 14 June 2019
Leszek Wiwala	– since 14 June 2019

OFFICE

Krzysztof Romaniuk	– Director of Fuels Market Analysis
Marcin Szponder	– Director for Market Regulation
Joanna Lewandowska	– Office Manager

THE REPORT USES THE FOLLOWING CONVERSION VALUES:

1 barrel of crude oil (1 bbl) = 159 litres
1 ton of crude oil = 7,26 bbl

PRODUCT DENSITIES USED IN MASS TO VOLUME CONVERSIONS IN 1ST QUARTER OF 2019:

Petrol	0,736 Mg/m ³
Diesel	0,831 Mg/m ³
Light fuel oil	0,827 Mg/m ³
LPG	0,559 Mg/m ³

PRODUCT DENSITIES USED IN MASS TO VOLUME CONVERSIONS IN 2ND QUARTER OF 2019:

Petrol	0,736 Mg/m ³
Diesel	0,833 Mg/m ³
Light fuel oil	0,829 Mg/m ³
LPG	0,558 Mg/m ³

PRODUCT DENSITIES USED IN MASS TO VOLUME CONVERSIONS IN 3RD QUARTER OF 2019:

Petrol	0,747 Mg/m ³
Diesel	0,835 Mg/m ³
Light fuel oil	0,829 Mg/m ³
LPG	0,560 Mg/m ³

PRODUCT DENSITIES USED IN MASS TO VOLUME CONVERSIONS IN 4TH QUARTER OF 2019:

Petrol	0,748 Mg/m ³
Diesel	0,833 Mg/m ³
Light fuel oil	0,827 Mg/m ³
LPG	0,560 Mg/m ³

CONTENTS

- | | |
|---|--|
| 66. Main challenges for the fuel sector in Poland – 2019/2020 | 83. Exports of liquid fuels |
| 74. Position of the polish organisation of oil industry and trade on climate policy and energy transition | 84. Domestic consumption of liquid fuels in 2019 |
| 76. Crude oil, alternative fuels and electricity in figures – where we are in the energy transition process | 87. Retail market |
| 78. Processing of crude oil | 94. Demand forecast for the polish market up to 2030 |
| 79. Production of liquid fuels | 97. Motor fuel prices |
| 81. Imports of liquid fuels | 106. Lubricating oils market |
| | 114. The logistics market for crude oil and liquid fuels |
| | 119. Selected issues regarding Responsible Business |



Fot.: ORLEN

MAIN CHALLENGES FOR THE FUEL SECTOR IN POLAND – 2019/2020

1 CLIMATE POLICY

The most important economic topic of 2019 was the presentation by the European Commission of its ambitious plans to accelerate the energy transformation as part of the European Green Deal. This is a package of legislative and non-legislative measures aimed at making the European Union climate-neutral by 2050. This means achieving zero net greenhouse gas emissions. At the current stage of scientific development, attaining this goal is very challenging. Resources dedicated to research and investment in the low carbon economy are aimed at driving technological development.

The European Green Deal is to become a new economic growth strategy for the EU through investment in green technologies, sustainable solutions and business modernisation. The involvement of the public and all stakeholders is crucial to the success of the initiative. The plan submitted by the European Commission is to set the direction of economic changes that meet the principles of social justice. The activities are planned in such a way that no person or region will be left behind in the next three decades. What is more, it is important to note that these changes are to be carried out with respect for the interests of consumers and traders.

Last year, Poland and the EU held a public debate on the disastrous effects of global warming. Giant fires in the Amazon, Russia and Australia led to increased CO₂ emissions into the atmosphere. Moreover, the above events highlighted the need to take urgent action to use more environment-friendly technologies. One of the strategy's key actions is to move from fossil fuels for transport to more sustainable and low-carbon energy sources. The European Green Deal assumes the reduction of emissions in the transport sector by 90% by 2050.

OUR POSITION:

Progressing climate change requires urgent action in all sectors of the economy. The fuel sector is actively engaged in the development of a low-carbon economy. The movement of goods and people has an impact on the environment, but it is also a prerequisite for economic development. All transport involves the emission of greenhouse gases. Climate neutrality does not assume that there will be no emissions, but it imposes an obligation to take measures to offset their environmental impact.

Although in the short term it is difficult to imagine moving away from fossil fuels, in the long term it is necessary to develop and use alternative fuels on a wider scale. It is also important to maintain

technological neutrality so that the regulatory framework does not impose a priori the development of green technologies. Liquid hydrocarbon-based fuels should also be affected. Such fuels will remain an important part of the mobility system in the coming decades, even though the share of alternative energy sources will gradually increase.

The first step towards climate and air quality protection should entail eliminating from Polish roads thousands of vehicles with obsolete engines which do not meet basic environmental requirements. Even though these changes may be introduced quickly and relatively cheaply, they should take the social factor into account. With respect to the poorest people, appropriate mechanisms ought to be introduced to support the replacement of a car with a more ecological model to prevent an increase in the level of traffic exclusion.

2 REGULATIONS RESTRICTING THE GREY ECONOMY

Over the last five years, numerous changes of a restrictive nature have been implemented into the Polish legal system. Their significant part was already introduced in 2016, thus initiating a process of dynamic growth of legal sales of fuels, in particular diesel. Those changes were then continued as part of the introduction of the SENT system in 2017 (Transport package), which aims at monitoring the transport of so-called 'sensitive' goods. Their list, set out in the act and in the regulation of the Ministry of Finance, continues to be extended. In 2019, the Parliament adopted another large group of amendments limiting the operating possibilities of criminal groups.

The so-called Fuel package 2.0 – from 1 September 2019. It included, among others, a change in the definition of engine fuels and extended the scope of the so-called fast VAT (paid within five days) on fuels imported from other EU countries as indicated in the act. The criterion of fuel destination was also abandoned as a prerequisite for the application of the new regulations. After the implementation of the changes, these regulations are to be applied regardless of the purposes for which the fuel will be used. The initiative for the changes mentioned above was taken by the Ministry of Finance, following an analysis of identified cases of irregularities in importing fuels to Poland. In the observed cases, taxation was avoided due to the declared purpose of fuels other than propulsion.

Unification of excise duty rates on lubricating oils and lubricating preparations – from 1 November 2019. For many years, competition in the lubricating oil market was distorted, mainly as a result of different taxation imposed on particular groups of lubricating oils and lack of control over this market. The group of lubricating oils from the CN 2710 position was taxed with an excise tax rate of PLN 1180 per thousand litres, while lubricating preparations from the CN 3403 position were taxed with a zero rate. The demands of the fuel industry, reiterated for years, were fulfilled last year, which is another step towards putting the domestic fuel and lubricants market in order.

THE FIRST STEP TOWARDS CLIMATE AND AIR QUALITY PROTECTION SHOULD ENTAIL ELIMINATING FROM POLISH ROADS THOUSANDS OF VEHICLES WITH OBSOLETE ENGINES WHICH DO NOT MEET BASIC ENVIRONMENTAL REQUIREMENTS.

Obligation to notify planned intra-Community acquisition of excise goods as a condition for the introduction of lubricating oils and lubricating preparations into a tax warehouse under an excise duty suspension arrangement – from 1 November 2019. This regulation was aimed at reducing the grey zone. The preliminary analysis confirmed that this regulation causes excessive difficulties for traders as well as for tax authorities. Contrary to the declared ratio legis, the offices require corrections to be made as part of the preliminary investigation and do not accept that the notification was intended to be an estimate in order to conduct a systemic risk analysis. Notification of the intention to purchase and settle the transport that reached the tax warehouse, as a rule, applies to products simultaneously covered by the SENT system. After just two months of applying these provisions, we could see the need for either legislative changes or a far-reaching change in the approach of the National Revenue Administration as regards the interpretation of these provisions in practice.

The mechanism of mandatory split VAT payment – from 1 November 2019. In general, this instrument was to reduce tax irregularities. In practice, the scope of this obligation was put into question. Analysing the economic practice, it should be concluded that the aforementioned mechanism does not apply to cases of purchases of fuel with pre-paid cards (of the nature of vouchers) or use of international fleet cards by transport companies which are not registered for VAT in Poland. The Ministry of Finance's explanations published in December 2019 did not refer to these situations.

Coverage of heating oil trading by the SENT system – from 1 September 2019. As a result of the introduced changes, the SENT regulation has been extended to include the trade in heating oil; also that carried out without its physical movement. The above-mentioned changes caused that monitoring covered all trade in heating oils, as well as their transport, irrespectively of the quantity and status of the purchasers, i.e. also natural persons not engaged in economic activity. It must be stressed that these changes eliminate the use of paper declarations in favour of electronic document circulation, which was the direction expected by the industry.

Coverage of LPG transport with the SENT system – from 1 December 2019. This solution was introduced at the request of traders, who were provided with a lot of information on the illegal use of heating gas for propulsion purposes. Changes in the law turned out to be extremely necessary. Already in the first month of the new regulations being in force, the National Revenue Administration officials uncovered an organised criminal group which illegally sold LPG officially intended for heating purposes as car fuel.

Despite the successes described above, it is important to highlight that these regulations are extremely complex. With the inclusion of LPG transport in the SENT system, an additional instrument, previously unknown in the context of other 'sensitive' goods, was introduced. Closing the applications to the system, i.e. confirmation of receipt of delivery since 1 February 2020, has been done, among others, by providing data from meters on distributors. Such a solution is extremely problematic in practice. Under the current state of the



Fot.: MOYA

law, manual entry of data creates a high risk of error. Moreover, this additional obligation requires a detailed definition of the obliged parties and confirmation of the powers to represent them.

Electronic delivery note (e-DD). On 1 January 2019, an electronic form of the delivery document was introduced. It concerns documentation of movements outside the excise duty suspension procedure in the territory of the country of excise goods exempt from excise duty due to their intended use and goods indicated in Annex no. 2 to the Excise Act, which are subject to a zero excise duty rate due to their intended use. At the same time, a 12-month suspension period was introduced as regards the application of the requirement. The paper version of the document was maintained. These actions were intended to give more time to the Ministry of Finance and the companies concerned so that they could adapt their IT schemes to the new law. In mid-2019, the fuel sector was informed that the entry into force of the mandatory e-DD would be postponed for another year due to the integration of tax databases with the SENT system. It turned out that, despite the announcements, no appropriate legislative changes were made during the previous parliamentary term.

In the case of aviation and marine fuel supplies, it was not possible to implement the change by the statutory deadline, i.e. 1 January 2020. There was a threat that this would paralyse the aviation market. Thanks to an agreement between the Sejm and the Senat, in the last days of December the time for the mandatory application of e-DD was extended by another 13 months. Even though the regulations were aimed at facilitating economic activity and tightening the system, they were close to causing some serious economic turbulences.

Online fiscal cash registers. The legislation concerning the obligatory use of online fiscal cash registers at filling stations was adopted in 2019, yet it entered into force in 2020. Due to delays in the homologation of new sales recording devices, the implementation of online cash registers at many stations took place only at the end of the year and required considerable external IT support.

AS A RULE, THE FUEL INDUSTRY SUPPORTS LEGISLATIVE SOLUTIONS AIMED AT REDUCING TAX CRIME.

OUR POSITION:

The grey economy in the fuel sector is a highly negative phenomenon which must be counteracted by closing loopholes and profiling tax controls accordingly. However, as always, moderation and proportions must be kept. A large number of parallel draft legislations and frequent use of a fast-track legislative procedure may harm the quality of legislation and the proper understanding of regulations. In many cases, the interpretation of complex rules is a challenge not only for traders and lawyers but also for tax officials.

As a rule, the fuel industry supports legislative solutions aimed at reducing tax crime. However, the number and pace of changes should not be excessive. It is also important to apply appropriate vacatio legis so that taxpayers have a chance to prepare for the changes. The best example of this is e-DD. The fuel sector has been postulating the introduction of this tool for years. The tool is aimed at improving the profiling of controls and supervision of trade in excise goods with a zero rate excise duty or those exempted from excise duty due to their purpose. In order to implement this solution, it is necessary to adopt appropriate technical regulations. Based on the changes in the legal framework, government administrations should adapt the changes in the EMCS2 system. Traders will then be able to integrate the dispatch of the electronic delivery note into their accounting systems, while the entities confirming the receipt of goods should register in the PUESC system (Electronic Services Portal of the Customs Service).

Numerous regulatory tightening changes over the last five years, reinforced by the intensification of controls, have resulted in a huge increase in revenue in the budget. It is important to bear in mind that further successes on a similar scale are unlikely. The majority of subsequent tightening measures are a cost for traders, but the tax effects in some cases are doubtful.

Parliamentarians should continue to work on tightening the system, yet at the same time excessive burdens should be reduced and costs for businesses minimised. The tightening provisions should not overlap with double reporting obligations, as is often the case. Changes aimed at tightening are often carried out without consultation. Moreover, the time limit for analysis and comment is sometimes so short that it does not allow stakeholders to properly assess the impact of the regulation.

Provisions introducing excessive bureaucratic obligations without a visible tightening effect should be amended. One such regulation is the obligation to notify the intention of planned intra-Community acquisition of lubricating oils and lubricating preparations, which today generates the obligation of complicated corrections. This mechanism should be made more flexible. First of all, the Ministry of Finance should curb the misapplication of regulations by tax authorities.

Notification of the planned intention should be accepted by the officials of the National Revenue Administration as an estimation data used for risk analysis. These new obligations should not be confused with the standard settlement of the quantities of excise goods that have to be precisely accounted for under the procedure of suspension of tax collection. If the authorities' erroneous practice cannot be changed, the legislation will have to be amended, and we might perhaps even have to abolish this obligation. As a rule, the settlement of the notification concerns the situation when the goods are entered into a tax warehouse and, in addition, transport between the border and the warehouse is covered by a declaration to SENT. Traders waste their time on fulfilling excessive formal obligations, while criminals do not fulfil any of them.

It is also necessary to develop a uniform interpretation related to defining the parties involved in the transport of LPG and to automate the closing of SENT declarations using data generated from the accounting system rather than written down manually during each delivery. We hope that the efforts of the National Revenue Administration will continue to focus on combating economic crime rather than on detecting minor errors made by filling station employees when copying data from LPG dispenser meters.

3 DEFICIENCIES IN FUEL INFRASTRUCTURE

The dynamic growth of legal fuel sales, linked to the reduction of crime in this sector, has led to serious logistical challenges. Poland's insufficient storage capacity makes it difficult to maintain mandatory stock reserves. It should be emphasised that on 22 February 2019 the Sejm adopted the Act on the preparation and implementation of strategic investments in the oil sector. This is the implementation of a very important postulate of the fuel industry. Thanks to changes in the law, further investments aimed at expanding fuel depots and transmission infrastructure were launched.

OUR POSITION:

Although accelerating the energy transformation means moving away from fossil fuels, the consumption of traditional fuels in Poland is likely to remain high in the next decade. Therefore, it is necessary to continue the development of fuel infrastructure. Such a direction proved justified, for example, during the crisis related to the supply of chloride-contaminated crude oil to Poland last year.

From the perspective of fuel companies, it is also important to implement a new structure of intervention stocks, which assumes a new division of responsibilities between the Material Reserves Agency and traders (60 and 30 days of stocks, respectively).

4 NATIONAL BIOFUELS TARGET AND NATIONAL REDUCTION TARGET

The dynamic growth of legal sales of diesel and petrol is also a challenge within the implementation of the National Biofuels Target (NBT) and the National Reduction Target (NRT). In general, there is a shortage of biofuels on the market, especially those with a high emission reduction factor. Moreover, due to fuel quality regulations, limited production capacity and logistic as well

as infrastructural conditions, it is not possible to achieve the previously assumed targets for the share of biofuels in the liquid fuels market.

The obligations related to NBT and NRT are, to a large extent, met by the same measures. Unfortunately, both targets are not always consistent in the intensity of impact on the directions of development of alternative fuels. In order to support biofuels produced from non-food raw materials, EU law allowed for the possibility of double-counting their energy when accounting for the implementation of the mandatory share of renewable energy in transport. This is a facilitation in the implementation of NBT. At the same time, such a solution reduces the dynamics of the implementation of the compulsory reduction of emissions due to the lack of a multiplier proportional to the one applied in NBT.

Unfortunately, NBT and NRT have a different intensity of impact on the development of alternative fuels. EU law, in order to promote biofuels produced from non-food raw materials, introduced the possibility of double-counting the energy of these fuels when settling the targets for the share of renewable energy in transport. Such a solution is beneficial for NBT implementation. At the same time, it reduces the dynamics of achieving the transport emissions reduction target due to the impossibility of using a similar solution for NBT.

NBT – on 9 August, the President of the Republic of Poland signed the Act amending the Act on Biocomponents and Liquid Biofuels and certain other acts of 19 July 2019, adjusting the levels of NBT to current market opportunities. The new regulations have set reduced levels of NBT until 2024, reduction coefficients levels until 2022, and mandatory blending levels for 2020–2022. This has helped to stabilise the fuel sector and secure fuel supplies in the coming years.

Simultaneously, the same amendment introduced important provisions which enable the use of co-hydrogenation products for the implementation of NBT from 2020. The provisions also enable the inclusion in NBT of biohydrogen contained in liquid fuels, for the production of which biomethane was used. The aforementioned amendment is a response to industry demands submitted to the Ministry of Energy by, among others, POPIHN and traders operating on the liquid fuels market.

NRT – in the case of the obligation to reduce emissions, it should be stressed that last year the European Commission made far-reaching changes in the interpretation of EU regulations. According to the literal wording of the Fuel Quality Directive 2009/30 EC, Member States should oblige fuel suppliers to reduce by 31 December 2020 the emission of greenhouse gases over the entire life cycle per unit of energy obtained from fuels and energy by 6% compared to 2010. The European Commission has recognised that in subsequent years this objective is also to remain unchanged, although this is not directly apparent from the content of the provision. Until recently, the EC website stated that no continuation of this objective is expected. Furthermore, it also said that decarbonisation of transport fuels would be carried out as part of the revision of the Renewable Energy Sources Directive.

In addition, the European Union NRT legislation itself is characterised by a lack of consistency. The dual approach to reporting and reducing greenhouse gas emissions deserves special attention. To achieve the reduction target, greenhouse gas emissions are reported without taking into account the emissions resulting from the indirect

impact of biofuels on land use change. At the same time, for the purposes of reporting on the emissions, higher values are reported, also taking into account the impact on land use change. Therefore, there is no clear message as to whether, if at all, and if so, to what extent, individual biofuels, which are the main tools for achieving NRT, contribute to reducing the carbon footprint.

It should be noted that, of all Member States, only Sweden achieved the above-mentioned target in 2017 by using the instruments (mainly biocarbon) available on their local market. In addition to Sweden, Finland and France are close to reaching the 2020 target.



Fot.: ORLEN



Fot.: PERN

The remaining countries, including Poland, will most likely be forced to purchase emission reduction certificates in the upstream segment (the so-called UER – Upstream Emission Reduction), mostly from outside the European Union. This entails the transfer of a large amount of capital.

OUR POSITION:

The obligations of NBT and NRT are, to a large extent, implemented using the same methods, which aim at increasing the share of RES in transport. They primarily include the need to use biocomponents in liquid fuels and liquid biofuels. In addition to the NBT obligation, the national RES target can be met by using renewable electricity in transport. In the case of NRT, the overall RES share in the energy mix should be included in the reduction balance. The above means that in Poland 'green' electricity will not have a significant impact on the reduction until there is a move away from coal. In other words, even if an electric car is powered only by electricity produced from solar panels, most of the energy used for this purpose cannot be counted towards the emissions. Furthermore, it should be noted that EU rules (RED, FQD and REDII) are inconsistent with each other and should be reviewed in the context of the implementation of the European Green Deal. It is of crucial importance that EU legal norms are predictable and feasible.

From the point of view of the entities obliged to implement NBT, it is necessary to introduce urgent changes to the Act on Fuel Quality, which should facilitate approaching the mandatory level by applying national measures. In particular, changes are needed to make it easier to account for reductions in emissions from the use of LPG for fuel purposes. Furthermore, it is appropriate to modify the nomenclature and penalisation mechanisms of the act. It would be inappropriate to impose an administrative penalty on an obligated entity if they cannot be blamed. Penalties should be applied where the entity could have achieved a reduction in emissions but has not used this opportunity. Other than that, penalties should be replaced by a replacement fee mechanism.

5 LUBRICATING OILS

The introduction of the Energy package and the SENT system has imposed new reporting obligations on companies producing or trading in lubricating oils. This increases the industry's operating costs, but the oil sector has been struggling with the grey market for years. Synthetic oils or the so-called base oil with parameters similar to those of diesel are introduced into Poland under the lubricating oil codes. Such irregularities may be limited primarily through physical inspections and legislative changes. Criminals have also been importing these products under CN 3403 code for years,

thus avoiding the payment of excise duty. The extension of harmonised excise duty rates to cover all lubricating oils, which took place in November 2019, should reduce the scale of these irregularities. Furthermore, following the amendment of the regulation to the Energy Law regarding a detailed list of liquid fuels, from 1 January 2020, the obligation of obtaining an entry in the register of importing entities in the ERO was extended to entities which import lubricating oils from the group of CN 3403 codes. This action will allow to increase the central supervision over this market in order to improve its organisation.

Additionally, as of 1 November 2019, an obligation to report a planned intra-Community acquisition of lubricating oils was introduced. Unfortunately, it has to be considered a bureaucratic instrument which is unlikely to have an impact on the scale of the grey market. Nonetheless, there is no doubt that it generates a lot of work on the part of traders and tax administration.

Another problem of the sector consists in unauthorised retail sales of lubricating oils, imported to Poland from the countries in which they are not subject to excise duty tax. This is a result of a lack of uniform policy of the EU countries and the European Commission in this respect. It distorts the idea of the functioning of EMCS, which becomes relatively easy to circumvent, as well as the functioning of the whole market. Furthermore, it also facilitates the functioning of the grey zone.

For years, we have also been observing the phenomenon of illegal combustion of used lubricating oils. Above all, it has a negative impact on air quality. Additives contained in engine oils cannot be burnt in ordinary furnaces for heating oil as toxic fumes are emitted as a result. Such activities also interfere with the functioning of the recovery system and constitute a breach of excise regulations.

OUR POSITION:

In Poland, irregularities on the lubricating oil market and the waste oil market, which is linked to it, have been occurring for years. This is mainly due to the lack of comprehensive regulations concerning the lubricating industry (including those concerning collection and recycling), as well as insufficient control mechanisms for this part of the economy. The most effective way to reduce irregularities in the lubricating oil sector would be cross-checks with entities importing and consuming lubricating oils. This is possible, among others, thanks to the expansion of the waste database and also thanks to the publicly available register of entities importing liquid fuels (including lubricants). In this respect, cooperation between the Energy Regulatory Office, the Ministry of Finance, marshals of provinces and the Environmental Protection Inspectorate is necessary.

6 ADVERTISING AT FILLING STATIONS IN THE MEANING OF LANDSCAPE RESOLUTIONS

Last year, an increasing number of local governments started to adopt landscape resolutions which may require significant investments in the reconstruction of filling stations. The Act of 2015 delegated the powers to local governments to determine the rules for placing external advertisements on their territory and to set penalties for violating these rules. The purpose

of these regulations was to strengthen landscape protection and spatial order. Some local governments adopted resolutions which raise serious doubts as to compliance with the legal order. In extreme cases, the logo on the station's facade or on a pylon with fuel prices may also be considered as outdoor advertising.

Particular attention should be paid to the legal dispute concerning the landscape resolution of the city of Opole. In May 2019, the Supreme Administrative Court, when examining a complaint against this resolution, stated that one of the provisions of the Act on Planning and Spatial Development might be in breach of the Constitution. The Court held that a situation analogous to expropriation occurs here, but without compensation or financial compensation. A doubtful provision may violate the principle of citizen trust in the state, the protection of rightfully acquired rights, the right of ownership and freedom to conduct business activity, as well as the so-called principle of proportionality. The Supreme Administrative Court sent a question to the Constitutional Tribunal about the compliance of the Act with the Constitution.

OUR POSITION:

Arranging the rules for outdoor advertisements, as an important element of shaping the spatial order, is worthy of support. The application of this tool should be based on respect for acquired rights and should not generate unnecessary costs for traders. The attempts to reduce the height of price pylons are particularly alarming. Price pylons of filling stations must be readable by drivers of vehicles approaching the station and those circulating on public roads. Limiting the height of these pylons, as part of treating them

ARRANGING THE RULES OF PLACING OUTDOOR ADVERTISEMENTS, AS AN IMPORTANT ELEMENT OF SHAPING THE SPATIAL ORDER, IS WORTHY OF SUPPORT.



Fot.: SHELL

as advertising media, may lead to a breach of this obligation. This is a situation of conflict of legal norms, for which under no circumstances should a trader running a petrol station be punished. Moreover, lowering the price pylon by 0.5 m has no impact on the spatial order; it does, however, require large financial and time outlays, including obtaining a new construction permit. Therefore, it would be completely unreasonable, especially as the designers intended to protect from fees the entities advertising their own business activity conducted on their premises by introducing the concept of a 'signboard' into the Act. Too far-reaching landscape resolutions, especially those requiring filling stations to reconstruct their pylons, should be assessed extremely negatively. It should be done not only due to the legitimacy of changes in regulations but, in the first place, from the perspective of effective resource management and environmental protection.

7 ALTERNATIVE FUELS

In the past year, we witnessed the introduction of significant changes at EU level. These changes enforce the development of green technologies in transport. First of all, there was an adoption of the Parliament Regulation (EU) 2019/631 of 17 April 2019, setting CO₂ emission standards for new passenger cars and new light commercial vehicles. Directive 2019/1161 of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles was also adopted. These provisions aim at increasing the importance of clean transport technologies, among others, through stringent carbon dioxide emission standards for cars and vans. At this stage of technological development, these standards cannot be met by an internal combustion engine.

At the same time, further changes announced under the so-called EU 'Green Deal' are to support technologies that have a positive impact on the environment. Alternative fuels, thanks to EU funds as well as the national Low Emissions Transport Fund, may bring Poland closer to achieving the goal of climate neutrality. However, at present, the country is at the start of the energy transformation process; therefore, it is not possible to decide which alternative fuels will be successful. The highest energy density is provided by hydrogen, winning out over solutions based on most advanced batteries. Hydrogen technologies have been known for years, but their use has encountered various economic and legal obstacles. Although Poland is one of the largest producers of this type of gas in the world, paradoxically, only one hydrogen car is registered in the country. What is important is that it is refuelled in Germany, as that is where the nearest hydrogen filling station offering hydrogen for sale is located. In 2019, several companies in Poland simultaneously started the process of direct

preparations towards opening filling stations offering hydrogen and other alternative fuels. However, to be successful in this respect, significant public support is needed, as can be best seen on the Japanese example.

On 30 September 2019, the Minister of Energy signed two executive regulations which were to enable financing several investments from the Low Emissions Transport Fund. The investments comprised, among others, the construction of hydrogen production installations, hydrogen filling stations and even purchase of hydrogen vehicles. On 11 December last year, the call for applications was to be issued. Unfortunately, it was postponed due to tax reasons. The amendment to the tax acts of 20 December 2019 exempted from income taxes the subsidy and the amounts of loans redeemed, which were received from the Low Emissions Transport Fund.

OUR POSITION:

Implementing new technologies on an industrial scale takes a long time. It is also necessary to take into account constraints in terms of infrastructure and to encourage businesses and consumers to use green technologies. Legislative changes and financial support from the public budget are needed to promote the development of the alternative fuel market. Investments in this area are very costly, and payback times are often long or even difficult to predict. Achieving the scale effect is a prerequisite for ensuring profitability. This will be achieved through the proliferation of alternative fuel stations, which should take place concurrently with the increase in the number of vehicles powered by them.

In the coming years, an increase in the importance of alternative fuels may be achieved through greater use of hydrogenated vegetable oils (Hydrogenated Vegetable Oil, HVO), including those produced under the so-called co-hydrogenation process. This is possible thanks to regulatory changes which took place last year. Moreover, we can expect a gradual increase in the use of natural gas (methane). At the current stage of technological development, both its forms (LNG and CNG) can already be used on a mass scale in transport. These fuels have a very important role to play in the transition period. In the long term, hydrogen should have a major role to play since it can be considered a zero-carbon fuel if it is obtained from renewable energy sources. In this case, however, a large amount of funding is still needed for research and development. It should be stressed that hydrogen cell vehicles are actually electric vehicles that use very pure hydrogen (99.999%) as an energy carrier to replace batteries. It should be emphasized that Poland has great possibilities in hydrogen production, which result from the potential of farming (from biomethane). For this purpose, a regional or national infrastructure system is necessary for market development. In a few years' time, biomethane and biohydrogen could be important fuels for the implementation of NBT and NRT, and will help transform the Polish economy towards climate neutrality.

In the long term, it will also be necessary to comprehensively include the development of alternative fuels in the state's fiscal policy. On the one hand, it is about maintaining mechanisms stimulating the development of low-carbon technologies. On the other

LEGISLATIVE CHANGES AND FINANCIAL SUPPORT FROM THE PUBLIC BUDGET ARE NEEDED TO PROMOTE THE DEVELOPMENT OF THE ALTERNATIVE FUEL MARKET.

Fot.: ANWIM



hand, however, it will be necessary to find new sources of financing the budget, which will replace today's high tax revenues from trading in traditional fuels.

8 ELECTROMOBILITY

Last year's amendments to EU legislation on transport emissions standards, as well as the 2018 legislation on the energy performance of buildings are crucial to the development of electromobility.

In the long term, electric-powered vehicles will have a significant share in the transport sector. At this stage, the greatest chances of increasing electromobility are in the passenger car sector, especially in urban traffic. The expected changes in battery efficiency should increase the range of electric cars, which will also translate into increased demand for such vehicles.

The subsidies for electric cars, although announced for the previous year, have been postponed for tax reasons. One other reason was the inventory of aid programmes carried out within the National Fund for Environmental Protection and Water Management. Despite the lack of government support, electromobility is slowly increasing. About 9 thousand electric cars are registered in Poland. They can use public charging points at 1,049 stations, including about 60 traditional filling stations.

OUR POSITION:

Reducing greenhouse gas emissions through the efficient development of electromobility requires a great number of socio-economic changes. In the

first place, considerable investments in renewable energy sources, electricity transmission and storage infrastructure are needed. Furthermore, it is crucial to create mechanisms to support the demand for electric vehicles. Further development of charger infrastructure will make economic sense if consumers want to use these solutions. In the long term, it is also necessary to include fiscal issues in the electromobility policy.

The increase in the importance of electric-powered cars should not take place at the expense of social mobility, energy exclusion or sustainable development of the entire economy. It is important that the support for electric vehicles is optimal, taking into account all environmental, economic and social factors. The more affluent sections of the population must not be allowed to benefit from electromobility while the poorest people have restricted access to cheap electricity. It should be remembered that low electricity prices are an important factor in supporting businesses in various sectors.

The development of electromobility promoted in the European Union should not restrict innovation in alternative fuels. Research on increasing the efficiency of internal combustion engines and CCS technology, which can also make an important contribution to climate neutrality, should continue. Improving the efficiency in the use of liquid fuels can effectively reduce greenhouse gas emissions in heavy transport, aviation and maritime sectors. In these sectors, it would be difficult to use electric propulsion on a massive scale due to technical conditions.

POSITION OF THE POLISH ORGANISATION OF OIL INDUSTRY AND TRADE ON CLIMATE POLICY AND ENERGY TRANSITION

Progressing climate change requires urgent and decisive action in all sectors of the economy, including transport and fuel production.

Businesses associated with the Polish Organisation of Oil Industry and Trade have long been taking action to increase the level of environmental protection in Poland and abroad. Thanks to investments in water and sewage management, gas blocks, low-emission burners, vapour recovery and flue gas cleaning, Polish refineries are among the most modern in Europe. Saving energy, increasing the efficiency of production and transmission infrastructure, as well as investments in renewable energy sources and low-emission fuels are pillars of energy transformation. Oil companies in Poland, as well as around the world, are investing in modern technologies aimed at reducing transport emissions.

The oil industry has a pivotal role to play in reducing greenhouse gas emissions and achieving the objectives of the Paris Agreement and ambitious EU plans.

Most filling stations in Poland are already equipped with dispensers with propane-butane (LPG), which is a cheaper substitute for engine fuels. At the same time, this type of fuel generates reduced greenhouse gas emissions. Thanks to the widespread presence of stations that sell this gas, customers can save on fuel – and this contributes to better air quality.

Poland is one of the biggest markets in Europe where LPG is used as transport fuel.

Work is also being done to spread the use of other gaseous fuels (LNG and CNG), which also have lower emissions than traditional petrol or diesel.

Fuel companies are also investing in fast chargers for electric cars. **To promote electromobility at some fuel stations in Poland, electricity was made available to customers free of charge. Research and development projects in this area are still carried out, and the market expects a surge in the number of electric cars in the coming years.** This will entail increased investment (often supported by EU funds) in new fast-charging points in more and more locations.

Oil companies are also working on improving fuel quality and developing technologies with a lower environmental impact. Modern internal combustion engines that meet the EURO 6 standard already have reduced emissions. Furthermore, the automotive industry, in cooperation with fuel companies, is doing research to further improve engine efficiency and reduce greenhouse gas emissions. Technologies are already available for the use of hydrogen as fuel, new-generation biofuels, as well as synthetic or refuse-derived fuels.

Increasing the scale of use of alternative fuels ought to reduce their production costs, thus making them more competitive for end users.

It is also worth mentioning that carbon capture and storage (CCS) technologies are being developed at the same time, although they are also costly.

Consumer factors must be taken into account in the energy transition. The question arises of how willing EU citizens are to increase their spending in relation to using green technology. Consumers will also need to be supported by a more reasonable use of energy to achieve ambitious climate goals. In this respect, the fuel sector has been conducting a social campaign for years to encourage drivers to drive responsibly and economically (<https://www.savemorethanfuel.eu>).

According to the European Green Deal, the European Union is to become the first climate-neutral region in the world by 2050. This is a very ambitious goal. Moreover, it is both an opportunity and a challenge. A trillion euros is to be allocated to finance this project between 2021 and 2030 alone. Although this is a substantial sum, it is important to be aware that it may not be sufficient to ensure adequate progress towards climate neutrality.

The fuel sector sees the Green Deal proposal as a mechanism that can support the development of low-carbon fuels and accelerate the decarbonisation of transport and the entire economies of EU Member States. In particular, the European Commission must see the need to maintain the security of fuel supply. It also considers it necessary to maintain the competitiveness of EU economy, including avoiding the process of moving high-emission production outside the European Union. Ambitious climate goals are to be achieved with respect to the rights of both traders and consumers.

As usual, the details in the final versions of legal acts will be important, showing the extent to which the declarations of respect for business interests can be implemented in practice.

Above all, it is vital to bear in mind that the climate challenge is a global issue and cannot be solved by changing the European economy alone.

EU Member States are effectively reducing greenhouse gas emissions. Between 1990 and 2018, these emissions fell by 23% and currently stand at around

10% of global emissions. At the same time, third countries have long witnessed significant increases in energy demand, among others, in transport. Fossil fuel consumption in the EU is decreasing, while it is growing in China, India and many other countries. Demand for crude oil will remain on a high level for decades to come due to a growing global population. This is particularly true for developing countries, which have less access to modern low-carbon fuel production technologies. From this perspective, the arrangements of the Conference on Climate Change (COP 26) will be a critical factor influencing global climate policy. The conference is scheduled to take place in Glasgow between 9 and 19 November 2020. Its aim is to raise the climate ambitions of UN member states and to reach an agreement on a global emissions trading system.

In Poland, the EU and around the world, the use of crude oil currently plays a vital role as a factor which enables economic development. Relatively inexpensive fuels and their reliable supply are essential elements of the vision for the future. Liquid hydrocarbons are products with a unique energy density; they are easy and safe to store, transport and use. It seems that in the short term, there is no single technology which, especially in Polish conditions, could replace fuels obtained as a result of processing crude oil. Nevertheless, the share of alternative fuels (including electricity) will gradually increase, mainly in the passenger car sector. It will be much more difficult to replace diesel used in maritime transport, aviation and heavy-duty vehicles.

Technological neutrality is an important factor for the success of the European Green Deal project. The idea is to provide equal treatment for the technologies that can bring the European Union closer to reaching the goal of climate neutrality. No technology should be disapproved of in advance.

Sustainable development also requires a stable legal and political framework. This is an important foundation for building investor confidence. Without funding for green technologies within existing infrastructure, in particular in refineries, it will be difficult to make significant progress in low-carbon fuel production. The current high volatility of EU law in this area hinders the strategic development of the sector. In such conditions, it will be difficult for EU refineries to remain viable.

The environment in which we live is our common good. It should not be about only meeting complex formal requirements within extensive reporting, but about achieving real improvement and reducing the negative impact of human activity on the climate. Changes are needed not only in the European Union but also worldwide. Our common goal should be to protect the environment and the climate so that the Earth is a friendly and clean place to live for many future generations.



Fot.: AMIC

CRUDE OIL, ALTERNATIVE FUELS AND ELECTRICITY IN FIGURES – WHERE WE ARE IN THE ENERGY TRANSITION PROCESS

Despite the measures taken to combat climate change and the growing pressure to reduce greenhouse gas emissions, global oil consumption is increasing along with economic development and demographic growth. In 2019, it exceeded a record level of 100 million barrels per day (mb/d).

Consumption of crude oil in the EU has been falling for a decade. It was around 13 mb/d in 2018 (approximately 13% share of the global market). Consumption in Poland has been growing dynamically for the past five years and currently amounts to about 0.7 mb/d.

According to the latest forecasts of the International Energy Agency (IEA), energy demand will grow by 1% per year until 2040 (in the most probable scenario of the so-called 'established policies'). However, long-term oil consumption forecasts are subject to significant changes. Not long ago, it was assumed that the demand would grow at least until 2040. Now it is estimated that global demand for oil will grow over the next decade, mainly due to economic growth in China and India. It is worth noting that IEA experts expect that in the first quarter of 2020 there will be the first decrease in global oil consumption in more than ten years, by around 0.4 mb/d. The above was caused by the coronavirus epidemic (Covid-19) and the stagnation of the Chinese economy.

Crude oil is a dominant source of primary energy. Its discovered reserves amount to about 1.8 trillion barrels, of which almost half is in the Gulf region.

Exploration for new deposits is continuing, although today it is already clear that people are not able to use this raw material, or at least not to produce transport fuels. In the global structure of final energy consumption,

petroleum products were ranked first in 2017, accounting for 41%. In comparison, the share of electricity in global final energy consumption in 2017 was only 18.9% (with about ¼ of electricity generated from renewable sources). Even in the European Union, crude oil was ranked first in final energy consumption in 2017, with a 37.2% share. The second place was taken by electricity with a share of 22.7% (with about one-third of electricity in the EU generated from renewable sources).

Economic growth is strongly linked to the level of energy consumption. Its production generates greenhouse gas emissions. It is worth noting that even though global emissions are increasing, there are regions where these values are decreasing. According to the BP Statistical Review of World Energy, in 2018, energy consumption worldwide increased by 2.9% and greenhouse gas emissions increased by 2%. According to the European Environment Agency, greenhouse gas emissions fell by 2% in the EU in 2018. Between 1990 and 2018, the decrease was 23%. In 2018, greenhouse gas emissions in the EU represented 10% of global greenhouse gas emissions from human activities, compared to 15% in the USA and 27% in China. After Brexit (the United Kingdom was responsible for 11% of emissions in the EU), the share of EU countries will decrease further.

The EU transport sector is facing increasing energy consumption, although there has been a significant increase in engine efficiency over the last three decades. At the same time, very stringent emission standards were introduced for car manufacturers. As recently as 1990, the sector ranked third in terms of % share of energy consumption in the European Community. A large increase in the number of vehicles and in the intensity of their use has put the transport sector at the top of EU's final energy consumption with a share of 30.8% in 2017. This was followed

by the household sector with 27.2% and the industrial sector with 24.6%.

Despite the development of alternative fuels (including biofuels), as energy consumption in the transport sector in EU has increased, the use of petroleum products grew from 254 million tonnes of oil equivalent (Mtoe) in 1990 to 303 Mtoe in 2017. It should be noted that the transport sector accounts for 28% of greenhouse gas emissions in the European Union. It is therefore lower than the share of final energy consumption. The above shows that the energy transition process in the fuel sector has already started, but there is still much to be done.

The dynamic development of electromobility in the EU is often expressed in terms of the number of electric cars sold, or the number of charging points made available, which does not reflect its real importance. In 2017, electric cars and motorcycles in the EU consumed only about 0.01% of the energy used for road transport. At the same time, biofuels accounted for 4.5% of the energy used for transport.

In Poland, the consumption of fuels from crude oil was 24.1 Mtoe in 2017, which ranked it first in final energy consumption. To compare, electricity consumption was 11.7 Mtoe at that time. The transport sector in Poland consumed 21.4 Mtoe of energy in 2017, which gives a 35% share in final energy consumption. The second place was taken by the household sector (19.9 Mtoe), and the third place was taken by the industrial sector (15.8 Mtoe).

Based on the quantitative data presented by the Energy Regulatory Office for the implementation of the National Reduction Target for 2018, the amount of energy in fuels used in transport in Poland equalled 258 TWh. In this context, it is worth mentioning that in 2019, electricity production in Poland amounted to 159 TWh, with domestic electricity consumption at the level of 169 TWh. This means that domestic electricity production is already insufficient to cover the domestic demand.

The dominant position of oil as a source of final energy shows how important the oil sector is for the global, EU and Polish energy balance.

Furthermore, it also emphasises the size of the challenges on the side of securing sources of final energy supply, when considering possible decarbonisation scenarios and changes in the structure of energy demand/use in transport enforced by climate policy.

In 2018, alternative fuels in Poland (mainly biocomponents and LPG) accounted for over 12% of the energy consumed in transport.

This share will gradually increase as the level of implementation of the National Biofuels Target increases. In 2018, it amounted to 5.59% in terms of energy value. NBT defined by the Act on Biocomponents, and Liquid Biofuels amended in 2019 will gradually increase to 9.1% in 2024. According to the RED II Directive, the share of renewable energy in transport is to reach 14% in 2030. Thanks to the implementation of NBT in the transport sector, not only is the diversification of energy sources increasing, with a growing share of renewable energy, mainly from biomass but also greenhouse gas emissions are being reduced due to the use of biocomponents.

At the same time, it should be noted that not all raw materials used to produce biocomponents contribute

to emission reductions in the same way. According to the binding regulations resulting from the so-called ILUC Directive (Indirect Land Use Change), when accounting for the emissions from biocomponents, it is necessary to take into account the indirect impact of biofuels on land use change. As a result, it turns out that some esters used for fuel purposes generate higher emissions than diesel produced from crude oil.

Stimulating the increase in the share of alternative fuels is also achieved through the obligation to meet the National Reduction Target, according to which the reduction of greenhouse gas emissions in the life cycle of transport fuels is to be 6% in 2020 compared to 2010.

The involvement of the oil sector in the implementation of ambitious EU climate targets is a growing challenge for the development of the oil sector in Poland. Diverse efforts are made to achieve these goals, which include: the progressively costly direct participation in the EU ETS (which relates to emissions trading), an increase in indirect costs related to the consumption of electricity charged to the ETS, the implementation of increasingly ambitious targets for the share of energy from renewable sources in transport, and the implementation of the target for the reduction of greenhouse gas emissions in transport. It is therefore of the utmost importance to take account of market realities when aiming at achieving ambitious climate targets, in particular in the context of open competition with non-EU players, not burdened by the costs of EU climate policy.



Fot.: ORLEN

PROCESSING OF CRUDE OIL

In 2019, Polish refineries increased the processing of crude oil by 1% compared to 2018. Total refining production amounted to 27.2 m. tonnes, which was 300,000 tonnes more than in the previous year. Refineries increased the degree of market supply in response to a higher demand of the growing domestic economy and more fuel purchased by Polish drivers. In 2019, domestic refineries had to cope with the problem of Russian contaminated raw material, which ended up in the Polish pipeline network and storage depots where crude oil was pumped and stored. Thanks to appropriate remedial actions, it was possible to avoid a crisis in the market supply, yet, undoubtedly, disruptions in supply had a negative impact on the economic results of Polish refineries. At the same time, the above disturbances strengthened the process of diversification of oil supplies to Poland and led to a maximum use of maritime transshipment capacities. Once again, it was confirmed that building and expanding Naftoport was a good idea. Average prices of crude oil supplied to Poland were lower by 9%, which favoured achieving good margins in refining and petrochemical production. The results for the two halves of the year were similar, with slightly higher numbers in the second half of the year (first half of the year = 13.5 m. tonnes, second half of the year = 13.7 m. tonnes).

Processing of crude oil by our biggest fuel producer, PKN ORLEN, amounted to 16.5 m. tonnes, and by Grupa LOTOS to 10.7 m. tonnes. In both cases, the utilisation of refining capacities achieved record levels and approached the maximum possible technological capacities.

The east remained the dominant direction for oil supplies to Polish refineries, but there was a greater diversification scale compared to the previous year. The crude oil transports, apart from Russia, mostly came from Saudi

Arabia and Nigeria, with some supplementary supplies from Angola, Norway, Kazakhstan, Great Britain and the United States of America. The share of REBCO crude oil in supply decreased from 76% in 2018 to 67% in 2019. Oil brought from the east remained the dominant type purchased for Polish refineries, and among its advantages over the competitors were long-term contracts, attractive prices, technological adjustment of refineries and utilisation of long-distance pipelines, which are the optimum mode of transportation of crude oil. In 2019, however, contaminated crude oil, which entered Poland through the pipeline network from the east, significantly decreased the level of pumping and forced supplies via the sea route. Crude oil from domestic supplies (Petrobaltic, PGNiG) was also used to supplement the exports, yet the scale of production remained at a low level.

Crude oil other than REBCO in the structure of supplies of PKN ORLEN constituted 42% (20 percentage points more than in 2018), whereas for Grupa LOTOS it was around 19% of supplies (8 percentage points more than in 2018). For both Polish oil companies, overall crude oil other than REBCO constituted 33% of supplies.

The structure of crude oil supplies to domestic refineries is presented in Fig. 2. REBCO crude oil continues to hold a dominant position. Nonetheless, Polish refineries continue to expand their scale of diversification, and sign new contracts for supplies from other directions, using for this purpose the installations of Naftoport in Gdańsk.

In 2019, about 18.4 m. tonnes of REBCO crude oil were brought to Poland (which is about 3 m. tonnes less than in 2018), out of which about 14.7 m. tonnes (i.e. about 3 m. tonnes less) were transported from the east via the pipelines owned by PERN S.A. The remaining oil was brought to Polish refineries via the port facilities in Gdańsk, and in the case of domestic deposits, using rail transport.

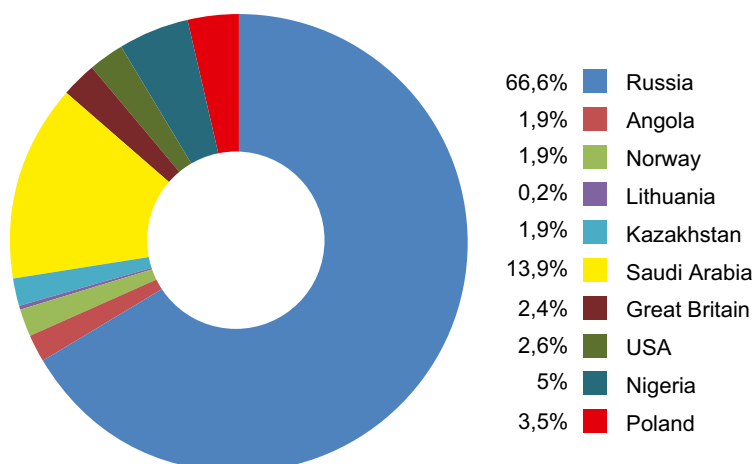
FIG. 1 PROCESSING OF CRUDE OIL – DATA FOR 2018 AND 2019 [in m. tonnes]

Source: POPiHN's own data

Description	2018	2019	Reference 2018=100
OVERALL	26,9	27,2	101

FIG. 2 SHARE OF CRUDE OIL SUPPLIES TO DOMESTIC REFINERIES IN 2019 [%]

Source: POPiHN's own data



67%

**Share of REBCO
crude oil in domestic
supply in 2019**



Fot.: ORLEN

PRODUCTION OF LIQUID FUELS

Liquid fuel production in 2019 (Fig. 3) of petrol (P), diesel (D), liquefied petroleum gas LPG, JET aviation fuel, light fuel oil (LFO) and heavy fuel oil (HFO) amounted to 27.7 m. m³. The increase in the domestic refining production and blending fuels, which in Poland is also treated as production, amounted to 1% compared to the previous year. An increase in market supplies from this source equalled approximately 400,000 m³.

Almost all domestic production of fuel types that are most vital for the economy was allocated internally. The above was possible due to the successful reduction of the grey economy. For the second year in a row, there was a significant increase in the production capacity of those products that in previous years often entered the market illegally.

There was an increase in the production of diesel, petrol, JET aviation fuel and LPG. As expected, there was a decrease in production volumes of two types of fuel oil, despite increases in the processing of crude oil. The above resulted in an increased level of conversion of a barrel of oil into petroleum products of higher commercial value.

The production results recorded in 2019 were in line with trends in demand on the domestic market, with the maximum use of Polish refineries' capacity. In the second half of 2019, the domestic production was 0.2 m. m³ higher than in the first half of the year. The refineries took advantage of the good economic situation for fuels for road and air transport, observed both in the country and in Europe. Products which could not be allocated in Poland were exported. Nonetheless, their volumes were much smaller than in the previous year. In Poland, the demand for heating oils continues to shrink. The above can be accounted for by the absence of winter weather, as well as businesses and private individuals switching to other energy sources.

Significant sections of domestic refinery production of petrol and diesel, aimed at the Polish market, were blended with biofuels in order to reach the National Biofuels Target (NBT). In Poland, fuel blending with the use of biofuels, as well as other additives, is treated as production. Such an approach slightly increases the production pool when compared to the processing of crude oil in refineries alone. The use of biofuels improves

FIG. 3 COMPARISON OF LIQUID FUELS PRODUCTION IN 2018 AND 2019. [in thousand m³]

Source: POPIHN's own data

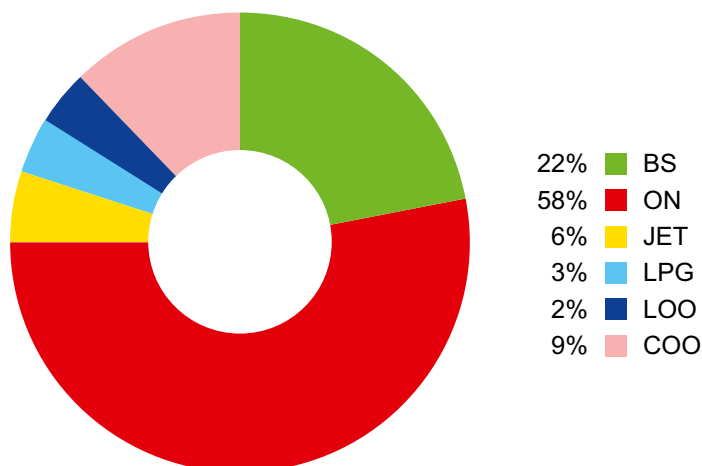
Description	2018	2019	Reference 2018=100
Petrols	6 007	6 196	103
Diesel	15 342	15 972	104
LPG	758	824	109
JET aviation fuel	1 640	1 659	101
Light fuel oil	656	607	93
Heavy fuel oil	2 959	2 473	84
OVERALL	27 362	27 731	101

27,7 m. m³

Liquid fuel production in 2019

FIG. 4 BREAKDOWN OF LIQUID FUELS EXPORTS IN 2019 [%]

Source: POPiHN's own data



the environmental effect of fuel combustion, yet, unfortunately, it has an adverse effect on the economic results of fuel producers since biofuels are significantly more expensive than traditional fuels produced from crude oil. In 2019, the costs of the fulfilment of the NBT grew even more as the biofuels target was raised from 7.5 to 8% by energy value. Additionally, the reduction factor decreased from 0.86 to 0.82, while meeting the adequate purchase requirements.

Production of diesel, which is the main product of national refineries, increased by 0.6 m. m³ (by 4%), and of petrol by 0.2 m. m³ (by 3%). At the same time, there was an increase in the production of JET aviation fuel by 19,000 m³ and liquefied petroleum gas by 66,000 m³. It was another year of increases for all four types of fuel. The production decreased for both types of heating oils. The production of heavy fuel oil decreased by nearly 0.5 m. m³, whereas of light fuel oil by 50,000 m³.

The structure of fuel production in 2019 is presented in Fig. 4.

The structure of production balance was almost identical to the previous year's. The share of diesel grew slightly, namely by two percentage points, while the share of heavy fuel oil decreased, also by two percentage points. In accordance with historical results, diesel was a dominant product in the balance of domestic refineries also in 2019. Its share in the overall production spectrum amounted to 58%. The second place belonged to petrol with a share of 22%, also the same as last year.

As noted above, the production of liquid fuels also includes the process of mixing (blending) standard fuels with biofuels and additives. In 2019, the necessity to meet the requirements of NBT (the National Biofuels Target) act, which companies that produce fuels and import them from abroad were obliged to fulfil, forced adding alcohol and esters to the majority of petrol and diesel introduced into the market. Additionally, in order to meet the requirements of the act mentioned above, it was also necessary to sell a sufficient amount of B100 fuel. Simply adding biofuels to standard fuels was not enough to fulfil NBT. In order to facilitate the fulfilment of NBT, the interested parties were given the opportunity to apply reduction factors on the level of 0.82 of NBT, on the condition of using biofuels originating from the EU and EFTA countries. Preliminary market information shows that POPiHN members achieved the imposed NBT. It is estimated that in 2019 around 370,000 m³ of ethanol and around 1 025,000 m³ of methyl esters were added to fuels. These amounts were higher than in 2018 by around 30,000 m³ for alcohol and by around 65,000 m³ for esters. Direct sales of B100 fuel were estimated at about 300,000 m³, which means that there was a decrease by approximately 40,000 m³ in comparison to the previous year. This type of fuel was practically unavailable in retail trade and quite unpopular in wholesale trade. Its vast majority was sent outside Poland. Such a significant decrease is mostly due to the necessity of settling blending on a quarterly basis.



Fot.: SHELL

IMPORTS OF LIQUID FUELS (sum of actual imports and intra-Community acquisitions) (Fig. 7 and 8).

Last year, domestic refineries used their maximum production capacities. This led to allocating practically the entire stream of primary fuels in the domestic market. The domestic production, however, does not satisfy the market demand for diesel or LPG, hence the necessity of supplementary imports. This task is in the hands of the leading players on the market (refineries and international oil companies operating in Poland) and the so-called independent operators. Currently available data show that in 2019 the total volumes of imports were similar to those from 2018. Almost 10.5 m. m³ of fuel was purchased abroad. When compared to 2018, it was about 235,000 m³ more, i.e. 2%. At the same time, it was the second consecutive year in which less fuel was imported, despite growing internal consumption. Due to efficient activities of control authorities, the majority of products brought into the country were officially reported and registered. Two products recorded an increase: LPG and light fuel oil. In the case of remaining fuels, their import volumes were lower than in the previous year. Diesel has constituted the most significant share in the imports to Poland since 2016. Just as in the previous year, total imports of petrol, diesel, LPG and light fuel oil, carried out by the so-called independent operators (companies other than POPiHN

members), were higher than the imports of the most prominent market players. It is worth noting, however, that POPiHN members imported more diesel and petrol than independent operators. Nonetheless, LPG and light fuel oil imports were entirely carried out by companies other than POPiHN members. In the case of four main fuel types, foreign purchases finalised by the biggest operators on the Polish market were 7% lower in 2019 than in 2018. Simultaneously, the dynamics of foreign purchases by independent operators in the case of this product group increased by 3%.

The decrease in the imports of diesel equalled almost 300,000 m³ in 2019. In the case of petrol, it was 20,000 m³, heavy fuel oil fell by 28,000 m³ and in the case of JET aviation fuel the decline amounted to 11,000 m³. The imports of LPG grew by 119,000 m³, whereas light fuel oil by 7,000 m³. In the case of the latter fuel type, its domestic production was significantly lower, which, despite slightly bigger imports, translates into a further reduction of the demand for this fuel.

The decrease in the officially registered imports of liquid fuels fell by 2% in relation to 2018, yet for six main fuel types, the imports amounted to 30% of overall market supplies.

FIG. 5 BREAKDOWN OF LIQUID FUELS EXPORTS IN 2019 [%]

Source: POPiHN's own data

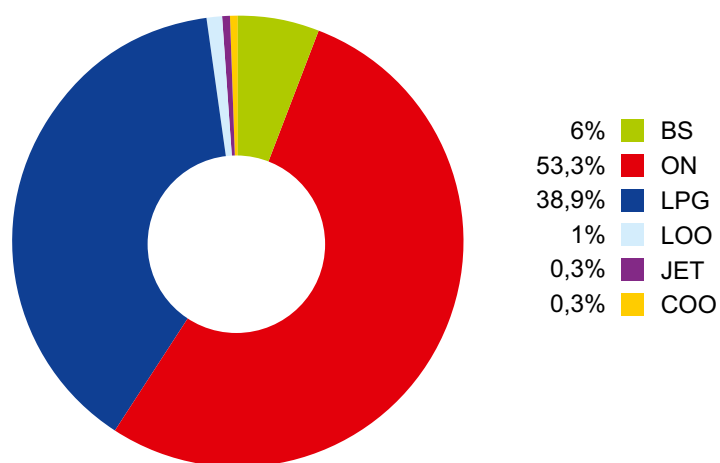


FIG. 6 COMPARISON OF IMPORTS AND ACQUISITIONS OF LIQUID FUELS IN 2018 AND 2019 [in thousand m³]

Source: The Ministry of Finance and POPiHN's own data

Description	2018	2019	Reference 2018=100
Petrols	652	632	97
Diesel	5 898	5 596	95
LPG	3 965	4 084	103
JET aviation fuel	46	35	76
Light fuel oil	103	110	107
Heavy fuel oil	63	35	56
OVERALL	10 727	10 492	98



Fot.: AMIC

FIG. 7 SOURCES OF PETROL IMPORTS [%]

Source: The Ministry of Finance and POPiHN's own data

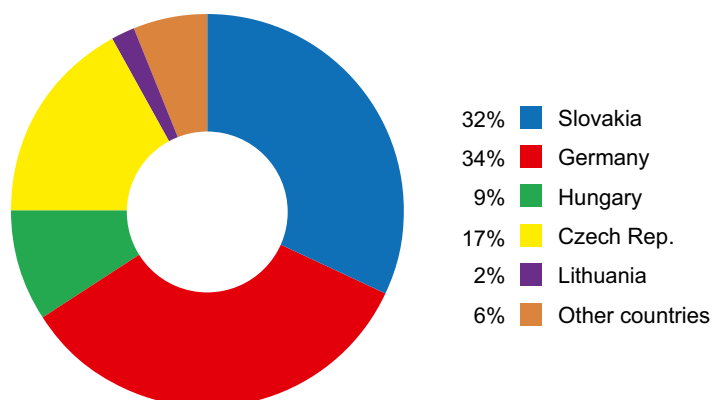
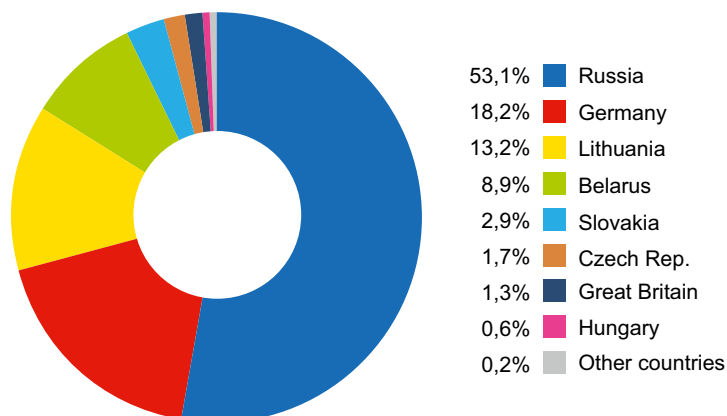


FIG. 8 SOURCES OF DIESEL IMPORTS [%]

Source: The Ministry of Finance and POPiHN's own data



In the structure of supplies from abroad in 2019, the imports of LPG marginally grew in importance (an increase by two percentage points) at the expense of diesel (its share decreased by two percentage points).

While comparing the volumes of four main fuel types (P, D, LPG and LFO), we can see that the independent operators brought 60% more fuels into the country than POPiHN members, i.e. the biggest market operators. The above results were largely influenced by LPG and light fuel oil imports carried out exclusively by independent operators. In the fuel group mentioned above, large oil companies imported around 4 m. m³, which was about 300,000 m³ less than in the previous year. Independent operators increased their purchases abroad by approximately 0.2 m. m³, bringing into the country around 6.5 m. m³ fuel from the product group described.

Import sources of petrol are shown in Fig. 7. The most substantial amounts of fuel for spark-ignition engines were imported to Poland from Germany, Slovakia and the Czech Republic. In the previous year, the directions of supplies were identical. Hungary continued to be a relevant supply source. Imports from other countries were fragmented and constituted only 6% of supplies.

Imports of diesel showed a wider variety of source countries. As in the previous example, the leading suppliers were Russia and Germany. Other important source countries for companies importing fuel for diesel engines included Lithuania, Belarus and Slovakia. Around 62% of the product was imported from beyond Poland's eastern border, i.e. the territory of non-EU countries (which was 14 percentage points more than in the previous year). Altogether, the countries to the east of Poland and EU member states provided around 75% of total diesel imports (four percentage points more than in the previous year).



Fot.: AMIC

EXPORTS (sum of actual exports and intra-Community supplies).

Exports of liquid fuels (Fig. 9 and 10) amounted to 3.0 m. m³ in 2019. The above result was 19% lower than in 2018. It was a comeback of the trend from 2017 and 2018, when we also observed a decrease in export in comparison to the previous years. Thanks to an increase in domestic production, it was possible to allocate more exported fuels into the domestic market, whereas a decreased production of heavy fuel oil translated into fewer volumes sent abroad. Overall, the decrease in foreign deliveries equalled over 730,000 m³, whereas 2018 witnessed an increase at the level of almost 500,000 m³. Moreover, aiming at allocating domestic production internally and decreasing the production of heating oils led to changes in the structure of products sent abroad. Even though almost twice as much diesel was exported as in the previous year, the volume of those deliveries was insignificant in comparison to domestic demand. Less petrol, JET aviation fuel and heavy fuel oil was sent abroad, while heavy fuel oil was, once again, the dominant product among exported liquid fuels.

Successful limitation of fraudulent activities of fuel traders, together with the growing consumption, was reflected in a bigger internal allocation of fuels produced in Poland. It is especially visible in the case of diesel, the export of which has been insignificant for the past three years. Also in 2019, out of all fuel types, the least amount of it was sent abroad. In terms of volume, the biggest decrease in foreign deliveries was recorded for heavy fuel oil, while in terms of percentage, for petrol. The export of LPG, carried out by domestic producers, was not shown, just like in the previous year. Percentage-wise, the exports of diesel increased almost two-fold, while foreign deliveries of petrol decreased by 33%, JET aviation fuel fell by 20% and heavy fuel oil by 18%. Despite witnessing a decline, heavy fuel oil remained the largest export product in the sector. Its share in exports even increased by one percentage point compared to the previous year, while foreign deliveries of petrol and JET aviation fuel witnessed a decrease. The share of petrol fell by two percentage points, yet the share of JET aviation fuel remained unchanged.

The export deliveries of JET aviation fuel shown in Fig. 9 are deliveries directly carried out by domestic producers to recipients outside Poland. Nevertheless, a significant amount of this fuel production goes to domestic intermediaries, which provide airport deliver-

ies to domestic and international carriers. The volume of these deliveries in 2019 amounted to 1.4 m. m³, which was about 100,000 m³ less than in the previous year.

While calculating the market of LPG one should note that the so-called re-export of this fuel type (buying it outside Poland and then sending it outside Poland) in 2019 increased to about 465,000 m³, which means that the volume of this activity decreased by about 64,000 m³ compared to the previous year. Historically the volumes of re-exports were shaped in the following way: in 2014 it was about 280,000 m³, 320,000 m³ in 2015, in 2016 it exceeded 415,000 m³, in 2017 it amounted to 433,000 m³, and in 2018 it exceeded 0.5 m. m³. In 2019, yet again it was below 0.5 m. m³.

The main destinations of exports and intra-Community supplies for petrol in 2019 were Sweden (48%), Great Britain (21%), and Norway (13%). Diesel was delivered only to the Czech Republic, and the volume of the deliveries was insignificant. The most substantial volumes of heavy fuel oil were supplied to the Netherlands (81%) and Great Britain (4%). JET aviation fuel was mostly delivered to Sweden (34%), the Czech Republic (27%) and Denmark (27%).

FIG. 10 BREAKDOWN OF LIQUID FUELS EXPORTS IN 2019 [%]

Source: POPiHN's own data

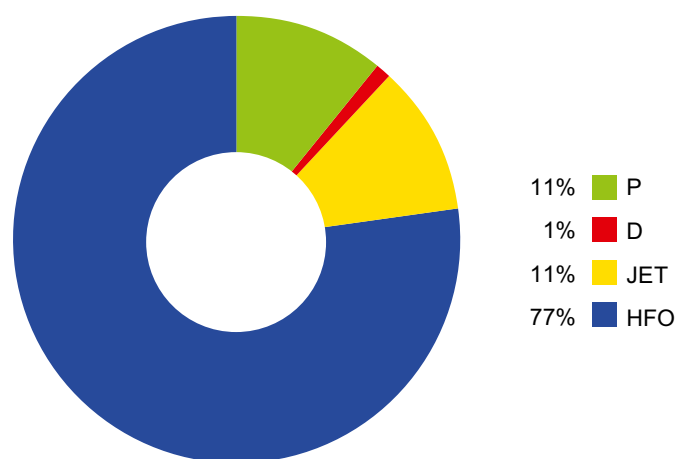


FIG. 9 STRUCTURE OF EXPORTS AND SUPPLIES IN 2018 AND 2019 [in thousands of m³]

Source: POPiHN's own data *) direct exports without re-exporting

Description	2018	2019	Reference 2018=100
Petrols	499	335	67
Diesel	18	34	189
JET aviation fuel	397	319	80
LPG*)	0	0	-
Heavy fuel oil	2 851	2 346	82
OVERALL	3 765	3 034	81

DOMESTIC CONSUMPTION OF LIQUID FUELS IN 2019

Table 11 presents a preliminary comparison of the officially registered domestic consumption of liquid fuels in 2019 compared to the official domestic consumption of liquid fuels in 2018. Final data, taking into account final calculations elaborated by the tax service of the Ministry of Finance on imports, exports and intra-Community purchases and supplies will be available in the second half of 2020. Therefore, the results presented for 2019 should be treated as estimates.

The domestic economy witnessed growth, Polish drivers purchased more cars, and they also travelled more. Fuel prices remained on an acceptable level, while national authorities effectively kept the grey fuel market within limits. The above factors contributed to an increase in the liquid fuel consumption for another year in a row. Increased official demand was recorded for three main transport fuel types: petrol, diesel and autogas. There was also an increase in the demand for JET aviation fuel. However, less light and heavy fuel oil was bought in comparison with the previous year. In the segment of car fuels, the growths in the official consumption of petrol in 2019 were the highest. Yet, in terms of volumes, they were over three times lower than the sales volumes of fuel for diesel engines. The demand for autogas reached a level of 66% of petrol sales. Petrol market grew for the fifth consecutive year.

For all types of motor fuels (petrol, diesel and autogas) the market grew by 4% when compared to 2018, whereas the overall liquid fuel market also increased by 4%. Good sales volumes of petrol resulted from higher incomes of Polish citizens and the continued growing interest in the cars with spark-ignition engines and hybrids, in particular when buying new passenger vehicles and second-hand ones with low mileage. Vehicle fleet expansion, the tightening of the market and the advantageous price relationship between autogas and EU95 resulted in increases in official autogas consumption. Increased purchases of autogas translated into the sales volumes of LPG, which witnessed a 5% growth. Such results were calculated without including the so-called re-export (export of gas previously purchased outside Poland), which last year was 13% lower than in 2018. Increased imports and domestic production, as well as decreased re-export enabled to satisfy increased domestic demand.

Currently available data allow us to conclude that in 2019 there was an increase in official demand on the Polish liquid fuels market. For another year in a row, the biggest 'in plus' changes were witnessed for JET aviation fuel in terms of percentage and for diesel in terms of volume. Domestic demand for liquid fuels was fully satisfied and there were no recorded

FIG. 11 ESTIMATED DOMESTIC LIQUID FUEL CONSUMPTION IN 2019 IN COMPARISON TO THAT OF 2018. [in thousands of m³]

Source: The Ministry of Finance and POPiHN's own data

Description		2018		2019		Reference 2018=100
		in thousand m ³	share in consumption %	in thousand m ³	share in consumption %	
Petrols	Consumption	6 082		6 425		106
	of which total imports	652	11	632	10	97
Diesel	Consumption	20 357		20 952		103
	of which total imports	5 898	29	5 596	27	95
LPG	Consumption	4 853		5 101		105
	of which total imports	3 965	82	4 084	80	103
Total for 3 fuel types	Consumption	31 292		32 478		104
	of which total imports	10 515	34	10 312	32	98
JET aviation fuel	Consumption	1 279		1 358		106
	of which total imports	46	4	35	3	76
Light fuel oil	Consumption	780		732		94
	of which total imports	103	13	110	15	107
Heavy fuel oil	Consumption	200		192		96
	of which total imports	63	32	35	18	56
OVERALL	Consumption	33 551		34 760		104
	of which total imports	10 727	32	10 492	30	98

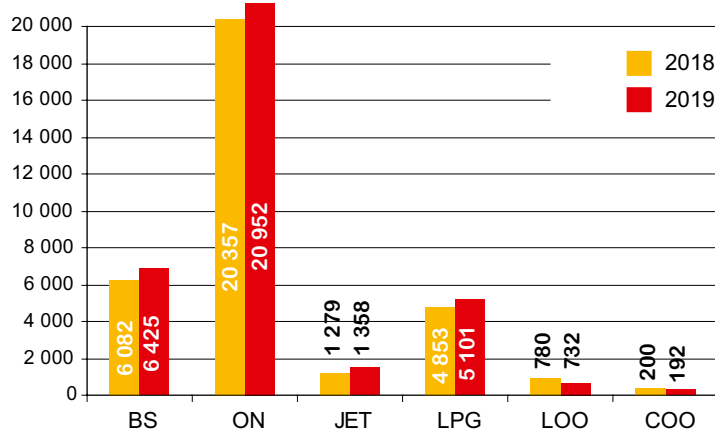
instances of market turbulences, even in a crisis situation when contaminated Russian crude oil entered the pipeline network, and the pumping had to be suspended. The adequate quantity of fuel necessary to supplement the domestic production was imported.

The official consumption of fuels for diesel engines grew by 3% in relation to 2018 and exceeded the level of 20 m. m³. The share of official imports in the diesel market supplies reached the level of 27%, i.e. declined by two percentage points in relation to the previous year. The growth of market supplies carried out by POPiHN members amounted to 5%, which was more than the increase in the overall market. The imports carried out by large companies recorded a decline of 7% compared to 2018 and ultimately, amounted to over 1.5 m. m³ more than the supplementary imports carried out by independent operators. Altogether, 5.6 m. m³ of this fuel type was imported.

Last year was another consecutive year in which the demand for petrol recorded an increase. The interest in purchasing this fuel type grew by 6% in relation to the previous year. In the case of petrol, the affluence of Poles, the level of retail prices and the size of the vehicle fleet are the factors that determine the volume of purchases. In the year in question, the petrol-fuelled fleet grew in size, whereas petrol prices influenced the purchases of Polish drivers only to a limited degree. As a rule, the price relationship between EU95 petrol and autogas affects the proportions of purchase volumes carried out by drivers who own cars with a dual supply system. Although these relationships encouraged the purchases of autogas, last year the demand for petrol

FIG. 12 COMPARISON OF LIQUID FUELS PRODUCTION IN 2018 AND 2019 [in thousands of m³]

Source: POPiHN's own data



rol was higher than for autogas. Polish drivers used 6.4 m. m³ of petrol, out of which 630,000 m³ came from imports. Imports supplied 10% of the total petrol market share, i.e. one percentage point less than in 2018.

The consumption of LPG, calculated according to the POPiHN's methodology, increased by 5% compared to the previous year. The price ratio: autogas – EU95 petrol remained at the level which encouraged drivers to purchase autogas (it is assumed that when the price of autogas is lower than 60% of EU95 petrol



Fot.: BP

price, price-wise it is better to use autogas in cars with a dual supply system). Despite the above, the petrol market recorded higher growths than the autogas market. Estimated results for the whole year show LPG consumption at a level of 5.1 m. m³. The volume of re-exported LPG amounted to 460,000 m³, i.e. about 70,000 m³ less than in 2018. About 80% of the domestic market (82% in the previous year) was supplied with fuel from abroad, and its volume amounted to 4.1 m. m³. The structure of fuel consumption in Poland is illustrated in Fig. 13.

The demand for light fuel oil continued to shrink for another year in a row.

This time, the market needed only 730,000 m³ of this type of fuel, i.e. about 50,000 m³ less than the year before. It was the seventh consecutive year in which the domestic demand for this product was estimated at a level below 1 m. m³, and it is estimated that it will continue to shrink. Most of the demand for this fuel type (85%, i.e. two percentage points more than the year before) was met by supplies from domestic production. Official supplementary imports in 2019 increased by approximately 7,000 m³ and amounted to 110,000 m³.

The domestic market for JET aviation fuel continues to develop, and in 2019 it reached the level of 1.4 m. m³. Its growth was estimated at 80,000 m³ in comparison to the previous year. Increased market

growth was achieved mainly with the use of domestic production, whereas marginal imports of this fuel type equalled 35,000 m³, which constituted only 3% of the demand.

Domestic consumption of heavy fuel oil shrank. The demand decreased by 44%, which confirmed the domestic demand threshold at a level below 200,000 m³. This type of fuel is produced in Polish refineries in quantities significantly exceeding the domestic demand and, therefore, the surplus has been sent abroad in large quantities for many years.

Total official domestic consumption of the six types of liquid fuels amounted to almost 35 m. m³ and was higher by 1.2 m. m³ than in 2018. The increase of the market amounted to 4%, within which the imports fell by 2%, with a share in the total market estimated at 30% (i.e. two percentage points less than in the previous year). The official imports of fuels supplied to the Polish market amounted to 10.5 m. m³, which was slightly over 0.2 m. m³ less than in the previous year.

The broadly understood dominance of fuel imports over exports was over threefold in 2019. A 2% decrease in imports and a 19% decrease in exports reduced the difference in comparison to the previous year. The volume of imports is mostly influenced by diesel and LPG, whereas the balance of exports continues to be dominated by foreign shipment of heavy fuel oil. If the Polish economy continues to grow in the coming years, and such are the forecasts, and if the fleet of vehicles circulating on Polish roads continues to grow at the rate witnessed in recent years, we might assume that current proportions between imports and exports will increase to the benefit of imports. This is likely to happen because the installations of Grupa LOTOS are starting, which will increase crude processing capacities, thus resulting in less heavy fuel oil being produced. Polish refineries are already operating at full capacity and the prospects for increasing production, apart from EFRA's investment in Grupa LOTOS and PKN ORLEN's plans to improve installation capacity in the coming years, are minimal in the near future. A growing market will have to be supplied with growing imports. However, even an effective increase in the number of electric cars using Polish roads in the next decade is unlikely to change this. International trading balance for the Polish fuel sector will continue to be shaped mainly by diesel and LPG imports. Nonetheless, it may soon be necessary to import petrol as well.

FIG. 13 BREAKDOWN OF LIQUID FUELS EXPORTS IN 2019 [%]

Source: POPiHN's own data

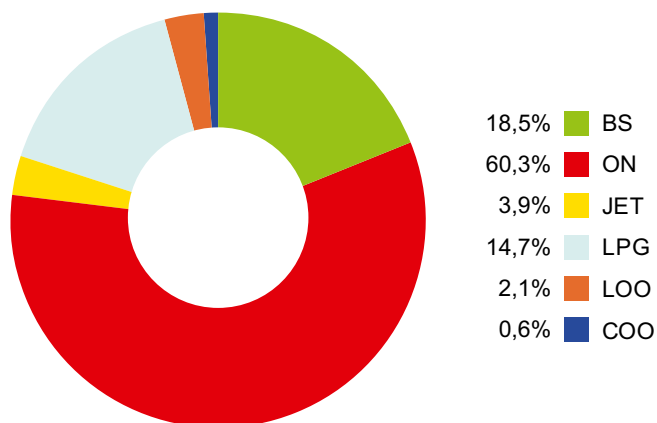


FIG. 14 BALANCE OF INTERNATIONAL TRADE IN LIQUID FUELS IN 2019 [in thousands of m³]

Source: the Ministry of Finance and POPiHN's own data

*) – trade of domestic producers

Description	Imports + Purchases	Exports + Supplies	Difference (2-3)
1	2	3	4
Petrols	632	335	297
Diesel	5 596	34	5 562
LPG	4 084	0*)	4 084
JET aviation fuel	35	319*)	(-284)
Light fuel oil	110	0	110
Heavy fuel oil	35	2 346	(-2 311)
OVERALL	10 492	3 034	7 458

RETAIL MARKET

The filling stations market in Poland in 2019 was analysed based on reliable and official data obtained from POPiHN members, with the help of the continuously updated Energy Regulatory Office's database of the country's fuel infrastructure, as well as publicly available media reports. Based on the Organisation's estimates, at the end of 2019 the network of filling stations, which consists of publicly available sites selling petrol and diesel, comprised 7,628 outlets. Compared to the POPiHN's estimates from the end of 2018, the market shrank by 137 stations. The decrease in the number of stations can be explained by increasingly accurate analyses of the market, which are adjusted to new realities by modifying the structure of the filling stations' network.

The market kept adapting to clients' requirements, yet it also reflected the transformations resulting from new investments or changes to the station's brand image. The acquisitions were mainly carried out in the segment of non-attached stations, and they were mostly performed by the largest domestic networks, also ones not attached to oil companies. The stations themselves were moving towards the model of a convenience store, i.e. a shopping and service centre where we can fill up, but also do basic shopping, rest during our journey, perform financial services, have something to eat or carry out basic car maintenance services.

The division of the market into the Organisation's members and the remaining operators, once ANWIM S.A. joined POPiHN, assumed the following proportions: 53% to 47%. Using a different approach, we can say that in the overall number of stations, 30% belonged to domestic companies, while 20% to international entities. Thus, almost 50% of the market belonged to the remaining operators, i.e. private owners of stations and hypermarkets. The latter owned almost 3% of the filling stations market, while the group referred to as independent owners' networks (more than ten stations functioning under one brand) accounted for almost 15% of the balance. The process of acquiring independent stations by operators with a greater potential continued to take place. Such acquisitions mostly consisted in switching to corporate logos of the franchisor: a large company or another private operator. Despite an ongoing consolidation of the market, quite a large group of operators, with good locations for their stations, continued to run their businesses by themselves. It is also worth mentioning that last year



Fot.: SLOVNAFT

the LUKOIL logo disappeared from the Polish market and its place was taken by AMIC, compatible with the station owner's brand.

PKN ORLEN remained the filling station market leader in Poland in 2019. The BP network continued to be in the number two position, whereas, for yet another year in a row, Grupa LOTOS occupied the third place. National oil companies continued to operate under four brands: ORLEN and BLISKA in the case of PKN ORLEN and LOTOS and LOTOS OPTIMA in the case of Grupa LOTOS. The number of stations under the green logo of PKN decreased again and closed the year with 36 outlets. The number of economic stations of Grupa LOTOS decreased by three. The measures aimed at harmonising the colours and offering a uniform standard of service at all filling stations continued to develop. There was a growth in the segment of stations under international companies' logos, mainly due to the acquisitions performed by BP. The number of such stations amounted to 1,543. Looking at the segment of independent stations, MOYA, whose owner, ANWIM S.A., joined POPiHN in mid-2019, witnessed the best dynamics in terms of network development. Other private networks, such as Grupa Pieprzyk or AVIA, also continued to develop well. Franchising agreements, as in previous years, continued to be the main and most effective way

FIG. 15 NUMBER OF STATIONS OF RETAIL OPERATORS IN 2017–2019 [in thousands of m³]

Source: POPiHN's own data

	2017 31.12.2017	2018 31.12.2018	2019 31.12.2019
Filling stations network			
Domestic Companies	2 269	2 282	2 306
Foreign Companies	1 487	1 512	1 543
Independent Chains (operating under a common brand)	932	1 071	1 116
Other Independent Operators (approx.)	1 768	2 708	2 467
Shops	187	192	196
TOTAL (approx.)	6 643	7 765	7 628

7 628

Number of retail stations in 2019

of acquiring new outlets, thus expanding the network. Outlets were also built from scratch, mostly within the networks of oil companies, yet some sites were also built by commercial chains and, occasionally, by independent operators.

The value of the retail market for fuel sales in Poland in 2019 was estimated at about 132 bn PLN, whereas its volume at 28 bn litres of fuels (petrol, diesel and autogas). State budget revenue from the taxation (VAT, excise duty, fuel surcharge) of retail sales of fuels amounted to around 65 bn PLN.

Thanks to new outlets and acquisitions the overall number of stations under the logos of national oil companies increased by 24, as the unprofitable stations were excluded from the network, whereas patronage agreements of some outlets expired and were not renewed. Several older stations were upgraded and adjusted to new standards of service. AMIC Polska finalised the process of rebranding the logos of its network, which until recently had been operating under the LUKOIL logo, at the same time gaining two new outlets. BP strengthened its position on the Polish market by acquiring the Arge network.

Poles willingly use motorways and express roads. There were 83 filling stations located on motorways in 2019. That means only one new station was opened last year. It belongs to Grupa LOTOS. PKN ORLEN, with

35 filling stations of this type, continues to be the leader in this category. Grupa LOTOS manages 21 sites, whereas BP has 16 of them. Lastly, Shell owns nine filling stations, whereas CircleK two. A growing network of motorways and expressways is changing the geography of purchasing fuels by drivers. Even though fuel offered at this type of filling stations usually tends to be much more expensive, drivers do use them as they do not want to waste their time looking for other outlets somewhere close to main roads. Therefore, filling stations, which until recently were natural facilities along these roads, are losing customers. Due to this shift in traffic, a similar situation applies to stations located along roads which are alternative to express roads.

PKN ORLEN increased the number of its filling stations network by 13 in 2019, ending the year with 1,800. The company is systematically reducing the number of stations operating under the BLISKA logo: compared to the previous year, in 2019 it was reduced by 18, amounting to 36 stations owned at the end of the year. Outlets until recently functioning under the green logo of ORLEN are currently operating under the main logo of the oil company.

Grupa LOTOS closed the year with 506 filling stations, i.e. 11 outlets more than in the previous year. As many as 194 stations operated under the logo of LOTOS OPTIMA, i.e. three less than in the previous year. Just like in PKN ORLEN, some outlets changed their logo to LOTOS.

Increasingly more filling stations are starting to operate under the logo of international companies. The vice-leader in the market, the BP company, owned 575 filling stations at the end of 2019, increasing the number of owned stations by 23 outlets. Shell Polska closed the year with five stations less in its network, compared to the end of 2018. The company owns 415 stations, 14 of which operate in the self-service format. Circle K at the end of 2019 owned 353 stations. i.e. four more than in 2018. Amic Polska, after changing its logo from Lukoil to AMIC, gained two more stations and currently owns 116 sites. TOTAL brand had 38 filling stations, which means that the company enlarged its network by six outlets. All the stations owned by the company operate under franchising agreements.

Since mid-2019, POPiHN has had a new member, ANWIM S.A., which manages 244 stations under the MOYA logo. It is one of the most rapidly developing brands in Poland. Last year, the brand increased the number of its stations by 45 outlets. The company is present in almost all provinces and is being increasingly recognised by clients.

In Poland, the segment of the so-called independent filling stations is constantly shrinking. Some companies were closed down during the verification of concessions, while some rebranded to big oil companies' logos. While adopting the POPiHN's nomenclature (independent networks have at least ten outlets under one logo), this group of operators expanded the number of outlets to 1,116. As mentioned above, in 2019 the most active private network, managed by a new POPiHN's member, was MOYA, which grew by over 20% throughout last year. Such operators as Huzar or the Pieprzyk group were also active. UNIMOT continued to develop the AVIA brand and ended the year with 50 filling stations in this network. The above means that the network grew by eight stations, which

FIG. 16 FILLING STATIONS IN POLAND AT THE END OF 2019 [%]

Source: POPiHN's own data

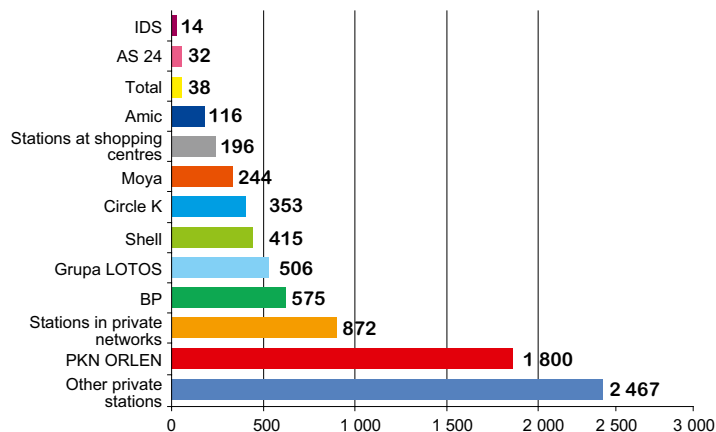
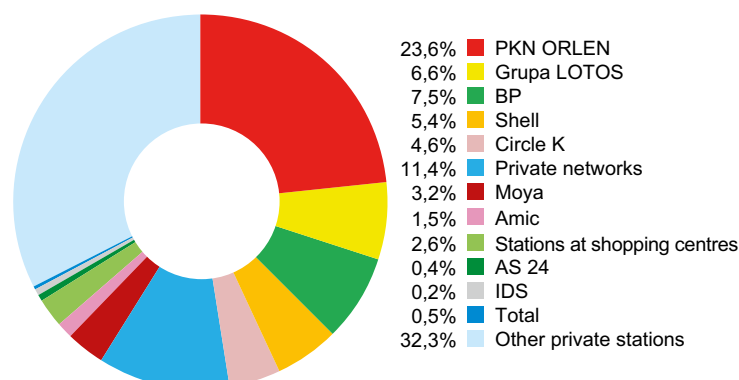


FIG. 17 OVERVIEW OF THE FILLING STATIONS MARKET AT THE END OF 2019 [%]

Source: POPiHN's own data



before had functioned as independent. Together with the development of independent brands, it is becoming more and more attractive for the remaining independent operators to participate in such undertakings, and thus this segment of the market will surely continue to grow. In the last few years, the segment has been, as well as it is likely to be in the coming future, an alternative to cooperation with large fuel companies, whose requirements as to maintaining service standards and the standardisation or store displays are not accepted by everyone. The fuel stations which operate under the formula mentioned above are ranked second in terms of organised outlets which carry out retail fuel sales. Such outlets are becoming a real competition to the filling stations owned by oil companies.

The number of filling stations owned by super- and hypermarkets in 2019 increased by four outlets and amounted to 192. Their share in the fuel stations market is relatively small, but we should remember that these stations are attractive price-wise to the buyers and as a result they have high fuel sales volumes and their share in retail sales is usually three times higher than the share in the filling stations market. The pace of opening new outlets at such locations will probably be hindered by a more rigorously enforced ban on trading on Sundays.

More precise data from the database of the Energy Regulatory Office regarding fuel infrastructure allow to accurately determine the number of fully independent filling stations. Furthermore, this segment of the market is currently undergoing a transformation. Even though it is still difficult to clearly define how many independent outlets actually operate in Poland, we are getting closer to specifying this number. Officially available information shows that at the end of 2019 in Poland there were almost 2,500 stations operating as completely independent or grouped into small local networks under one logo, comprising not more than ten sites. The stations that were taken into consideration were the publicly available stations offering at least two fuel types (P and D). Apart from such stations there are also outlets that only trade in autogas or diesel, yet they are a significant minority when compared to the stations described above,

and thus they are not taken into account in our analyses.

The regulations implemented in 2016 under the so-called energy package constitute a framework which enables creating an official, reliable fuel database, which would clearly define the type of fuel supply infrastructure in Poland, how many filling stations there are and how they operate. The database is constantly updated, which allows for more precise and reliable market research. Moreover, recent changes aimed at tightening the system, including monitoring LPG transport (SENT) initiated in November 2019 should lead to creating a full list of filling stations in databases of the Energy Regulatory Office and the National Revenue Administration.

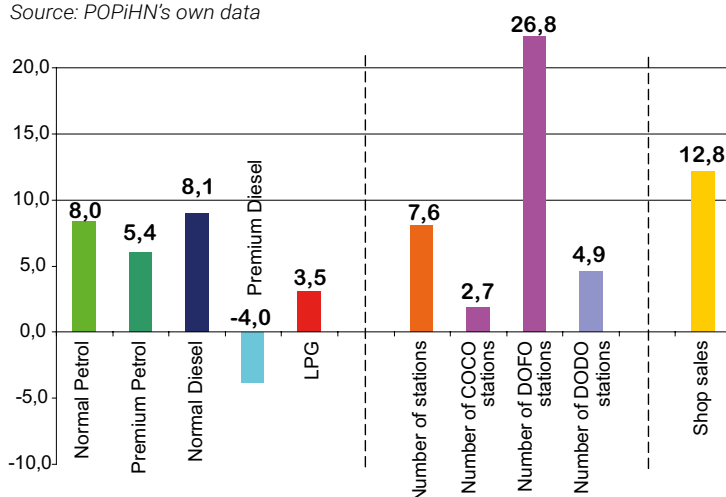
THE RETAIL MARKET OF LIQUID FUELS from POPiHN members' point of view

This section of the report is devoted to the description of phenomena and trends taking place on the domestic market for the retail sale of liquid fuels based on data obtained from POPiHN members. In 2019, ANWIM S.A. joined the group of POPiHN members, which additionally increased the representativeness of the sample, based on which we evaluate the changes taking place on the market. The analyses have been carried out, taking into account over four thousand filling stations. Furthermore, thanks to the continuous expansion of the database carried out by the Energy Regulatory Office and careful market observations in 2019 made possible to determine a real number of filling stations and related sales tendencies for the biggest market operators to the remaining part of the fuel market with even better accuracy than in the previous years. In its analyses, POPiHN uses information taken from independent filling stations as well as the ones belonging to domestic and international oil companies' networks that are publicly available and sell at least two types of fuels (P, D). On this assumption, the Organisation estimates that in Poland there are around 7,800 such filling stations.

The analysis of the activity described below is thus performed on a sample comprised of 52% of the market.

FIG. 18 CHANGES IN RETAIL SALES OF FUELS, IN NUMBER OF FILLING STATIONS AND IN SALES AT STATION SHOPS IN 2019 COMPARED TO 2018 [%]

Source: POPiHN's own data



132_{bn}

Retail sales volume of motor
fuel in Poland in 2019

The remaining part of the market belongs to the independent operators, from whom it is very difficult to obtain any information on their market data. Therefore, the overall market can only be assessed by transferring the results and experiences of the biggest operators onto the remaining part of the market. The stations operating under the logo of POPiHN members in Poland for 2019, performed around 73% of overall retail sales for petrol and about 53% of diesel. Such a large share allows presenting the trends and changes occurring on the whole market for the retail sale of fuels. Moreover, observing the results of such a high number of filling stations also allows assessing the remaining activities taking place there. What we are referring to here is, namely, non-fuel retail operations carried out at station shops as well as other services such as fast food outlets or basic services related to vehicle maintenance. The standards of service and scope of non-fuel activities implemented at the stations of the market leaders (POPiHN members) serve as a model to be followed by other companies selling fuel to drivers.

The most important changes in the retail sales market for fuels in POPiHN member station networks and their operations are shown in Fig. 18. Compared to previous year, standard fuel sales were positive, just like the year before. The negative result, also as in the previous year, was observed in the sales of premium fuel, which resulted from a higher annual level of prices for this type of fuel, which was obvious concerning standard fuels, yet it was also higher when compared to the prices of premium fuel in the previous year. The companies expanded their networks by adding stations operating under the DOFO franchising formula (a significant increase in growth dynamics resulted from ANWIM SA joining the Organisation with its network of MOYA stations, mostly operating under this formula). In the segment of the largest market operators, there was an increase in the number of filling stations owned by fuel companies, which frequently happen to be new investments, operating under the COCO or CODO formula, with two-fold dynamics, compared to the results in 2018. The consolidation of the market for filling stations continued to increase around the largest market operators, both large oil companies and the ones from the independent stations' sector.

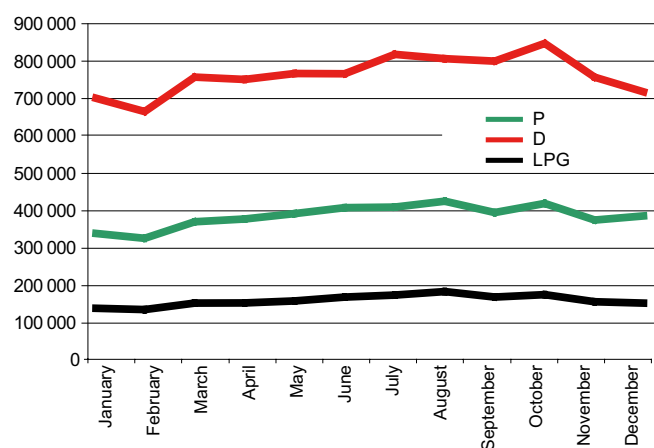
Compared to the previous year, there was more dynamic growth in standard and premium fuel sales. Standard diesel sold similarly to the previous year, whereas the premium type witnessed a smaller decrease in dynamics than in 2018. The overall volume of sales of autogas was slightly better. Stores located at filling stations recorded a significant increase in the so-called non-fuel sales when compared with the previous year, yet the dynamics were slightly smaller than in 2018, even with including the analysed data from the stores at MOYA stations after ANWIM SA joined POPiHN. The increase was mainly influenced by diversifying and expanding the scope of offered goods, as well as offering more options within the fast-food offer and to a smaller, yet still significant extent, non-trading Sundays in large-surface area shops. The number of shops at filling stations increased alongside the development and modernisation of the station market, while numerous promotional offers attracted the clients. Filling station operators are aware of the fact that a regionally customised trade and service offer is the best bait to attract drivers and customers who come to filling stations without cars. The times when filling stations were used just to fill up the tank are a thing of the past.

Premium fuels, with their own names often given to them by individual brands, were mostly sold by the stations owned by oil companies, yet in this segment there were also some independent companies, elaborating their fuels with higher performance parameters. It should be noted that in 2019, similarly to 2018, there was a decrease in the sales of premium diesel. Such were the effects of high prices of this fuel type and lack of severe winter, i.e. the period when such fuel sells best. An increase in the sales volumes of premium petrol was, however, a satisfactory fact. Favourable retail prices must have influenced the above-mentioned purchases, but also drivers started to appreciate a positive influence of such fuel on the engines' condition as well as their pro-environmental benefits. The sales of premium products usually rely heavily on their prices. Similarly, to the previous years, they were more expensive than the standard ones by 0.25 – 0.35 PLN per litre, yet when the prices of regular fuel decreased significantly below the level of 5 PLN per litre, the prices of premium fuels were more acceptable for drivers. In the overall volume of retail petrol sales for POPiHN members, the premium type share was similar to previous year's and amounted to approximately 10%, whereas in the overall petrol market for Poland it was 7%. The market share for premium diesel amounted to 13% in the overall retail market for POPiHN members, which translated to 7% of the overall domestic sales. Good, increasing volume of sales for standard fuels translated into a smaller share of premium fuels in overall fuel sales, yet in terms of the volume of petrol, it was bigger than in the previous year. The above means that drivers increasingly appreciate exploitation aspects, which relate to purchasing better quality fuels, and whenever the prices allow them to do so, even if it is periodically, they buy them in larger amounts.

As POPiHN rightly assumed in its previous forecasts, sales of regular EU95 petrol continued to grow, which was a continuation of the trend from the previous years. Compared to the previous year, more regular diesel B7 was sold at filling stations owned by oil companies, but also at the remaining ones. Altogether, the filling stations owned by POPiHN members recorded

FIG. 19 SALES OF MOTOR FUELS AT POPiHN MEMBERS' STATIONS IN 2019 [m³]

Source: POPiHN's own data



an 8% increase in basic petrol sales and an 8% increase in standard diesel. This growth was achieved thanks to an increase in the number of vehicles on Polish roads, both through higher investments in new vehicles and increased imports of second-hand cars. It is worth noting that among the new vehicles that were purchased, the majority were petrol-run or had petrol-based hybrid systems, while among imported second-hand cars the proportions between diesel and petrol engines were more or less equal. There was no significant increase in the number of cars with an alternative autogas installation, which means that drivers switch to cars with smaller engines (even though vehicles do not become smaller in terms of dimensions) powered by petrol. The increase in the sales volumes of diesel can also be accounted for by the good condition of the Polish economy, in which this fuel type is the most important transport fuel.

In 2019, POPiHN members expanded their networks mostly by gaining new outlets in DOFO formula from filling stations belonging to private operators. Apart from this dominating method of gaining stations, new investments were also undertaken within their stations, which later operated under the formula of COCO or CODO.

The franchising formula was the most popular method to expand the networks of independent operators, yet also in this segment, there were some new sites built from scratch.

The increase in the number of POPiHN members led to an increase of 10% in the number of active shops operating within these filling stations. The sales volumes in station shops grew as well, both for all the shops altogether and for an individual store. It should also be pointed out that POPiHN's statistics were strengthened by welcoming ANWIM SA among its members, with its MOYA network, at the end of the year comprising of 240 outlets.

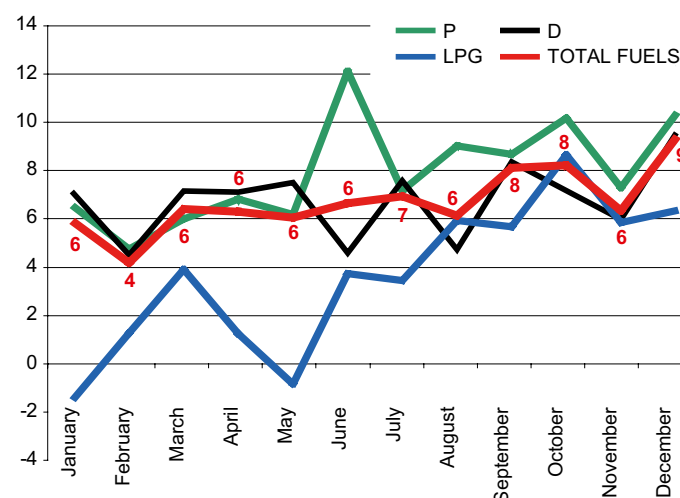
Due to the reasons described above, the increase in the turnover value of sales in this segment of filling stations amounted to almost 13%, but also for an individual shop the turnover grew slightly above 3%. It was not a record level of 15% from the previous year, yet, taking into account the previous year's base used for calculations, the growth can be considered robust. Although the effect of the impact of non-trading weekends on station shops, turnover decreased as the Poles are gradually becoming less and less interested in doing the shopping on such free weekends, expanding the offer and range of goods together with a growing number of shops had a positive result. It is also worth noting that the fleet grew by another 1.5 m. vehicles and the Poles earned more and travelled more, thus increasing the frequency of visiting filling stations and, at the same time, their station shops.

Fig. 19 presents monthly retail sales for the POPiHN members filling stations. The seasonal nature of sales resembled the one from the previous year and is also likely to repeat in the coming years.

In 2019, just like in 2018, POPiHN members filling stations operating under the DOFO formula recorded higher growths of petrol sales volumes than the ones operating under COCO and CODO and the DODO formula. Such results were to a certain extent influenced by the already mentioned MOYA joining the Organisation as the majority of the company's stations operate under the DOFO formula. For the case of diesel, the situation was similar. Autogas, however, sold better at the oil company stations than at the ones under patronage agreements.

FIG. 20 CHANGES IN RETAIL SALES AT FILLING STATIONS IN 2019 [month/month as %]

Source: POPiHN's own data



The overall increase in petrol sales equalled 8%, in diesel 6%, whereas in autogas 3%. Compared to 2018, for petrol, the growth dynamics was one percentage point higher, whereas for the remaining fuel types it was the same. Sales of petrol and autogas are closely correlated with fuel prices, and in the case of diesel, mainly with economic growth.

Margin levels obtained from fuel sales declined slightly when compared to the previous year, and at the same time, they were not yet sufficient enough to enable filling stations to maintain themselves just from fuel sales. Besides, today nobody approaches the fuel business in this way. What matters is the comprehensiveness of services related to automotive branch and travelling. Only very specialised companies can allow running stations whose only task is to provide fuel for vehicles. The rest of the operators, in order to maintain and develop their outlets, generate funds from additional revenues coming from a shop with a wide range of assortment and services, among which small catering services was the leader. A change in perceiving a filling station, from a place where you fill up your car to an outlet offering a wide range of services, has already taken place, and in the long term, there will be even more emphasis put on the shop, services and food offer, and not just fuel sales.

Changes in fuel sales at the stations owned by POPiHN member companies between individual months of 2019 are presented in the diagram in Fig. 20.

Throughout the year we witnessed an upward trend in fuel demand, while in 2018 it was just the opposite, lower month over month. To a larger extent, such a picture of the market was shaped by the retail prices of fuel and, thus, the purchasing value of Polish drivers' wallets.

Taking the year as a whole, the average growth rate of fuel sales at stations owned by POPiHN member companies was 6.5%, whereas diesel sales showed an increase of 8%, petrol – a growth of 6%, and autogas – an increase of 3%.

An analysis of sales growth data of POPiHN members and results of total official fuel consumption in the country shows larger increases in sales at stations owned by POPiHN members than by independent distributors. In the case of autogas, however, the independ-



Fot.: TOTAL

FIG. 21 CHANGES IN PREMIUM FUEL SALES AT FILLING STATIONS IN 2019 [month/month as %]

Source: POPiHN's own data

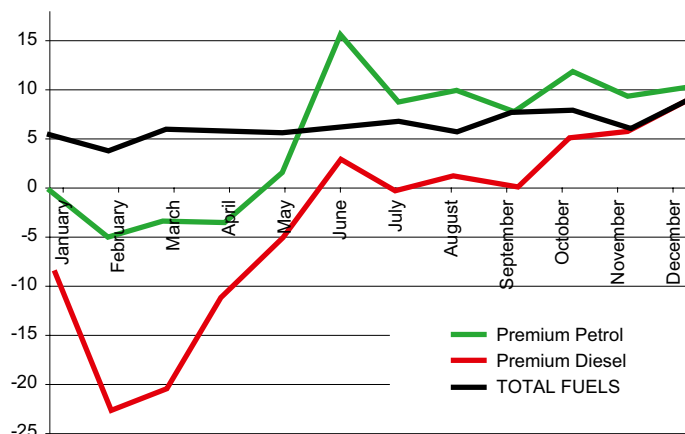
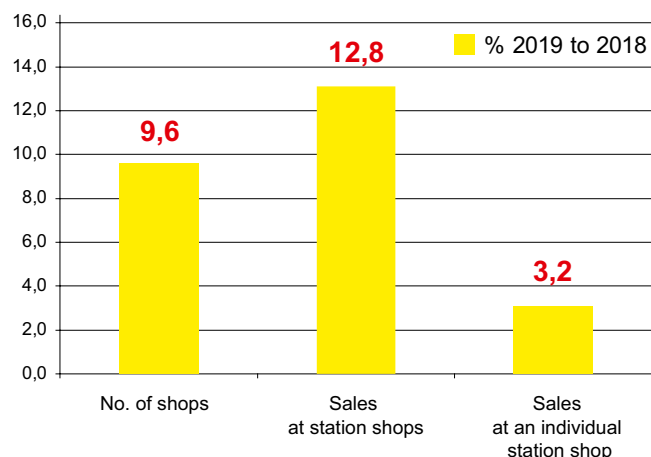


FIG. 22 MARKET OF SHOPS AT FILLING STATIONS OF POPiHN MEMBERS IN 2019 [%]

Source: POPiHN's own data



ent company outlets witnessed larger growth dynamics compared to POPiHN members.

Better overall sales results were accompanied by growths in the sales of premium fuels and declines in the sales of premium diesel. The increase for this fuel type equalled 5%. The sales of diesel decreased by (-4%).

In its previous forecast, POPiHN assumed that while observing price levels and trends for the market of new and second-hand cars, there would be a further sales growth of enhanced fuels, though they would most probably slow down. It turned out that in the case of petrol not only did the sales not slow down but even accelerated, whereas in case of diesel they slowed even more than it had been estimated. Higher than normal temperatures in late autumn and winter had a significant influence on the overall result. Lower temperatures usually favoured increases in sales volumes of premium diesel. It seems that there is still space for improvement in premium fuel sales, especially given the fact that the sales of new vehicles are growing, and it is those that drive them who, in particular, eagerly use enhanced fuels. If pricing conditions permit it, in the coming years we will again observe positive sales in volumes year-over-year.

Thanks to a new official database on fuel logistics elaborated by the Energy Regulatory Office and with the use of information gathered by POPiHN members at the end of 2019 it was possible to localise around 7.800 publicly available filling stations, trading in at least two types of fuel (P, D). Among them, 4045 outlets operated under the POPiHN members logos. The above means the latter group grew slightly by over 2%. The increase was a result of carrying out new investment projects, the reopening some of stations after their modernisation, taking over a certain number of stations from the independent sector, but also incorporating MOYA stations, owned by ANWIM SA, into POPiHN members. Within the group at the same time, work was underway on optimising the network and sales policy, which on

one hand led to terminating some cooperation agreements, but on the other hand concluding many new ones. All in all, the number of oil company stations grew by 1.5%, amounting to 2,803, and the number of stations operating under franchising formulas increased by 4.8%, amounting to 939. The number of stations under DODO arrangements witnessed a 2.7% growth, amounting to 303 outlets.

Alongside the development of networks and investing in new outlets as well as modernising the existing ones, we observed a growth in the number of stores located at filling stations. Altogether, at the end of 2019, the total number of stores located at POPiHN member stations operating under the formula COCO+CODO was 2,696 (68 more than in 2018), out of which 2,647 stores (61 more than in 2018) were engaged in commercial activities at the end of the year. The growth in the number of stores was accompanied by increasing turnovers in those stores. Unfortunately, we do not have information on sales volumes from all the shops operating from the POPiHN member filling stations (from some DOFO and DODO outlets the franchisors have no data on shop sales). Altogether, concerning 2018, the increase in turnover at station shops, the data on which is available to POPiHN, i.e. 2,915 outlets, equalled 12.8% and reached the level of about 6.1 bn PLN. The turnover of a single shop grew by 3.2% and on average was at the level of about 2.1 m. PLN.

Filling station shops owe an increase in the turnover (apart from ANWIM SA joining POPiHN) to the introduction of non-trading Sundays in March 2018 in large-surface area stores and to expanding the sales offer and intense development of services, mainly related to fast-food. Thanks to the sector's activities as well as the actions that were undertaken by other organisations gathering entities involved in the trade until now it has been possible to cut back the attempts of eliminating from station stores the sales of alcohol, tobacco and basic OTC drugs. Filling stations, in particular in smaller locations, are often the only source of most needed goods in places where pharmacies or grocery shops do not operate on Sundays or during night-time.

The graph in Fig. 23 shows sales in stores located at filling stations between individual months in comparison with the same months in 2018. We can clearly see that over time the customers were becoming more and more used to the new shopping dates and the sales growths did not depend just on that factor, but more on the comprehensiveness of the offer. We can see that the highest sales were recorded in holiday months and the ones with more days off work.

Apart from three months in the first and second quarter of the year, for which the reference point where the first months of 2018 following the introduction of non-trading Sundays, all the months of 2019 recorded much better sales volumes than the year before.

The results of the comparison of the geographical distribution of fuel sales in Poland show that for years no major changes have been observed. The information shown in this graph was based on data provided by POPiHN members, yet it can most probably be applied to overall retail sales volumes of fuels in Poland. Traditionally, the province with the greatest demand for vehicle fuels is still Mazowieckie, whereas the lowest demand can be observed in the Opolskie province. Sales in five provinces exceed the overall sales volumes in

FIG. 23 CHANGE IN VALUE OF SALES IN SHOPS OF POPiHN MEMBERS IN INDIVIDUAL MONTHS OF IN 2019 COMPARED TO 2018 [%]

Source: POPiHN's own data

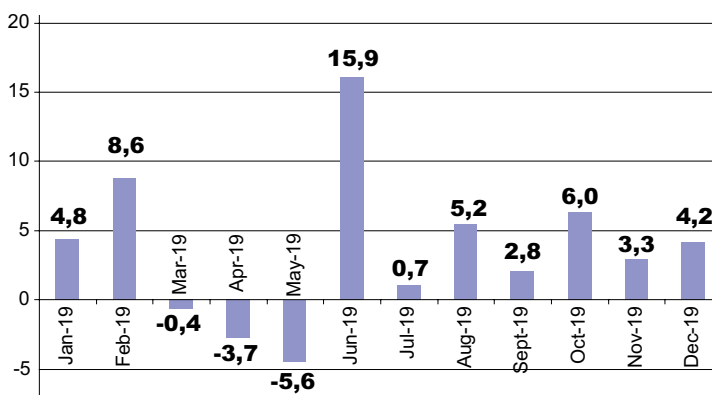
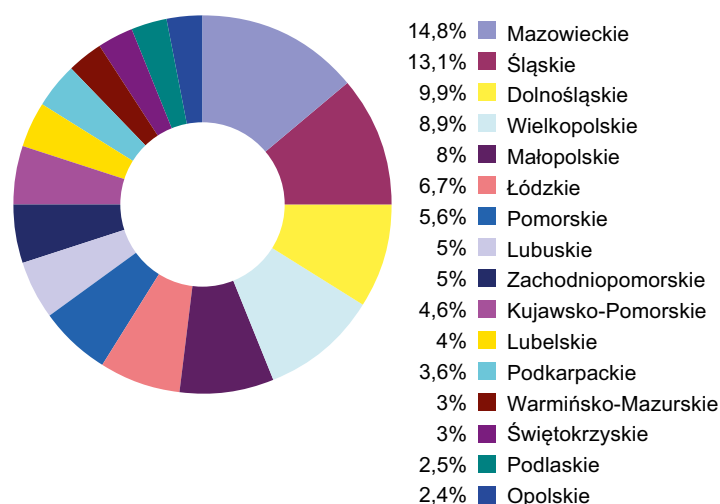


FIG. 24 DISTRIBUTION OF RETAIL SALES OF FUELS BY POPiHN MEMBERS IN POLAND IN 2019 [%]

Source: POPiHN's own data



the remaining 11. The largest increase in sales volumes at the stations owned by POPiHN members was recorded in the provinces: Śląskie and Warmińsko-mazurskie, and in the following place in Małopolska. The only province which recorded a slight decline in sales volumes was Wielkopolska. In all provinces, premium diesel sales witnessed a decline, while in three provinces less premium petrol was sold.

The graph shows total sales of fuels, diesel and auto-gas. Separate sales of each of these fuel types present minor discrepancies from the presented graph, however, they are so small that the general scheme is assumed to fully display the retail sales trends in Poland.

2915

Number of shops at filling stations in 2019

DEMAND FORECAST FOR THE POLISH MARKET UP TO 2030

POPiHN, as it does every year, has updated the liquid fuel demand scenarios forecast until 2030, based on the latest trends observed both in Poland and around the world. The current version of these scenarios was developed based on the experience of the employees of both the POPiHN members and the Organisation's experts. Available data on fuel consumption in Poland for 2019 as well as the results and trends from the previous years have been taken into account. The estimates on domestic consumption for the previous year show that the official fuel demand in Poland reached the level stipulated in the previous forecast presented as the optimistic scenario. Legal solutions introduced in the years 2016–2017 (Fuel, Energy and Transport Packages), efficiently implemented by Polish inspection services, limited the grey and black economy to a minimum. The sales of diesel to a large extent shape the results of the whole fuel sector. In the past, this market segment was the main area of illegal fuel trade. Additionally, increased demand for petrol and autogas as well as relatively small increases of fuel prices led to a situation in which it was possible to allocate greater amounts of fuels on domestic market than in the previous year. An increase of the vehicle fleet circulating on Polish roads by further 1.5 m. vehicles, purchased from car dealers and imported from abroad, also influenced the fuel market. Elaborated scenarios include the newest changes currently taking place on the domestic and international crude oil markets, both in terms of fuel demand and changing realities taking into account the transformation of the automobile market caused by new, stricter norms regarding environmental protection.

The new baseline and optimistic scenarios assumed that there would be a further increase of efficiency in combating the irregularities on the Polish market, thus aiming at eliminating these even further. It was also assumed that in the near future the prices of crude oil and finished products on international markets would be rather stable and quite similar to the levels observed in 2019. Another expectation was that the USD-PLN exchange rate would remain similar

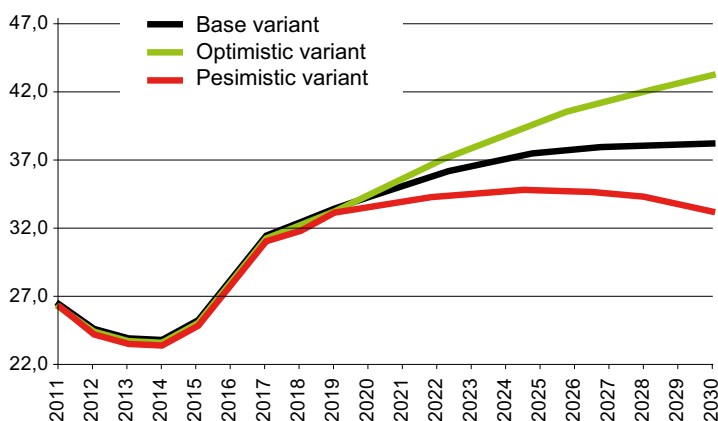
to the previous year's. It was taken for granted that in Poland new infrastructure investments would be implemented, to a large extent financed from the European Union funds within the new budget perspective for the years 2021–2027. It was also assumed that in the next couple of years there wouldn't be significant changes in the drivers' preferences, i.e. buying cars with petrol engines rather than diesel ones, especially in the segment of second-hand vehicles. Furthermore, it was assumed that social subsidies in the form of 500+ programme would be maintained, there would be increases in the average domestic salary, and the unemployment level would be low. Another assumption was that alternative fuels would not significantly influence the traditional fuel market in the next few years.

The baseline scenario was constructed on the assumption that the Polish economy would grow at a rate of about 4% of GDP annually, that the trend increasing the efficiency in combating the shadow economy in the coming years would continue and that the favourable price ratio between crude oil and fuels on international markets would be maintained. It has also been estimated that the range of fluctuations in the USD-PLN exchange rate would not exceed 10% of the level of PLN 3.7, observed at the end of 2019.

The base variant scenario assumes that average annual oil prices can, for a longer period, stay at the level similar to the one observed in 2019, i.e. with the prices around 65 USD/bbl. The expected prices will range from 50 to 70 USD/bbl. Although unpredictable contingencies, such as the impact of the Covid-19 virus on the crude oil market, can significantly change the worldwide demand for energy resources, it is assumed that a decline in crude oil demand should not exceed 20-30%, which will affect the price quotations, yet it can be quickly compensated by production cuts in the OPEC+ countries. It was assumed that crude oil prices should remain stable for about two years, and then there is likely to be a systematic increase up to the level of approximately 75 - 80 USD/bbl annually. An expected stable situation in the international crude oil market (on the one hand, agreements limiting the extraction and on the other hand, increasing extraction from US shale deposits) will have a stabilising influence on fuel prices for final users. It is expected that 2020 will be another year with increases in liquid fuel consumption and that this trend will be maintained in the coming years, yet the increase in terms of percentage will slow down slightly after 2022. Nonetheless, even these smaller growths in percentage will have many implications in terms of fuel volume, which will have to be satisfied mainly thanks to supplies from abroad. The growth effect should be achieved through increases in official demand for diesel and petrol. Petrol is most probably going to continue gaining the passenger transportation market at the expense of cars with Diesel engine fuel, yet, most probably, decreasing interest in diesel in our market will be slightly shifted in time compared to other countries in Western Europe. Increasing the efficiency of petrol engines, using hybrid vehicles and expecting that EU95 petrol prices will be lower than diesel prices should result in lower demand for autogas, especially taking into consideration the fact that switching to this type of

FIG. 25 SCENARIO FOR LIQUID FUELS DEMAND IN 2019–2030 (in m. m³)

Source: POPiHN's own data



Fot.: MOYA



fuel as a petrol substitute is going to be less profitable. A wealthier society, the construction of new roads and a lack of programmes successfully promoting public transport are expected to result in a further growth of the car fleet circulating in Poland. In the long run, the role of public transport in medium-sized and big cities is expected to grow. The above will be related to the implemented limitations on using individual vehicles, restrictions in the number of parking spaces (also as a result of higher parking fees and the introduction of clean air zones). At the same time, this type of transport will become more and more ecological thanks to vehicles powered by alternative fuels. Similarly to previous scenarios, it is assumed that a downward demand trend for light fuel oil shall continue, which is related to switching to other energy carriers (photovoltaic energy, natural gas, biogas). In this variant, the official domestic market demand for liquid fuels in 2030 is estimated at approximately 38 m. m³.

The optimistic scenario assumes, apart from the same assumptions as for the baseline variant, lowering the level of crude oil and fuels quotations by approximately 20% in relation to the data presented above, which will influence the acceptable fuel prices levels. Another assumption was that there would be a slower development of the sector of vehicles running on alternative fuels. Moreover, it is predicted that in the next five years there will be a regular increase in the expansion of domestic vehicle transportation fleet (individual, group and transport), with a significant share of vehicles with Diesel engines. The most important assumption is an increase in the growth rate of the domestic economy, with a GDP of at least 5% per year. In this scenario, the domestic market demand for liquid fuels in 2030 is estimated at around 43 m. m³, i.e. approximately 2 m. m³ less than it was forecast in 2019.

The pessimistic scenario assumes a lower prospect for growth of the Polish economy on the GDP level below 3%, linked to the economic slowdown in the EU and worldwide. In such a case, there is a likelihood of a significant depreciation of the Polish zloty (PLN) compared to other currencies. Yet another reason is a destabilisation of the international situation and substantial increases in the prices of crude oil, causing significant increases in the costs of the functioning of the Polish economy. Rising internal inflation might translate into increases in product prices, including fuels. Such circumstances may necessitate the raising of taxes in Poland. As was almost always the case in the past, the fuel sector will be hit first, which might translate into a decreasing demand. An increase in fiscal burdens and high fuel prices could, once again, get the grey fuel market moving. Considering these pessimistic assumptions, the demand for liquid fuels in 2030 is estimated at 33.5 m. m³, which is slightly more than in the previous version of the scenario.

While observing the current liquid fuels market situation in Poland, we can assume that the baseline scenario seems to be the most likely. Nonetheless, we need to remember that the oil sector worldwide is extremely sensitive to all types of fluctuations in the geopolitical or economic situation, especially among the biggest oil producers. The range, in which the demand for liquid fuels will be shaped in the current version of the scenarios, has slightly narrowed, which means that future results can be forecast with increasing precision. Efficient control of the grey market and stable economic development favour this situation. However, an economic slowdown forecast by analysts might significantly change the shape of current forecasts. Time will show how correct the above assumptions were. For markets which to a large extent rely on fuel supplied

from abroad, as is the case of the Polish domestic market, future forecasts in a crisis are always marked by considerable uncertainty.

In the near term, the global sector of liquid fuels production will face major challenges in terms of environmental requirements. Oil sector comprises companies which continuously invest in environmental protection, both in terms of their production installations as well as improving products offered to their customers. There has been enormous progress when it comes to the quality of fuels. If it hadn't been for the improvement in the quality of fuels produced by refineries, reductions in emissions of harmful substances produced during combustion in engines would not have been possible. A significant reduction in the emissions of CO₂, SO₂ and other negative components of exhaust was possible thanks to, among other things, using biocomponents in fuel blends or using various additives such as AdBlue.

In the new budgetary perspective of the EU, environmental protection programmes will play a major role. Over 100 bn EUR is planned to be spent on energy transition until 2027. Refineries and fuel traders also need to find their share in this transition. Reaching a compromise between the drivers' needs and ecology will significantly affect the activities planned within the fuel sector. On the one hand, there will still be demand for traditional fuels in the coming years, while on the other, implementing new production technologies in the refineries, transforming them into energy hubs and a significant emphasis on limiting the production of harmful gases and substances will force the adoption of a new approach towards the oil sector in the future. It will also involve a lot of money. If fuel production is to continue in the EU, the sector needs to undergo this transformation. It will last for years, yet taking into consideration the companies' achievements up to now, it should work. It seems that the demand for products from petroleum processing will last for many, many years. The question remains: when will the petrochemical branch dominate petroleum processing at the expense of fuel production? How fast will the process of moving away from internal combustion engines to low-emission vehicles

be? And will fuel stations' operators continue to sell the same fuels in the future or will they switch to a different activity? Or maybe they will completely disappear from the market? Not in the next couple of years, but what about not such a distant future as a few decades? These are the dilemmas to be faced by the Polish market in the coming years. Nevertheless, it is worth giving them a thought today.

In Polish market conditions, petrol, diesel and auto-gas will dominate among energy carriers in the road transport in the next ten or so years. Western Europe is pointing to electricity as the transport fuel of the future. Research shows that its environmental friendliness is certainly overestimated, mainly due to energy-intensive production and subsequent disposal of batteries used to power the propulsion, as well as the fact that in many countries, including Poland, electric energy is mostly produced from coal. Currently, electric vehicles in our country represent a tiny fraction of the whole car fleet, and this situation is not very likely to change in the short term, nor in a longer perspective. Furthermore, other alternative fuels such as biofuels, CNG/LPG or hydrogen still have to wait before they are applied on a wider scale, especially taking into consideration the fact that building infrastructure to charge these vehicles will take years. In the near future, we might expect a reduction in purchasing new passenger cars with Diesel engines in favour of petrol-fuelled and hybrid vehicles. This trend is already noticeable (in particular when purchasing new passenger cars) and will undoubtedly continue. Filling stations' operators have already begun preparing themselves towards implementing alternative fuels in the market, starting from installing electric chargers in current outlets in towns and along main transport routes. This is the beginning of a period characterised by dynamic changes. Whoever misses it, might then find it difficult to keep afloat in the market. Even taking into consideration the fact that classic conventional fuel-based engines still have significant technical reserves and thus such engines can meet the growing requirements related to reducing vehicle emissions, over time they will be eliminated from the market.



Fot.: CIRCLEK

MOTOR FUEL PRICES

In last year's forecast, POPiHN accurately predicted slight retail price increases of main fuel types in 2019 and anticipated that the average price of diesel would be higher than that of 95EU petrol. Wholesale prices grew, which caused retail prices to grow as well. For three years, we have observed minor increases in retail prices. Previously, in 2013–2016, we witnessed price falls in consecutive years. 95-octane petrol prices exceeded the level of 5 PLN/l between April and September 2019. Diesel cost less than 5 PLN/l only between the end of August and the beginning of December. In the remaining months, it was more expensive. Throughout the whole year, a litre of 95-octane petrol was on average PLN 0.07 more expensive, while a litre of diesel cost PLN 0.15 more than in 2018. These price increases were higher than the ones observed in 2018, when 95-octane petrol's price grew by 0.34 PLN/l and diesel's by 0.48 PLN/l. Nevertheless, the price of autogas decreased by 0.09 PLN/l, which extended the possibility of using this fuel type in vehicles equipped with proper installations. The retail price of diesel was higher than the price of 95-octane petrol from mid-2019 until mid-April, and then from mid-September until the end of the year. Only in the holiday season, the EU95 petrol prices exceeded diesel's prices, yet the difference between the two fuel types' prices was not considerable. The average annual retail price difference between these two types of fuel equalled PLN 0.06 in favour of diesel. In 2018, 95-octane petrol was on average PLN 0.02 more expensive than fuel for diesel engines. The forecast for 2020 assumes a trend where the top prices of diesel are maintained in relation to fuel for spark-ignition engines. The price of 95-octane petrol ranged from 4.71 to 5.26 PLN/l in 2019. For diesel, the price ranged from 4.93 to 5.19 PLN/l. Thus, the difference between the lowest and the highest 95-octane petrol price throughout the year equalled 0.55 PLN/l, whereas the same difference for diesel amounted to 0.26 PLN/l. In the case of petrol, it was similar to the previous year's, while for diesel it was more stable, as it only differed by 1/3 of the range from the year before. Furthermore, petrol prices were also influenced by purchases of autogas, which on average throughout the year was cheaper by 4% compared to the previous year. There was a smaller price decrease than in 2018, when it equalled 0.09 PLN/l, which then extended the possibility of using this fuel type in vehicles equipped with necessary installations.

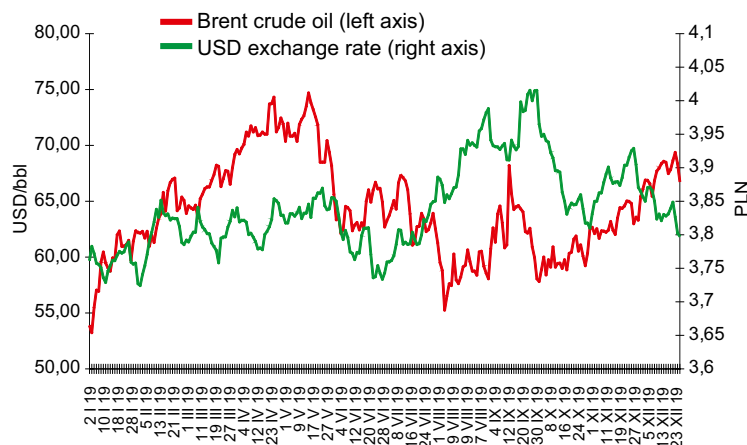
Despite higher costs of purchasing fuels, their consumption in the country grew, which, on average throughout the year, allowed filling stations' operators to earn margins from fuel sales at a level similar to the previous year's. We should, however, bear in mind that there were also periods when the margins were very low.

Prices quoted at the pylons at Polish filling stations were, as always, influenced by the fluctuations on international crude oil and fuel markets and the exchange rate of PLN purchasing power against USD. Unfortunately for Polish drivers, the zloty's exchange rate against the USD weakened somewhat against the annual average, which was one of the elements of domestic price increases. The drop was at a level of 6% and was two percentage points higher than in the previous year. The most important element shaping the price

levels in our geographical area, namely average annual Brent crude oil prices, reached the level of 64.4 USD/bbl, which was 9% below the 2018 level. At the beginning of 2019, quotations of crude oil were shaped at the level of 54.1 USD/bbl, and then there was a series of price increases up to the level of 74.7 USD/bbl in mid-May. Since then, crude oil prices started to decline, and in the remaining part of the year the quotations oscillated in the range between 54 and 70 USD/bbl. International crude oil price changes resulted from ongoing oil-related sanctions on Iran, information on tensions in trade relations between USA and China, and the information on continuing and further reductions in the volume of crude oil produced by OPEC+ countries, which was aimed at preventing a possible surplus of supply over demand. The short-lasting upward effect was also triggered by attacks on Saudi refining installations, which resulted in significant limitations of fuel supplies to international markets. Nonetheless, neither the continuation of sanctions imposed on Iran nor reducing the production had a significant effect on the level of crude oil supply worldwide. High level of crude oil stocks and petroleum products in the USA and other main crude oil consumers, as well as steadily growing US shale oil extraction and exports had a relatively stabilising effect on the market. Phenomena similar to the ones observed in the case of oil were recorded for fuels traded on international commodity stock exchanges. It is worth noting that the increases recorded for fuels were very similar to the ones for crude oil, while they were almost identical for premium petrol. The decreases in diesel quotations were two percentage points lower than in the case of crude oil and thus premium petrol. As a result, global crude oil quotations were 'pulled up' by fuel for diesel engines. The worldwide growth in the demand for transport fuel was an ongoing phenomenon, and there was also an increased demand for diesel at the end of the year. This growth in demand can be associated with the new IMO regulations as regards supplying sea-going vessels with fuel with low sulphur content, which were scheduled to enter into force at the beginning

FIG. 26 PRICES FOR BRENT CRUDE AND THE USD EXCHANGE RATE IN 2019

Source: e-petrol.pl, POPiHN



of 2020. On the Polish market, the net wholesale prices were shaped by the changes in the stock market quotations of fuels and changes in the PLN-USD exchange rate. Moreover, there were increases in fuel surcharge, and the emissions fee was introduced for petrol and diesel. The price reductions did not turn out beneficial for individual drivers and transport companies, but at the same time, the state's budget recorded increasing revenues generated by VAT and additional fees. Furthermore, additional fiscal revenues and profits of Polish oil companies were obtained thanks to bigger official sales volumes of liquid fuels, after efficient controlling of the grey market of the fuel sector, a positive economic increase, and growth in the number of cars circulating on Polish roads.

As in previous years, the fuel prices on the Polish market are shaped by producers and traders on the basis of the so-called import parity, the main components of which are commodity market prices of fuels, the PLN exchange rate against USD, as well as fiscal levies that need to be contributed to the state budget. The changes in the import parity determined the direction of changes in wholesale and, consequently, retail prices.

Brent crude oil prices, which determine prices for the European market, are shown in Figure 26.

The restrictions in crude oil production, introduced in 2017 and continued in 2018 and 2019 by the OPEC+ countries, were enforced quite rigorously. At the same time, shale oil production in the US grew. It reached 64% of overall crude oil production in the USA. The USA became the biggest crude oil producer in 2019, thus getting ahead of Russia and Saudi Arabia and practically becoming self-sufficient in terms of crude oil demand. Simultaneously, a significant part of this production was sent to international markets, including Poland.

Low crude oil prices led to an increase in the number of bankruptcies among businesses dealing in oil and gas exploration and production. As many as 42 American and Canadian oil companies went bankrupt in 2019, i.e. over 50% more than in 2018 (28). At the same time, the Energy Information Administration (EIA) stated that the efficiency of oil wells activated in 2019 was higher compared to the previous years. As a result, companies which stayed afloat on the market were able to cover the costs of drilling, production and the development of new technologies.

As shown by the annual results, production limiting activities carried out by OPEC+ brought the expected outcome in the form of lowering the oil surplus in international markets and stabilising crude oil quotations. In order to maintain this situation, agreements were

signed on keeping the production limits in force and limiting the production further. This was done so that crude oil prices exceeded the level of 65 USD/bbl, which is of key importance for the budgets of countries with oil fields.

According to the latest EIA's forecasts, in the first half of the year, the cost of one barrel of WTI crude oil will not exceed USD 60. In light of prolonged periods of low prices, crude oil production companies will focus their operations on the most efficient deposits. In the longer term, however, it may increase the number of extraction installations in the US shale fields and in maximising their production capacities.

This, in turn, suggests that the crude oil quotations in international markets are unlikely to grow significantly above the assumed level. This is, indeed, good news for drivers as it guarantees maintaining fuel prices at levels barely higher than the ones observed in 2019.

Economic results presented by domestic producers of fuel prove that these operators took advantage of the previous year to increase the volumes of processed crude oil and produced fuels, and thus to raise their value. The state budget benefited as well, taking advantage of higher direct and indirect taxes paid to the state revenue. In Poland, taxes constitute about 50% of the retail fuel price, which guarantees high incomes from the oil sector generated for the state's budget. It is, however, worth noting that wholesale prices in Polish refineries grew in 2019 despite the fact that international fuel quotations were lower than in the previous year.

Factors affecting domestic wholesale and retail prices (prices of crude oil, prices of main fuels and the dollar exchange rate) were as follows in 2019 (Fig. 27).

The interdependence of crude oil prices and the USD exchange rate in the Polish market is shown in Fig. 28.

The comparison of trends for crude oil and fuels is presented in Fig. 29.

The upward trend in crude oil quotations was visible from the beginning of the year until May, when the trend changed to a downward one, which lasted until October. Since then, the quotations grew until the end of the year, which was related to a tense international situation. Quotations of diesel and premium petrol increased until May, and since then they were quite stable, with fluctuations in the range between 540 and 670 USD/t, whereas as of the beginning of September they were very similar to each other – around the level of 600 USD/t. (Fig. 29)

The situation on the Polish market almost automatically reflects trends observed on the international crude oil and fuel markets. Almost, as Poland has its own national currency, and the price levels are influenced

FIG. 27 COMPARISON OF ANNUAL AVERAGE PRICES FOR CRUDE OIL, LIQUID FUELS AND THE USD EXCHANGE RATE IN 2018 AND 2019

Source: Prices from e-petrol.pl for Brent crude FOB Sullom VOE, for fuels CIF NWE ARA

Description	2018		2019		Reference 2019 to 2018
	Value	Units	Value	Units	
Prices for Brent crude	71,00	USD/bbl	64,38	USD/bbl	91
Prices for Premium petrol 10 ppm S	676,7	USD/tone	619,1	USD/tone	91
Prices for diesel 10 ppm S	643,6	USD/tone	598,8	USD/tone	93
USD exchange rate	3,6113	PLN	3,8399	PLN	106

by the PLN-USD exchange rates. On average, in 2019, compared to the previous year, fuel quotations decreased, and the Polish currency depreciated against USD. At the same time, there was an increase in tax burdens due to the fuel surcharge and the introduced emission fee. Changes in average annual ex-refinery prices for Polish oil companies are shown in tables 30 and 31.

In the case of Polish producers, net prices of EU95 petrol, directly related to the decreasing stock market quotations, managed to stay at the previous year's level (Fig. 30). This was partially due to the depreciation of the Polish zloty, but also crude oil transaction prices and logistics costs.

The comparisons of diesel prices in the Polish refinery market are given in Figure 31.

Similarly as in the case of petrol, there was an increase in domestic diesel fuel prices, despite a fall in quotations in international stock markets.

95-octane petrol cost (on average in the year, retail price) 0.22 PLN/l more than diesel in 2016, whereas it was only 0.02 PLN/l more than in 2018. The year of 2019 brought a breakthrough and, according to expectations, diesel's price exceeded the price of EU95 petrol by as much as 0.06 PLN/l (Fig. 32). The same phenomenon is likely to be observed repeatedly in the coming years, with the difference in prices becoming even more pronounced. Over short periods (e.g. holidays), drivers of petrol cars might pay even more for fuel than the ones purchasing diesel, yet on a yearly average, the former will spend more compared to the latter. This is the result of changes occurring in international supply markets. Moreover, in 2020, new legislation comes into force regarding supplying sea-going vessels with fuel with low sulphur content. It will increase the demand for diesel which entails higher prices. On the other hand, it is not possible to produce more quantities of diesel without producing more petrol, thus the latter will probably become increasingly cheaper due to increased market supply.

FIG. 28 FLUCTUATIONS IN BRENT CRUDE PRICES AND THE EXCHANGE RATE OF THE USD IN 2019 COMPARED WITH THE AVERAGES FROM 2018. [%]

Source: POPiHN and e-petrol.pl

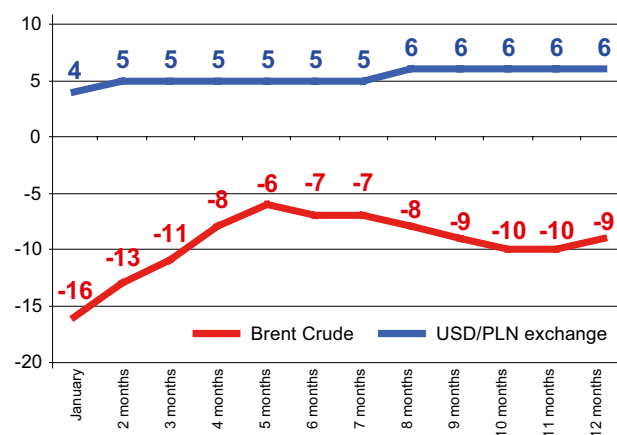


FIG. 29 FLUCTUATIONS IN CRUDE OIL AND FUEL QUOTATIONS IN 2019 COMPARED WITH THE AVERAGES FROM 2018 [%]

Source: POPiHN and e-petrol.pl

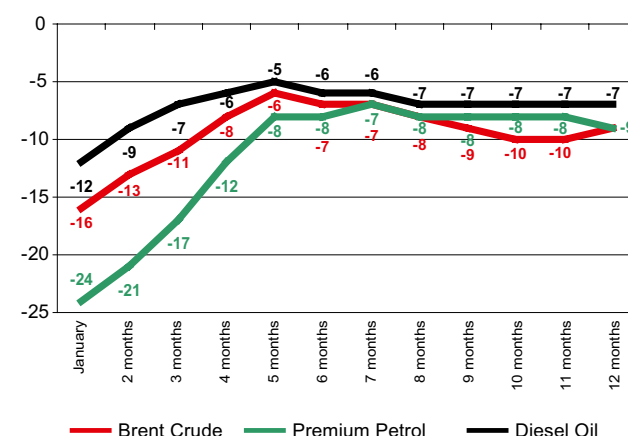


FIG. 30 COMPARISON OF ANNUAL AVERAGE WHOLESALE PRICES OF FUELS AT DOMESTIC FUEL PRODUCERS

Source: PKN ORLEN SA, Grupa LOTOS S.A., POPiHN

Description	2018		2019		Reference 2019 to 2018 2018=100
	Value	Units	Value	Units	
EU95 petrol gross (without VAT)	3 840	PLN/1000 l	3 914	PLN/1000 l	102
Excise	1 540	PLN/1000 l	1 540	PLN/1000 l	100
Fuel surcharge	131	PLN/1000 l	133	PLN/1000 l	101
Emissions fee	—	—	80	PLN/1000 l	—
EU95 petrol net	2 169	PLN/1000 l	2 161	PLN/1000 l	100

FIG. 31 COMPARISON OF ANNUAL AVERAGE WHOLESALE PRICES OF DIESEL AT DOMESTIC FUEL PRODUCERS

Source: POPiHN's own study based on data of PKN ORLEN SA and Grupa LOTOS S.A.

Description	2018		2019		Reference 2019 to 2018 2018=100
	Value	Units	Value	Units	
Diesel with 0.001 S gross (without VAT)	3 913	PLN/1000 l	4 031	PLN/1000 l	103
Excise Diesel with S 0,001%	1 171	PLN/1000 l	1 171	PLN/1000 l	100
Fuel surcharge	293	PLN/1000 l	298	PLN/1000 l	102
Emissions fee	—	—	80	PLN/1000 l	—
Diesel with S 0,001% net	2 449	PLN/1000 l	2 482	PLN/1000 l	101

FIG. 32 COMPARISON OF MOTOR FUELS' RETAIL PRICES

Source: POPiHN's own study based on data from e-petrol.pl and WPN

Description	2018		2019		Reference 2019 to 2018 2018=100
	Value	Units	Value	Units	
Average retail price of EU95	4,93	PLN/l	5,00	PLN/l	101
Average retail price of ON	4,91	PLN/l	5,06	PLN/l	103
Average retail price of autogas	2,23	PLN/l	2,14	PLN/l	96

A comparison of the retail prices of EU95 petrol, autogas and diesel in the years 2018–2019 is shown in the table (Fig. 32).

The price ratio of EU95 petrol/autogas favoured, like in previous years, the latter one. Drivers whose vehicles are equipped with a dual fuel supply system were encouraged to purchase autogas instead of petrol as the cost-effectiveness of this choice was a bit higher com-

pared to 2018. The autogas to EU95 petrol price ratio in 2019 was on average at the level of around 43% all year round, while the year before it was 45%. The graphs in Fig. 33 and 34 show the price trends of individual fuels in the domestic market.

The downtrend in average annual retail fuel prices, which started in 2013, stopped in 2017, and since then we have observed increases in average annual prices, which also continued in 2019. The current market situation suggests that if, on the one hand, the new restrictive rules applying to the production of crude oil are maintained and, on the other hand, it is possible to suppress growing crises among global powers and countries producing crude oil, as well as maintain the level of shale oil production, the whole 2020 may end with prices barely higher than those in the previous year. The above seems likely, especially in light of a global slowdown forecast by analysts. It will be possible to keep the prices of crude oil under control only in the absence of a major military conflict in the Middle East, which today does not seem to be such a distant perspective. Otherwise, the prices at filling stations might significantly oscillate up and down, depending on what will be happening worldwide.

The graph 35 shows the relations between quotations on the international commodity stock exchanges and retail prices of fuels in Poland.

Margins on fuel sales in 2019 were similar to the ones achieved in the previous year. Nevertheless, the margin levels were so low that keeping a filling station afloat depended, once again, to a large extent, on non-fuel sales and offering various additional services. Throughout the year, there were periods in which margins significantly exceeded average annual levels, yet there were also periods in which the profits obtained from fuel sales were minimal and did not allow to maintain and develop a filling station. In 2019, few filling stations managed to reach the levels of sales margins which would ensure the keeping of a filling station in operation thanks to fuel sales only. Indeed, it should be pointed out that sales at the stations' shops and profits from other services offered at filling stations are growing, yet at the same time margins on fuel sales are decreasing. We have reiterated this fact for years. Once again, this is worth emphasizing as there are constant initiatives aiming at limiting the product offer at filling stations or withdrawing such goods as OTC drugs, alcoholic beverages or tobacco products. We keep repeating that such activities can eventually result in a significant reduction in the number of places where drivers will be able to fill up their vehicles or in significant increases of prices of fuel offered at stations without shops, which will have an impact on increases in domestic inflation.

FIG. 33 RETAIL PRICES OF EU95, DIESEL, LPG AND LFO IN 2006–2019 [PLN/1000 L]

Source: POPiHN's own study based on data from e-petrol.pl and WPN

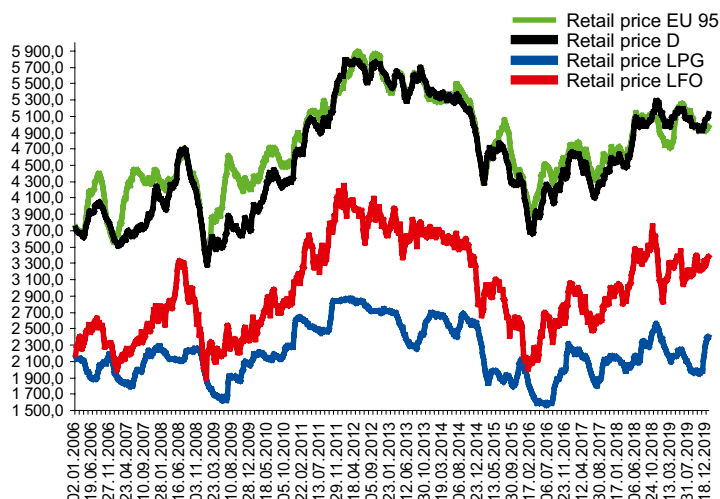
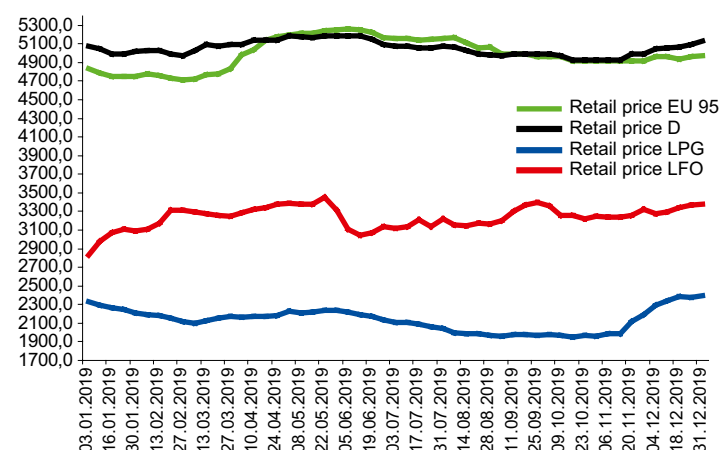


FIG. 34 RETAIL PRICES OF EU95, DIESEL, LPG AND LFO IN 2006–2019 [PLN/1000 L]

Source: POPiHN's own study based on data from e-petrol.pl, WPN and ARE





Fot.: BP

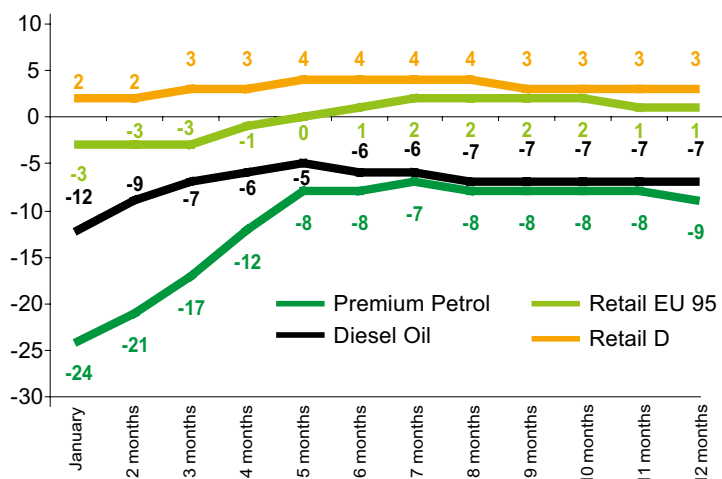
The factors determining retail prices in various parts of the country included the level of demand and the scale of competition between different operators, as well as the range of goods offered at stations' shops and the comprehensiveness of additional services. Loyalty programmes and marketing campaigns initiated by filling stations are always welcomed. Moreover, outlets where infrastructure for alternative fuels is being developed can also count on new customers.

It has been observed that quite a big group of drivers increasingly buy fuel at stations along expressways and motorways. Increased demand at such stations results in higher prices. The above, however, does not discourage drivers, who in this way travel faster, safer and in a more comfortable manner; besides, at MSAs (Motorway Service Areas) they have access to a wide range of additional services such as small shopping centres, small or big fast-food outlets, hotels, clean and comfortable toilets or points where they can charge electric vehicles.

Moreover, the considerable seasonal price spread among some areas of the country does not seem to surprise anyone. During the summer and winter holidays,

FIG. 35 CHANGES IN QUOTATIONS FOR FUELS ON INTERNATIONAL COMMODITY STOCK EXCHANGES AND IN RETAIL PRICES OF EU95 PETROL AND DIESEL IN POLAND IN 2019, COMPARED TO THE AVERAGE PRICES FROM 2018 [%]

Source: POPiHN, epetrol.pl



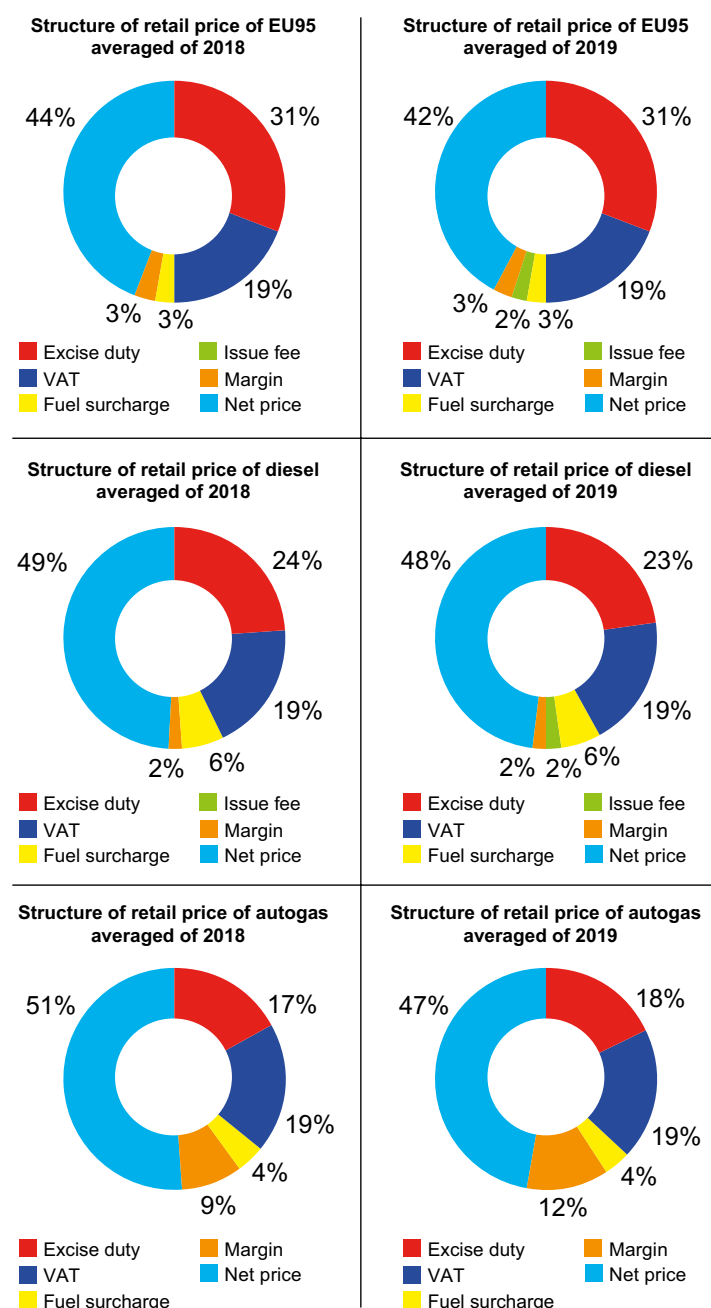
**FIG. 36 COMPARISON OF TAX BURDENS ON MOTOR FUELS
IN 2018 AND 2019 [in thousands of m³]**

Source: POPiHN's own data

Description	2018		2019		Reference
	Value	Units	Value	Units	2019 to 2018 2018=100
Total taxes for EU95 (VAT+excise+fuel surcharge)	2 593	PLN/1000 l	2 688	PLN/1000 l	104
Total taxes for ON (VAT+excise+fuel surcharge)	2 382	PLN/1000 l	2 494	PLN/1000 l	105
% share of taxes in retail price of EU95	53	%	54	%	102
% share of taxes in retail price of ON	49	%	49	%	100

**FIG.37 STRUCTURE OF THE RETAIL PRICE
OF MOTOR FUELS IN 2019**

Source: POPiHN's own calculations



fuel is mostly sold along main transit routes and in re-sorts. Therefore in 2019, the provinces which sold the most expensive fuel in the country were the following: Mazowieckie, Małopolskie, Podkarpackie and Zachodniopomorskie.

The factors which determine retail prices in Poland are taxes imposed on fuels. Figure 36 presents average tax burdens for motor fuels in 2019.

In the year in question, and in the case of all motor fuels, the fuel surcharge changed, while as regards petrol and diesel, the emissions fee was introduced. Excise for petrol, diesel and autogas did not undergo any changes. The VAT did not change either, remaining at the level of 23%. When it comes to fuels, VAT is a tax of the net price increased by specific taxes (excise, fuel surcharge, emissions fee), so new specific tax rates raised the basis for calculating final taxes. On average throughout the year, the tax burdens included in fuel prices rose in relation to 2019. In monetary terms, it was PLN 95 for EU95 petrol and PLN 112 for diesel more to pay to the state for every 1000 litres of fuel sold. These volumes are higher by almost 1/3 when compared to the increases recorded in 2018.

With net prices similar to the previous year's, tax burdens rose in the EU95 petrol's end consumer price. In the case of diesel, this increase amounted to 2%. The increase of net price amortised monetary increases of the remaining taxes, and thus the total taxation share in the end retail price remained practically unchanged. On average, in 2019, taxes represented 54% of 95-octane petrol and 49% of the retail diesel price. It was one percentage point more than in 2018 for 95-octane petrol, whereas for diesel the level was the same as in the previous year.

The structure of annual average retail prices for EU95 petrol and diesel is presented in the charts in Fig. 37.

In terms of values, the price structure is as following in Fig. 38.

The table below (Fig. 39) shows the comparison of prices of motor fuels in the European Union with domestic prices at the end of December 2019.

While analysing the price levels in Poland and other EU countries, we have seen that for years the prices in our country (converted into euro) are among the lowest in the European Union. Such a situation was also noted in 2019. This is confirmed by the prices from the end of December, presented in the table. Low prices were observed for both petrol and diesel. At the end of 2019, the average domestic retail prices of EU95 petrol were 14%

'Oil industry and trade'

lower and those for diesel 8% lower than the average prices for the whole European market. Compared to December 2018, the difference was one percentage point more for both fuel types.

At the end of 2019, domestic net prices (excluding taxes and converted into euro) of EU95 petrol were lower than the average European prices by 5%, while in case of diesel by 2%. In 2018, we witnessed an atypical situation as net prices, usually lower than the average European prices, were higher that year. In the following year, the situation was back to normal, and the prices were shaped below the European average. Net prices in all European Union countries are quite similar, and the differences in retail prices are mainly caused by taxes applicable in different countries and levels of margins.

In December 2019, the difference between the highest and the lowest net price observed in EU countries for EU95 petrol was EUR 180 (which is EUR 37 more than in the previous year), whereas the difference between

the highest and the lowest retail price was EUR 551 per 1000 litres (i.e. EUR 31 more than in the previous year). The above means that there was an increase in the net price spread and the difference between the prices at the dispensers also increased. For diesel, the difference between net prices equalled EUR 232 per 1000 litres (EUR 53 more than in the previous year), and the difference between retail prices was EUR 447 per 1000 litres (EUR 39 more than in the previous year). Also in this case, there was a slight increase in the difference between the prices. Net prices of both fuel types grew more, which means that there was a slight decline in the margins achieved from their sales.

Poland is one of the European countries with the highest applicable VAT rate for fuels, but due to relatively low (after conversion into euro) net prices, the VAT revenues actually paid continue to be in the middle of the European rates. At the end of December 2019 the difference between the amount of VAT paid on EU95 petrol,

FIG. 38 STRUCTURE OF RETAIL FUEL PRICES IN 2018 AND 2019 (in PLN/l)

Source: POPiHN's own calculations

	EurosUPER 95 petrol							Diesel							Autogas						
	Retail price	Excise	VAT	Fuel surcharge	Emissions fee	Margin	Net price	Retail price	Excise	VAT	Fuel surcharge	Emissions fee	Margin	Net price	Retail price	Excise	VAT	Fuel surcharge	Margin	Net price	
Average 2018	4,93	1,54	0,92	0,13	-	0,17	2,17	4,91	1,17	0,92	0,29	-	0,08	2,45	2,23	0,38	0,42	0,09	0,20	1,05	
Average 2019	5,00	1,54	0,94	0,13	0,08	0,15	2,16	5,06	1,17	0,95	0,30	0,08	0,09	2,48	2,14	0,38	0,40	0,09	0,25	1,02	
% change	1,4	0,0	1,4	1,4	-	-8,9	-0,5	3,1	0,0	3,1	1,6	-	9,4	1,2	-4,0	0,0	-4,0	1,1	28,3	-11,3	

FIG. 39 AVERAGE RETAIL PRICES AND TAXES IN EU MEMBER STATES AND IN POLAND AT THE END OF DECEMBER 2019 (in EUR/1000 l) 1 EUR = 4,2585 PLN

Source: Weekly Oil Bulletin EIA

EurosUPER 95 petrol					Diesel (EN 590)					
	Sale price	Price without taxes	Excise	VAT amount		Sale price	Price without taxes	Excise	VAT amount	VAT [%]
1	2	3	4	5	6	7	8	9	10	11
Austria	1 228,0	530,0	493,3	204,7	Austria	1 199,0	589,5	409,7	199,8	20
Belgium	1 407,6	563,1	600,2	244,3	Belgium	1 458,0	604,8	600,2	253,0	21
Bulgaria	1 106,2	558,8	363,0	184,4	Bulgaria	1 111,3	595,8	330,3	185,2	20
Croatia	1 340,8	553,9	518,7	268,2	Croatia	1 330,8	653,3	411,3	266,2	25
Cyprus	1 185,8	556,8	439,7	189,3	Cyprus	1 254,7	643,7	410,7	200,3	19
The Czech Republic	1 244,1	524,3	503,9	215,9	The Czech Republic	1 240,3	595,3	429,7	215,3	21
Denmark	1 628,5	677,5	625,3	325,7	Denmark	1 389,0	685,1	426,7	277,8	25
Estonia	1 392,0	597,0	563,0	232,0	Estonia	1 393,0	667,8	493,0	232,2	20
Finland	1 532,0	558,8	676,7	296,5	Finland	1 432,0	694,9	459,9	277,2	24
France	1 520,8	576,1	691,2	253,5	France	1 456,4	604,6	609,1	242,7	20
Greece	1 591,0	571,8	711,3	307,9	Greece	1 383,0	693,7	421,6	267,7	24
Spain	1 303,0	604,2	472,7	226,1	Spain	1 221,0	631,0	379,0	211,9	21
The Netherlands	1 667,0	582,0	795,7	289,3	The Netherlands	1 384,0	640,1	503,7	240,2	21
Ireland	1 430,6	541,4	621,7	267,5	Ireland	1 332,0	568,0	514,9	249,1	23
Lithuania	1 208,7	564,5	434,4	209,8	Lithuania	1 143,9	598,4	347,0	198,5	21
Luxembourg	1 213,0	564,7	472,1	176,2	Luxembourg	1 111,0	594,6	355,0	161,4	17
Latvia	1 275,0	566,7	487,0	221,3	Latvia	1 205,2	612,0	384,0	209,2	21
Malta	1 410,0	645,5	549,4	215,5	Malta	1 280,0	612,3	472,4	185,3	18
Germany	1 371,0	497,6	654,5	218,9	Germany	1 254,0	583,4	470,4	200,2	19
Portugal	1 481,0	561,5	642,6	276,9	Portugal	1 369,0	627,3	485,7	256,0	23
Romania	1 145,0	535,6	426,6	182,8	Romania	1 179,6	594,5	396,8	188,3	19
Slovakia	1 324,0	559,7	543,6	220,7	Slovakia	1 232,0	629,0	397,7	205,3	20
Slovenia	1 302,1	520,5	546,8	234,8	Slovenia	1 246,1	552,4	469,0	224,7	22
Sweden	1 489,8	561,4	630,4	298,0	Sweden	1 543,3	783,6	451,0	308,7	25
Hungary	1 166,7	545,8	372,9	248,0	Hungary	1 233,5	628,2	343,1	262,3	27
The Great Britain	1 490,5	547,4	694,7	248,4	The Great Britain	1 553,2	599,6	694,7	258,9	20
Italy	1 578,0	565,0	728,4	284,6	Italy	1 474,4	591,1	617,4	265,9	22
POLAND	1 167,0	533,6	411,7	221,7	POLAND	1 204,7	612,1	363,7	228,9	23
European average	1 364,3	563,0	559,7	241,5	European average	1 307,7	624,5	451,7	231,5	
Price in Poland against average European price					Price in Poland against average European price					
European price	86%	95%	74%	92%	European price	92%	98%	81%	99%	

FIG. 40 RETAIL PRICES OF EU95 PETROL IN UE MEMBER STATES AT THE END OF DECEMBER 2019

Source: Weekly Oil Bulletin EIA

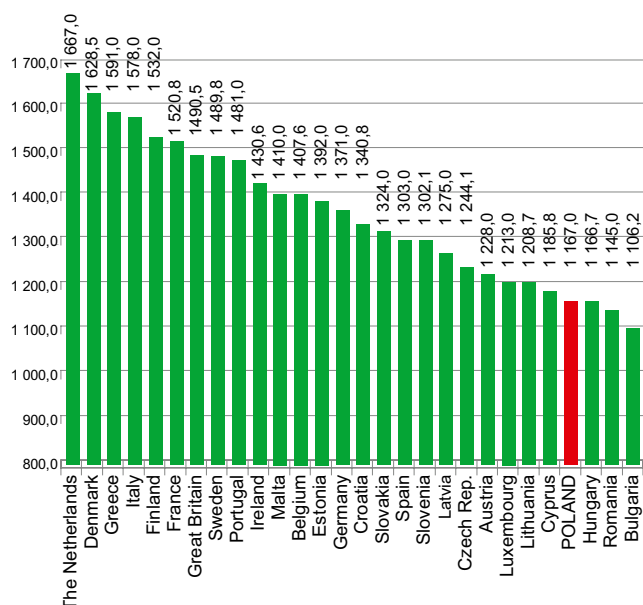
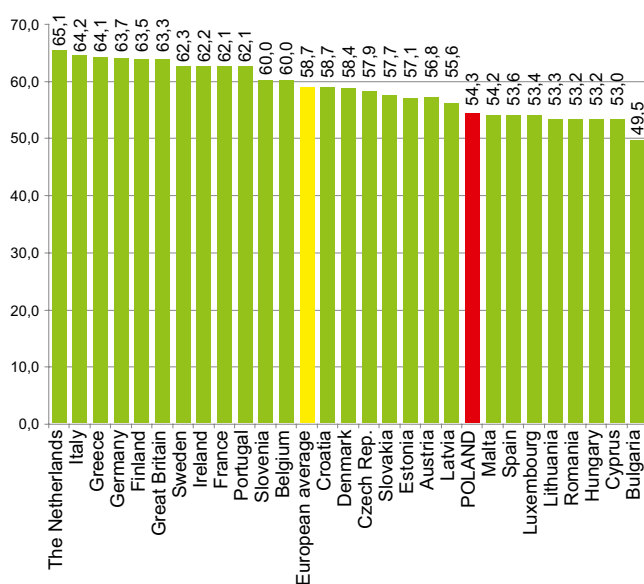


FIG. 42 SHARE OF TAXES IN RETAIL PRICE OF EU95 PETROL IN EUROPEAN COUNTRIES AT THE END OF DECEMBER 2019

Source: POPiHN's own data



compared to the EU average, was 8%, i.e. one percentage point more than in the previous year. In the case of diesel the same difference decreased by one percentage point. The amounts of excise tax paid (after conversion into euro, including fuel surcharge and emissions fee), respectively, for EU95 petrol and diesel were 26% and 19% lower than the European averages. This is four percentage points less than the year before.

Analyses show that when buying fuel across the entire EU, excluding Bulgaria, the taxes which drivers have to pay constitute over 50% of the 95-octane petrol price paid at the dispensers. A slightly smaller share of taxes, yet often also exceeding the level of 50%, is observed in the prices of diesel sold in the European Union. As we

FIG. 41 RETAIL PRICES OF DIESEL IN UE MEMBER STATES AT THE END OF DECEMBER 2019

Source: Weekly Oil Bulletin EIA

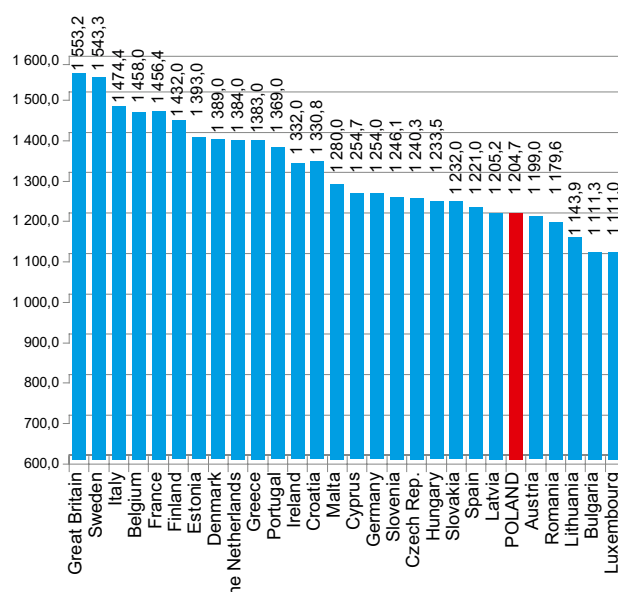
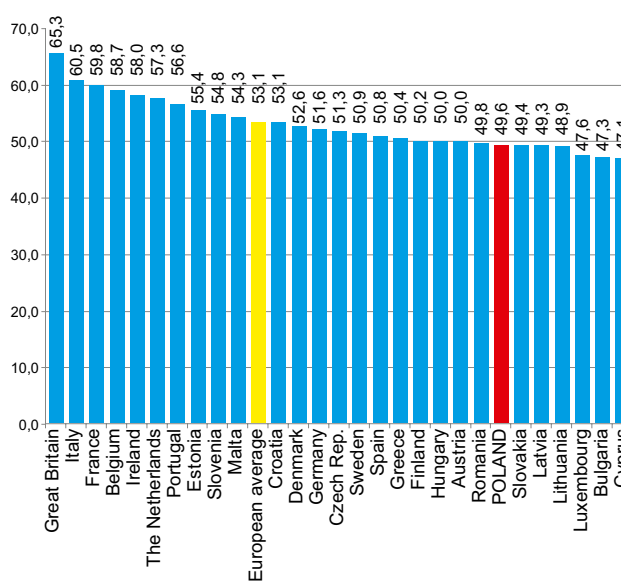


FIG. 43 SHARE OF TAXES IN RETAIL PRICE OF DIESEL IN EUROPEAN COUNTRIES AT THE END OF DECEMBER 2019

Source: POPiHN's own data



can see in the graphs, when compared to other European nations, Poles are burdened with slightly lower taxes than the majority of EU nationals. Additionally, the range of taxes paid across the EU in the case of 95-octane petrol is getting slightly smaller. When we compare December 2019 and December 2018, the difference between the highest and lowest share decreased by 0.7 percentage point and amounted to 15.6 percentage points. For diesel, this difference grew to 18.2 percentage points, i.e. 2.8 percentage points more. The lowest tax share in the price of EU95 petrol was recorded in Bulgaria, and in the price of diesel – in Cyprus. A comparison of the total tax burdens on fuels in the EU countries at the end of 2018 is presented in Fig. 42 and 43.



Fot.: LOTOS

In December 2019, in Europe, EU95 petrol was the cheapest at filling stations in Bulgaria, Romania, Hungary and Poland. Drivers could buy diesel cheaper than in Poland at filling stations in Luxembourg, Bulgaria, Lithuania, Romania and Austria. Therefore, it was profitable to come to Poland from any EU country directly neighbouring with it in order to fill up one's tank. We are talking about average prices in a given country, yet there were stations located in Germany close to the Polish border, at which, for short periods of time, it was possible to purchase diesel at a lower price than at Polish filling stations located in border areas. When it comes to petrol, it has always been cheaper in Poland. Traditionally,

fuels across Poland's eastern border, in non-EU member countries, were cheaper than in Poland.

The data analysed above show that drivers in Poland pay slightly less for filling up their cars than in the vast majority of other EU member states. We should, however, bear in mind the disproportions between fuel prices and average earnings in a given country. In such a comparison, Poland does not do very well, despite the fact that in this category its position is constantly shifting upwards.

Nevertheless, it is worth filling fuel tanks up to the top before leaving Poland and return from a foreign journey with an almost empty tank, unless, of course, we travel towards the east, to countries beyond the EU. In such cases, drivers do quite the opposite.

LUBRICATING OILS MARKET

In 2019, the Polish market of lubricating oils reached the level of 226,448 tonnes. This means that overall sales volumes remained practically unchanged when compared to the previous year.

The stabilization of the market as a whole has been ongoing since the beginning of the current decade. Since the end of 2010, yearly fluctuations were in the range not exceeding +/- 5% (+/- 1.7% in the past four years). The average market volume in that period amounted to approximately 225,000 tonnes. The most significant yearly sales fluctuations were observed in 2007 (+9.48%) and 2009 (-10.44%).

The stability of the market is quite striking compared to the economic growth taking place during that time. GDP in 2018 grew by 5.1%, whereas in 2019, according to initial estimates, by around 4%, which continues to be a good result compared to other European countries. It can be partially accounted for by a continuously observed trend of substituting new-generation synthetic oils for mineral oils, as their improved durability translates into longer drain intervals. There has also been a certain weakening of the condition of the automotive industry and other sectors of the economy which use industrial lubricating oils (such as steel metallurgy and mining). Another explanation might be the expansion of grey and black economy on the lubricant oil market, indicated by some entities operating in the sector.

Within the maximum time horizon allowed by POPiHN's market monitoring, the level of sales of lubricating oils, despite periodical perturbations, remains stable. The above is taking place even though the Polish economy, expressed by the GDP indicator, in the meantime grew from 306.1 bn USD in 2005 to 585.8 bn USD in 2018, and probably to around 609.8 bn USD in 2019.

Therefore, we are dealing with an economy producing and consuming twice as much as in 2005, when the oil market monitoring started.

According to the Polish Automotive Industry Association, 16.8 m. vehicles were registered in Poland in 2005, while currently this number exceeds 30 million. It is, thus, almost twofold the figure recorded at the beginning of lubricant oils monitoring.

Furthermore, data provided by Enter Poland and the Central Statistical Office show that the sold industrial output index also witnessed an over twofold growth, increasing from 687.8 m. PLN in 2005 to over 1.255 bn PLN in 2015 and 1.417 bn PLN in 2017.

Based on POPiHN's data, in volume terms, the increase in the market of primary fuels (diesel, petrol and LPG) amounted to 57% in the years 2006–2019.

They are, of course, only indicators which tend to describe trends rather than precise volumes. Nevertheless, the trends that are shown justify a general observation that the Polish economy officially uses significantly less engine and industrial oils than its economic potential, stemming from economic growth, could indicate. The above concerns both automotive and industrial segments.

Especially, given the fact that the statistics of the European lubricant oils market (for example UEIL data for 2018) indicate a strong correlation between the size of a given economy and the amount of lubricant products used by such countries as: Germany (over 1 m. tonnes), Great Britain (608,000 tonnes), France (552,000 tonnes), Italy (439,000 tonnes), or Spain (422,000 tonnes). The Polish lubricants market continues to be twice smaller than the Spanish one, whereas the difference between Spain and a much bigger and richer France equals just 20% (130,000 tonnes).

FIG. 44 SOLD INDUSTRIAL OUTPUT INDEX FOR THE POLISH INDUSTRY
(Central Statistical Office and EnterPoland data)

	2005	2006	2007	2008	2009	2010	2011*	2012	2013	2014	2015	2016	2017
Passenger cars	12 339	13 384	14 589	16 080	16 495	17 240	18 125	18 744	19 389	20 004	20 723	21 675	22 504
Heavy-duty* and road tractors	2 305	2 393	2 521	2 710	2 797	2 982	3 131	3 178	3 242	3 341	3 429	3 542	3 640
Buses	80	84	88	92	95	97	100	100	103	106	110	113	116
Motorcycles	754	784	825	909	975	1 013	1 069	1 107	1 153	1 190	1 272	1 356	1 427
Other	1 338	1 390	1 450	1 546	1 663	1 706	1 764	1 746	1 796	1 832	1 875	1 915	1 948
Overall	16 816	18 035	19 472	21 337	22 025	23 037	24 189	24 876	25 684	26 472	27 409	28 601	29 635
Motorowery	338	406	525	698	834	922	1 033	1 100	1 163	1 217	1 259	1 292	1 328

FIG. 45 SOLD INDUSTRIAL OUTPUT INDEX FOR THE POLISH INDUSTRY (in m. PLN)

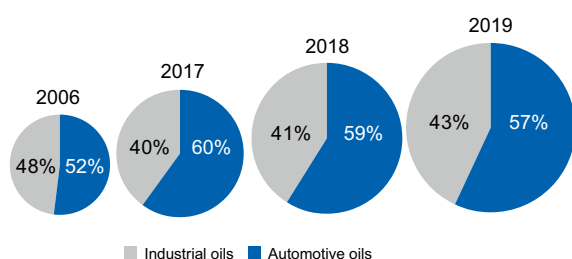
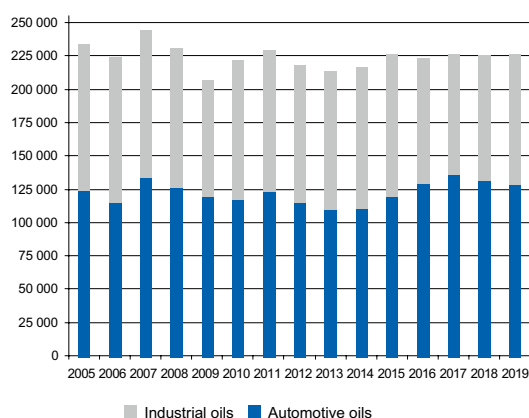
Source: GUS and EnterPoland data

2005		2010		2015	
overall		overall		overall	
687 810,1 m. PLN		985 715,9 m. PLN		1 255 515,6 m. PLN	
Public sector	Private sector	Public sector	Private sector	Public sector	Private sector
123 803,50	564 006,60	148 358,20	837 357,70	124 262,30	1 131 253,30
18%	82%	15,10	84,90%	9,90%	90,10%

'Oil industry and trade'

FIG. 46 TOTAL MARKET FOR LUBRICATING OILS IN 2019.

Source: POPiHN's own study



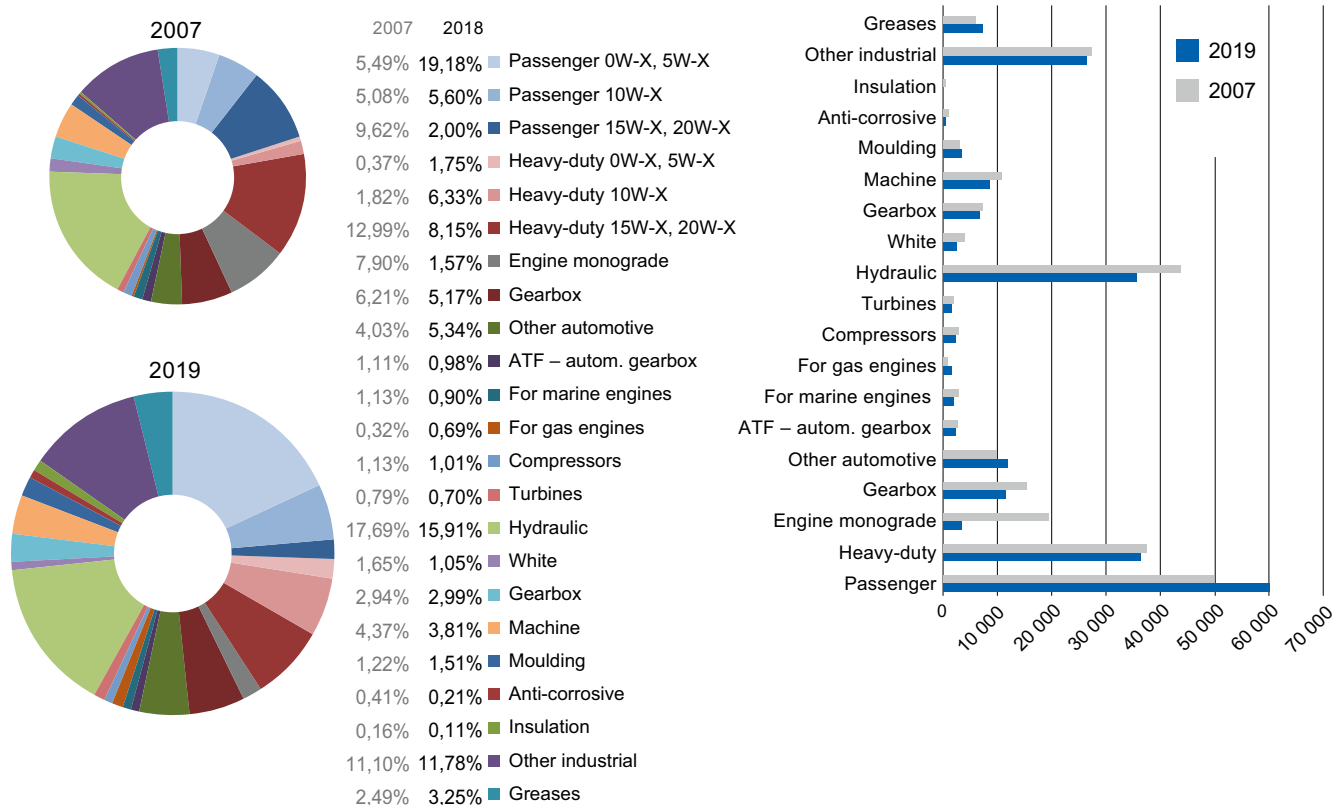
Over the past 14 years, the percentage share of automotive and industrial segments has been similar. Until 2017, the automotive sector was gradually gaining ground. In 2006, the automotive segment share equalled 52% of the total sales volumes, while in 2019 this segment's share amounted to 57%, and for the first time in a long time, it witnessed a decline (from 59% in the previous year).

Major changes in the overall market structure are noticeable in a longer term, i.e.: the most significant change on the scale of the whole market is undoubtedly an increase in the share of passenger car engine oils. It is particularly worth pointing out that the share of synthetic oils for passenger cars grew on the scale of the whole market from 5.5% in 2007 to 19.18% in 2019. The above means that this group continues to be the biggest one on the market, placing itself ahead of hydraulic oils for industry, and its market share continues to grow significantly. Simultaneously, the most significant decline was recorded for mineral oils for passenger cars, heavy-duty vehicles, as well as monograde oils (respectively: from 9.6% to 2%, from 13% to 8.15% and from 7.9% to 1.57 %).

In comparison with the automotive segment, in the area of industrial oils application we have been observing multi-annual stabilisation, typical of mature, fully formed markets, with a dominating share of hydraulic oils (15.9%) and a diversified category of 'other industrial' (15.91%).

FIG. 47 COMPARISON OF THE STRUCTURE OF THE ENTIRE MARKET FOR LUBRICATING OILS IN 2019 AND 2007 [%]

Source: POPiHN's own data



ENGINE OILS FOR THE AUTOMOTIVE INDUSTRY

Approximately 45% of all lubricating oils sold in Poland are engine oils for the automotive industry. Within the automotive segment, they account for a dominant share (80%).

In 2019, sales volumes of heavy-duty engine oils in Poland amounted to 100,873 tonnes. In the previous year, the sales volumes amounted to approximately 104,033 tonnes, so the decrease equalled 3% on a yearly basis. The above result was, to a large extent, influenced by a decline in passenger cars motor oils segment (3.16%), as the sales volumes in the heavy-duty segment remained stable. The third segment, namely monograde oils, is practically disappearing and does not significantly affect the overall results.

In 2016, the sector witnessed a sales peak, as the overall sales volumes of all engine oils amounted to 109,402 tonnes. On the other hand, the lowest result was recorded in 2014, when the total sales volumes of engine oils equalled 92,275 tonnes. The average annual sales volumes from the past 13 years in this segment equalled 100,866 tonnes.

From a slightly wider perspective, overall sales volumes of all oils for the automotive industry (not only including engine oils, but also gearbox oils and other, smaller product groups) in 2019 amounted to 128,906 tonnes, which means a decline by 2.69% when compared to the year before.

In the sales structure of engine oils, in which over the past 13 years we have experienced significant changes related to the modernisation of the car fleet, the share of synthetic and semi-synthetic oils (i.e. low- and

FIG. 49 CHANGES IN THE STRUCTURE OF THE AUTOMOTIVE ENGINE OILS SEGMENT AGAINST SALES IN ANNUAL TERMS [%]

Source: POPiHN's own study

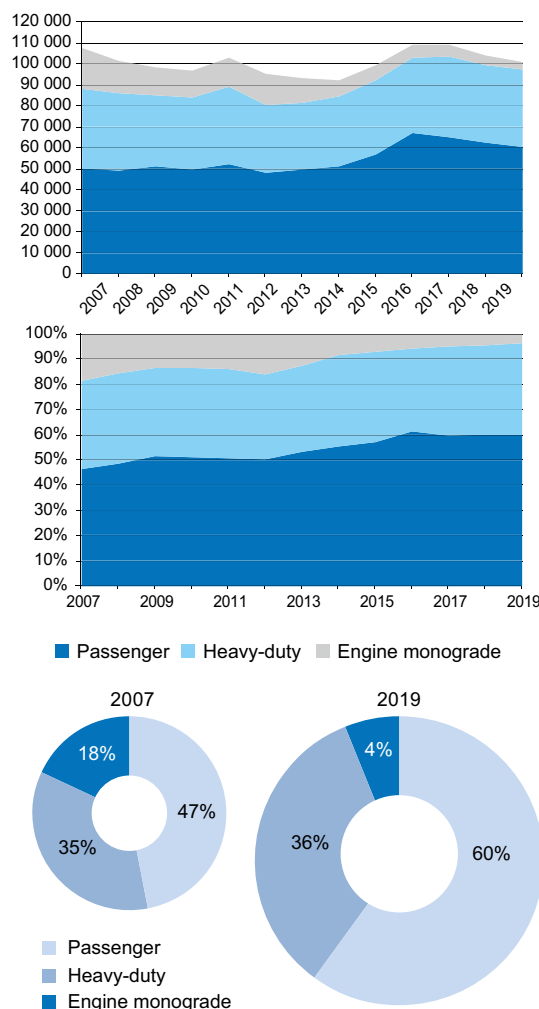
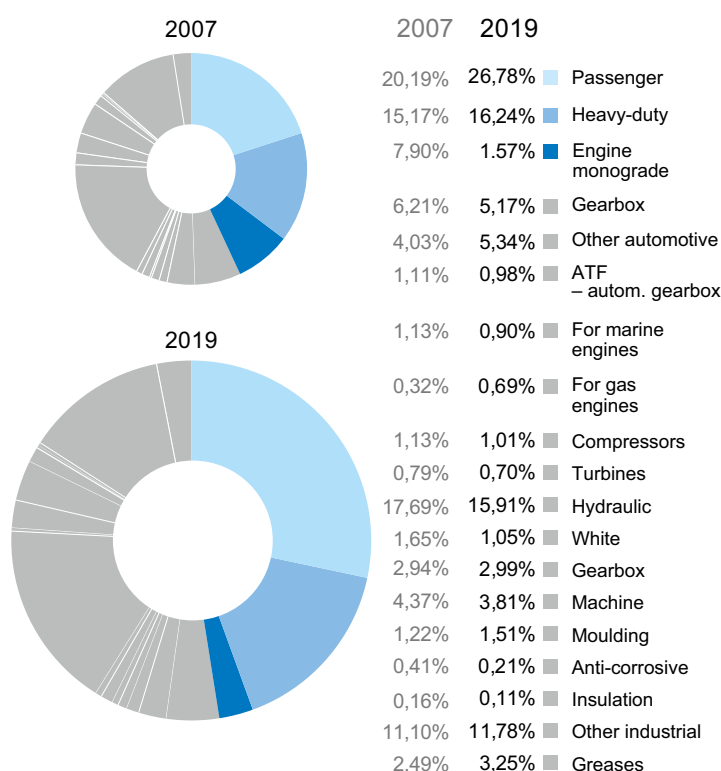


FIG. 48 AUTOMOTIVE ENGINE OILS AGAINST THE OVERALL LUBRICATING OILS MARKET IN POLAND [%]

Source: POPiHN's own study



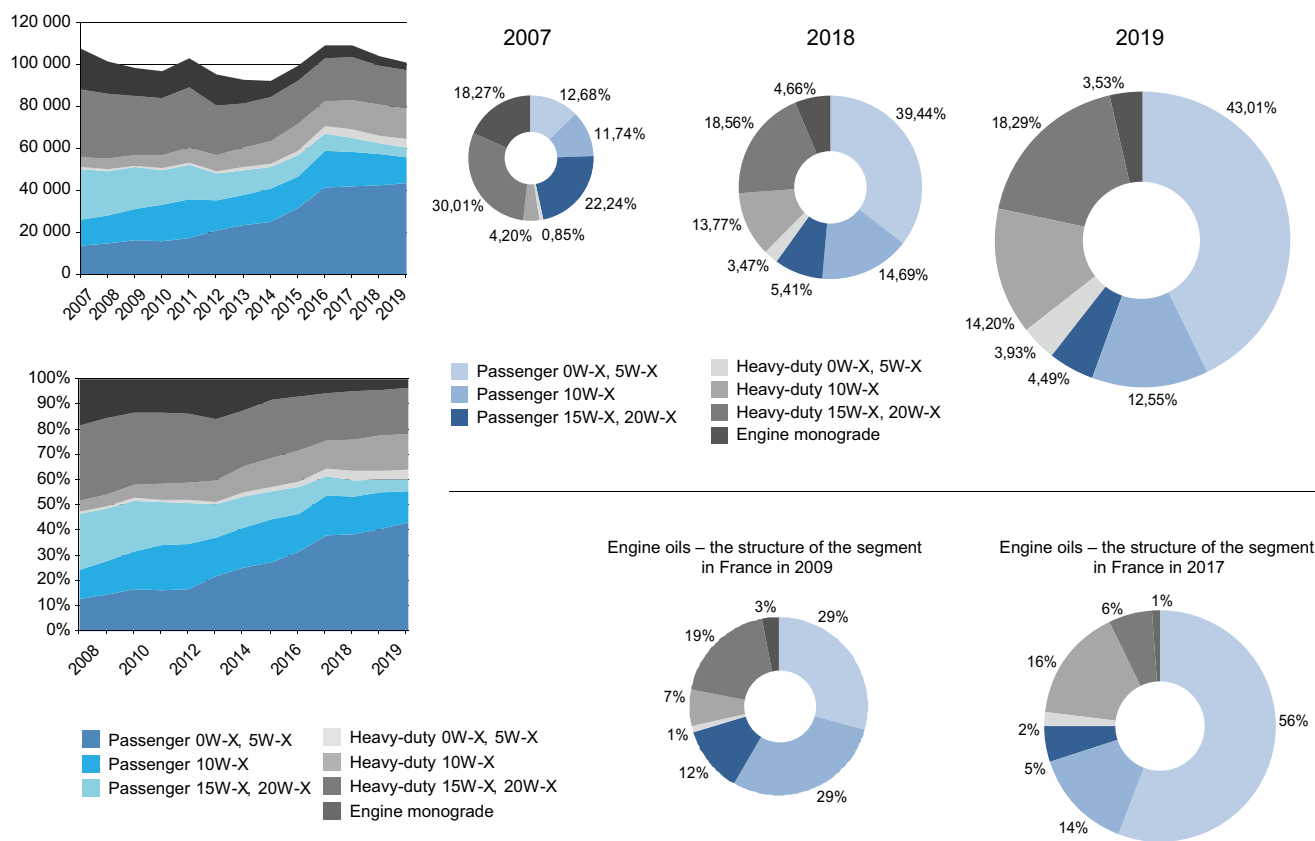
medium-viscosity oils) continues to grow. The biggest group, namely oils for passenger cars of the lowest viscosity again increased its share, which amounted to as much as 43% and since 2007 it has grown by over 30 percentage points. In the same period, the share of mineral oils for passenger cars shrank from over 22% to 5.4%, and in the case of monograde oils, it shrank from almost 37% to 4.5%. Similar changes are taking place in the segment of oils for heavy-duty vehicles, yet the dynamics of the trends are slightly lower.

Similar trends are also being acknowledged on the French market, significantly more advanced in terms of the car fleet. French data available at the time of preparing this report concern a slightly narrower period, yet in this case, it is of key importance that they clearly indicate that, alongside the modernisation of the car fleet, the trend observed in Poland will continue in the coming years. What can it lead to? In the case of France, already in 2017, the share of synthetic oils for passenger cars amounted to 57% of the whole engine oils segment. Oils for passenger cars already constitute three-quarters of the sector, whereas monograde oils are virtually disappearing from that market.

In the long term, the regulatory factor will be an additional element affecting the demand for engine oils.

FIG. 50 CHANGES IN THE AUTOMOTIVE ENGINE OILS SEGMENT AND COMPARISON OF STRUCTURES IN POLAND IN 2019, 2018 AND 2007; COMPARED AGAINST THE STRUCTURE OF THE SEGMENT IN FRANCE [%]

Source: POPiHN's own study, Le Centre Professionnel des Lubrifiants (C.P.L.), Enquêtes annuelles sur les huiles moteurs destinées aux voitures particulières et aux véhicules utilitaires – Année 2017



Certainly, the implementation of the so-called 'Green Deal' and an intensive programme of vehicle fleet electrification may have an impact on reducing the demand for engine oils. However, will this also affect the structure of the segment? Most probably, yes.

If electrification is observed particularly in relation to the passenger vehicle fleet, it can be expected that the share of the engine oil segment for heavy-duty vehicles will start to grow (on the generally declining market).

Such vehicles will continue to use mainly internal combustion engines. At present, there are still severe technological limitations in the area of electric batteries for heavy-duty vehicles. The above will probably delay the electrification of this segment of the vehicle fleet or even call it into question.

In the case of the intensive electrification variant, in 20 years' time the engine oil market in Europe may primarily focus on oils for heavy-duty vehicles.

PASSENGER CARS MOTOR OILS (PCMO)

In 2019, the segment of engine oils for passenger cars recorded a decrease of 3.16%. After two consecutive years (2013–2015) of substantial growth and a record-breaking 2016, in which 67,414 tonnes of

products were sold, the sales volumes continue to remain on a relatively high level (60,573 tonnes), yet in the past three years increases slowed down, and a slight downward trend was observed, which exacerbated at the beginning of 2020. It should be noted that the automotive industry witnessed a substantial increase in production volumes in the past few years. However, in the long term, engine oil markets in Europe show an organic trend towards shrinking in terms of tonnage, which results from substituting older generation products with new ones which enable longer drain intervals.

Sales volumes of synthetic oils with the lowest viscosity grade continued to increase. This group in 2019 for the first time reached a historic record-breaking level of 43,385 tonnes. Since monitoring activities were initiated, the volume of this group has grown over threefold, i.e. from the level of 13,662 tonnes recorded in 2007.

At the same time, while observing the evolution in countries more developed than Poland, for example in France, we can assume that further modernisation of the car fleet will entail the continuation of a strong upward trend in this segment in the coming years. The distance remains clear, even taking into account the fact that the latest available data from the French market are from 2017.

Certainly, in the long term, the electrification of the motor vehicle fleet will also have an impact on the segment. Currently, it is likely that environmental regulations may, in the first place, result in an accelerated phase-out of the oldest vehicles that do not meet the emission standards. This could translate into an even higher rate of increasing the market share of modern synthetic oils. At the same time, however, in the scenario of intensive electrification, the entire passenger vehicle motor oil market will start to shrink intensively in terms of tonnage.

HEAVY-DUTY ENGINE OILS (HDEO)

In 2019, sales volumes of heavy-duty engine oils in Poland amounted to 36,743 tonnes. This virtually means stabilisation in comparison to the level observed in the previous year.

In this segment, the sales reached a record threshold (in terms of tonnage) in 2017, when 38,512 tonnes of products were sold. Since then, we have been observing a slightly downward trend. However, given that in the last two years Polish GDP grew by 5.1% in 2018 and over 4% in 2019, and the segment of oils for heavy-duty vehicles up to now has been one of the most correlated with the dynamics of economic growth, such a trend should be considered disappointing.

The share of mineral engine oils highest in viscosity (15W, 20W), which continues to be the dominant one in this segment and which, for the first time in history, fell below 60% in 2015, for two years has remained on a constant level of 50%. On the other hand, the share of medium-viscosity oils grew from 12% in

2007 to 40% in 2018, currently reaching 39%. Finally, synthetic oils reached an 11% market share within this segment, which means a record volume.

Simultaneously, the development of the situation on more advanced markets than the Polish market makes us expect more dynamic changes in the structure of this segment. In the case of the French market, in 2017 medium-viscosity oils constituted the vast majority (68% share), while mineral oils, which in Poland still account for over 50%, currently comprise only one-quarter of the French segment of oils for heavy-duty vehicles.

In the case of electrification of this segment, if it occurs at all within the expected time horizon, it is difficult to predict its impact on the structure of the engine oil segment. Furthermore, it should be assumed that this impact will be much smaller and more spread over time than in the case of the passenger vehicle segment.

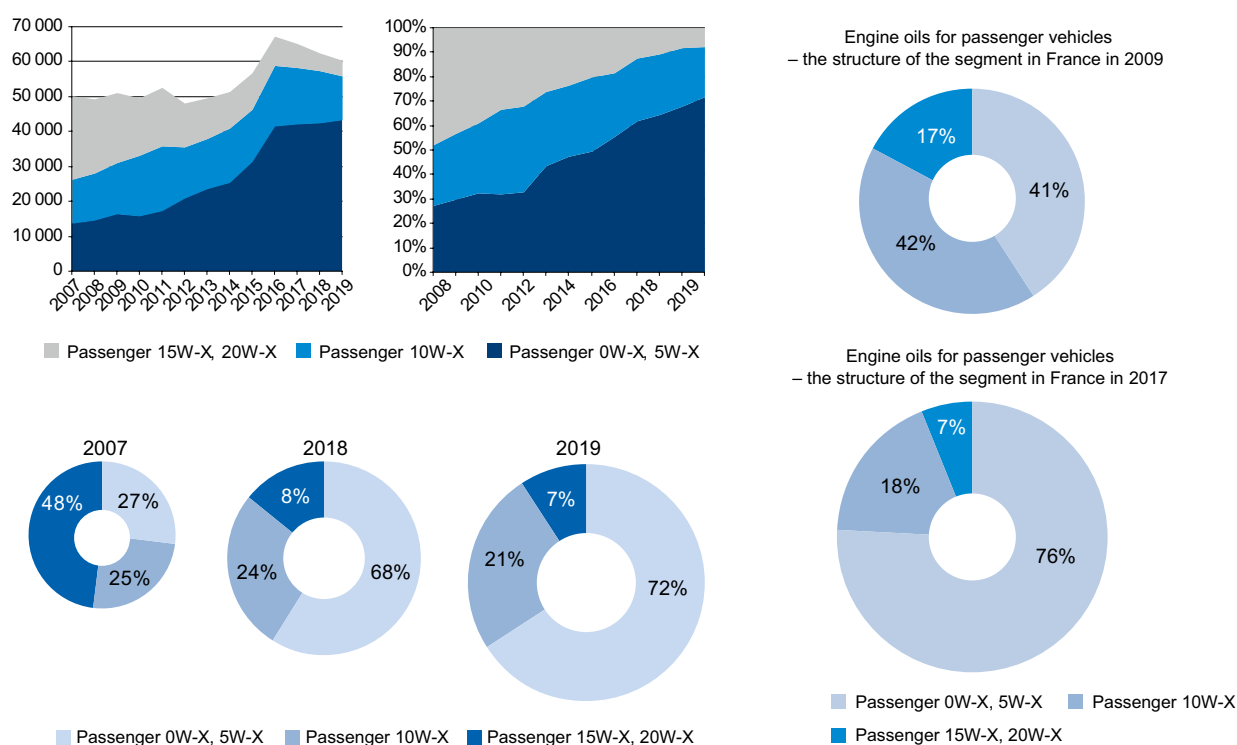
LUBRICANTS FOR INDUSTRY

In the previous year in Poland, the sales volumes of lubricants for industry amounted to 97,541 tonnes, which is an increase of 3.73% compared to 93,345 tonnes sold in 2018. This is the second consecutive year of growths recorded in this segment.

Thus, despite such visible growths in the past two years, the sales volumes remain on much lower levels than the ones observed for the most part of the current decade, when they regularly exceeded 102,000 tonnes, and in 2015 even 106,000 tonnes. The economic downturn in the industrial segment has been observed since 2016.

FIG. 51 PASSENGER CARS MOTOR OILS WITH REFERENCE TO VISCOSITY CATEGORIES (EXCLUDING MONOGRADE OILS) – MARKET VOLUME, EVOLUTION OF STRUCTURE OF THE POLISH AND FRENCH MARKET [%]

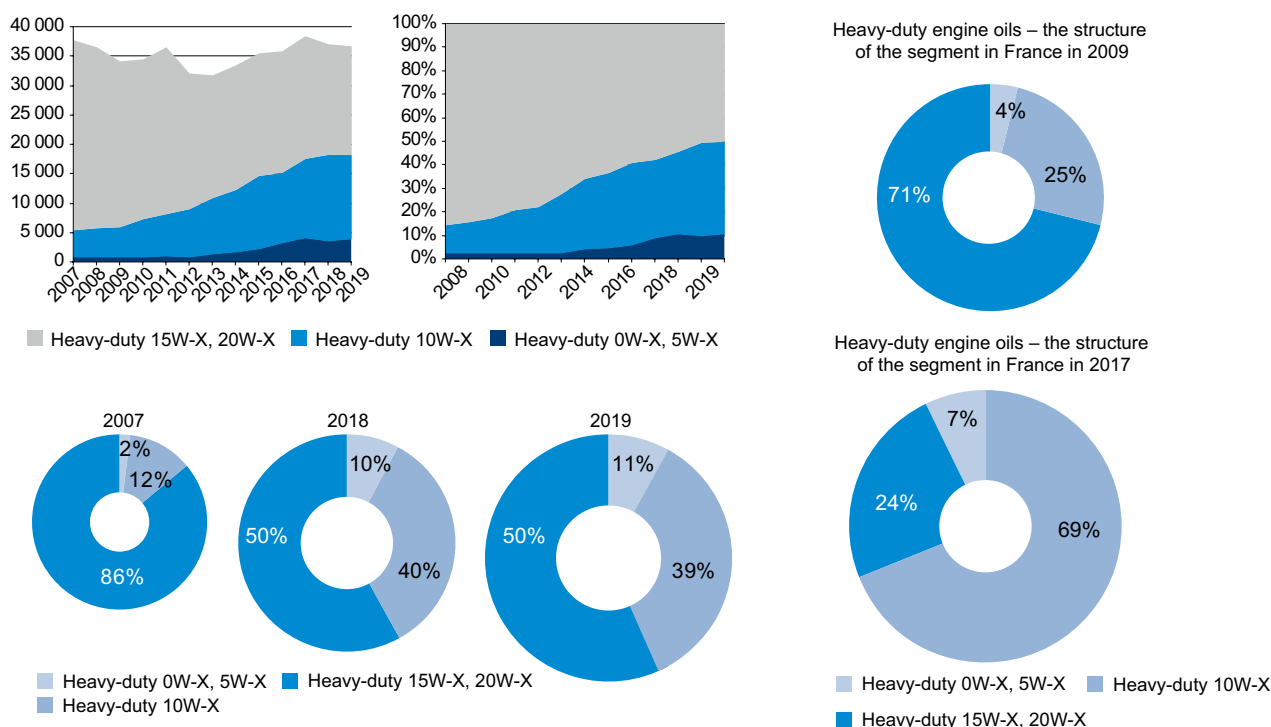
Source: POPiHN's own study, Le Centre Professionnel des Lubrifiants (C.P.L.), Enquêtes annuelles sur les huiles moteurs destinées aux voitures particulières et aux véhicules utilitaires – Année 2017



'Oil industry and trade'

FIG. 52 HEAVY-DUTY ENGINE OILS WITH REFERENCE TO VISCOSITY CATEGORIES (EXCLUDING MONOGRADE OILS) – MARKET VOLUME, EVOLUTION OF STRUCTURE OF THE POLISH AND FRENCH MARKET [%]

Source: POPiHN's own study, Le Centre Professionnel des Lubrifiants (C.P.L.), Enquêtes annuelles sur les huiles moteurs destinées aux voitures particulières et aux véhicules utilitaires - Année 2017



There are two possible justifications for this situation. Firstly, domestic industries such as mining and metallurgy, which traditionally account for a large part of the demand for industrial oils, have been relatively weak in recent years. The slogan 'deindustrialisation' was, in fact, strongly heard during the EUIL Annual Congress held in France, as the weakness of the industrial segment is not only limited to Poland. At the same time, taking into account the structure of the Polish industry, it is difficult to forecast significant growths to be witnessed by the industrial oil segment in the coming years. Especially, as the changes that are already taking place will most probably be strengthened by the adoption of the so-called 'Green Deal', which can take place without parallel restrictions on imports of goods from countries such as China and with further ignoring their 'carbon footprint'. Simultaneously, with Poland's deteriorating demographics, it is difficult to expect that economic growth of 4-5% will occur often in the future.

Secondly, another possible explanation for the weakness of the industrial segment may be the development of the grey and black market in trading in lubricating and waste oils. Despite a significant tightening of the turnover in recent years, there are still spectacular cases of irregularities involving lubricating oils. At the same time, it should be noted that if new ways of bypassing the introduced tightening measures are discovered, the development of the grey and black market may occur rapidly. Therefore, it is imperative to react quickly to any aberrations that take place, as well as to implement such solutions as the 'Lubricant Package' prepared by POPiHN, which increases control over lubricating and waste oils based on the

deposit system. Brexit may also be a chance for guideline tightening as it will lead to the disappearance from the European Commission of the minority blocking the inclusion of lubricants into the EMCS system in the whole European Union, which has been postulated for many years by a vast majority of Member States.

FIG. 53 CHANGES IN THE INDUSTRIAL OILS SEGMENT – THE EVOLUTION OF STRUCTURE

Source: POPiHN's own study

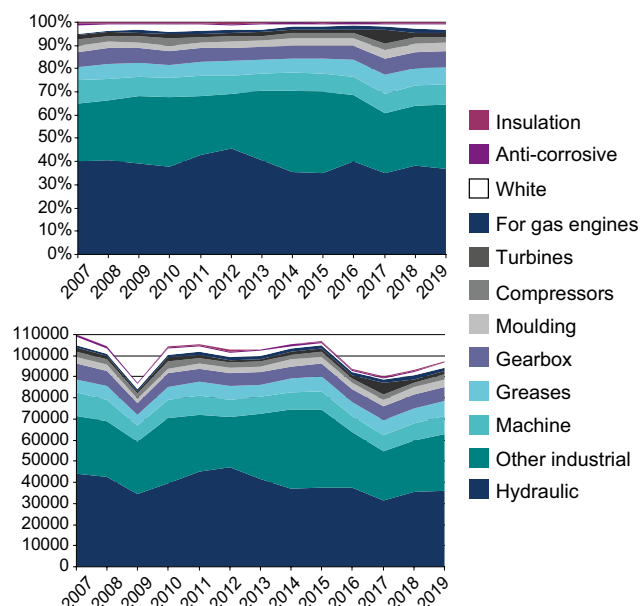
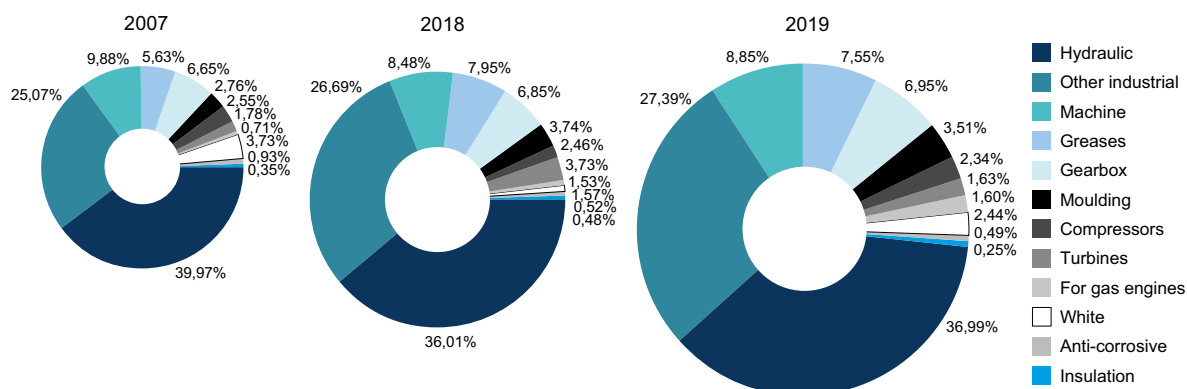


FIG. 54 INDUSTRIAL LUBRICANTS SEGMENT IN 2019: STRUCTURE WITH REFERENCE TO APPLICATION

Source: POPiHN's own study



With regard to the structure of industrial oil sales, there have been no remarkable and steady changes comparable with those which took place in the case of engine oils in the automotive sector. Currently observed, for the second time over the past 12 years, substantial weakening in sales in this segment does not translate into dramatic changes within individual groups: the market is shrinking and recovering evenly. The fluctuations among the shares of particular product groups usually range between +/- 3 percentage points, sporadically reaching five percentage points.

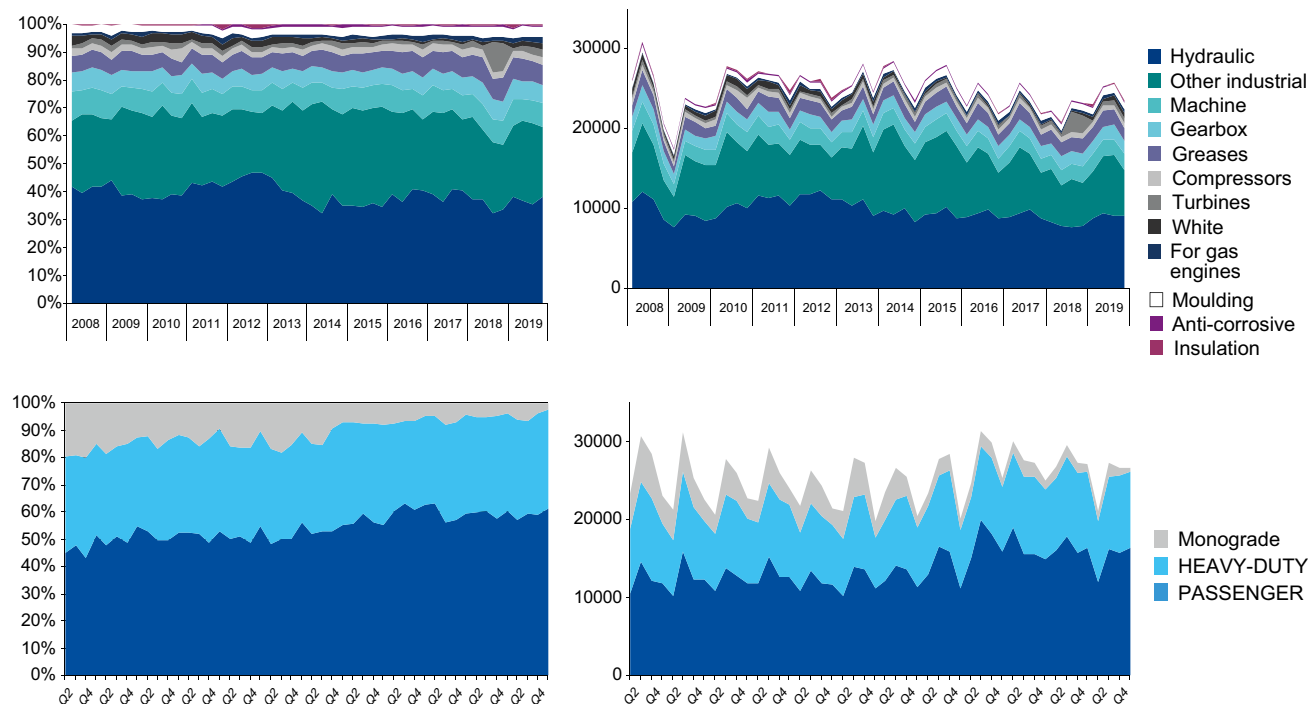
The Polish industry still predominantly uses hydraulic oils (almost a 37% share of the sales in the segment). At the same time, their share decreased in the last few years, with the most significant decline recorded in 2013–2014, when this group shrank on average by 10% per year, which, in terms of volume, amounted to a decline of over 9,000 tonnes. In 2019,

this share also slightly decreased. On the other hand, the sales within the second biggest group of industrial oils, 'other industrial', in 2019 reached 27.4% in the industrial segment. Altogether in the previous year, sales volumes of products from these two groups equalled, respectively, 35,993 tonnes and 26,648 tonnes.

Both main market segments do not reflect any considerable consequences of macroeconomic fluctuations upon their structures from a quarterly perspective. However, there are visible seasonal trends in consumption within the automotive segment, caused mainly by typical after-winter service in repair garages, which often includes a periodic change of oil. It is, however, worth noting that fluctuations related to seasonal trends are not reflected in the segment's structure, which results from the fact that both oils in passenger vehicles and heavy-duty ones are changed, depending on weather conditions, at the same time.

FIG. 55 STRUCTURAL CHANGES IN THE INDUSTRIAL OILS SEGMENT – IN TERMS OF QUARTERLY SALES

Source: POPiHN's own study



EXPLANATION OF TERMS

Starting with the report for 2015, the 'overall market of lubricating oils' is divided into only two segments: automotive and industrial. Unlike in previous reports, the above-mentioned amount will not include the third from the so-far presented categories, i.e. 'other not classified elsewhere' category. It results from the fact that a vital and most probably strongly growing part of products reported within this diversified group cannot be classified as 'lubricating oils' in the common understanding and/or technical meaning of this term. At the same time, in view of the significant growth of this group in recent years, its impact on the entire market would be too noticeable.

PASSENGER CAR MOTOR OILS (PCMO)

– these are engine oils for passenger cars, motorcycles, as well as auxiliary vehicles and other equipment. This category does not include monograde oils (monograde).

HEAVY-DUTY ENGINE OILS (HDEO)

– these are engine oils for heavy-duty vehicles and heavy-duty working machinery. This category does not include monograde oils (monograde).

OTHER OILS EXCLUDING GAS ENGINES

– these are all other types of oils commonly used in the automotive industry and the ones not used in the industry. The main groups of products in this category are: oils for marine engines, single-season (monograde) engine oils, gear oils, automatic transmission fluids (ATF) and all other lubricating products for the automotive industry not elsewhere classified.

MINERAL OILS

– in accordance with CN (Common Nomenclature), these are lubricating products in which the content by weight of mineral oil, or of oils obtained from bituminous minerals (but not as an essential constituent) is greater than or equal to 70%. In the automotive segment, most such oils are used in the production of older type oils characterised by higher viscosities (mainly 15W and 20W oil groups). These products are primarily obtained from traditional base oils, obtained by refining crude oil, mainly base groups I, II and partly III.

NON-MINERAL OILS

– these are other lubricating oils, which are defined under excise rules as lubricating preparations (including cooling and lubricating fluids, bolt and nut loosening preparations, rust and corrosion prevention preparations, lubricant-based moulding oils) with the exclusion of preparations containing, as primary constituents, 70% or more by weight of petroleum oils or oils obtained from bituminous minerals. In practice, it mainly concerns oils commonly referred to as semi-synthetic (e.g. 10W SAE viscosity class engine oils) and synthetic oils (e.g. 0W and 5W SAE viscosity class engine oils). These products are mainly derived from synthetic bases (poly-alpha-olefins or PAO) or also from mineral base oils of the highest quality (Group III in API classification).

SAE (SOCIETY OF AUTOMOTIVE ENGINEERS) CLASSIFICATION

– SAE classification divides oils based on operating parameters and distinguishes 11 classes of viscosity:
– Six winter classes marked with a number and the letter W: 0W, 5W, 10W, 15W, 20W, 25W;
– Five summer classes: 20, 30, 40, 50, 60.

For the purpose of this report, oils were divided into three groups (0W/5W, 10W and 15/20W) – a simplification which allows the structure of the market to be shown in terms of viscosity of lubricating oils used.

MONOGRAD OILS

– these are older-type oils intended for use in specific, relatively narrow, temperature ranges. This distinguishes them from more

modern multigrade (multi-season) oils which can be used in more varied temperatures, making them suitable for use, for example, throughout the year. For the purpose of this report, monograde oils were treated as a separate group in relation to multigrade oils (groups: 0W/5W, 10W and 15/20W), as well as a separate group in terms of application (relative to groups of oils for passenger and goods vehicles), even though they are used within those groups.

OTHER INDUSTRIAL OILS

Within this group, we can mention its main components, namely machine oils (used mainly to grease loaded elements of working machinery and industrial devices such as bearings, guides, gears etc.) and oils for chainsaws.

OILS FOR TWO-STROKE ENGINES

In the POPiHN's methodology they are not classified as a separate category, but they are reported within two categories: 'other excluding gas engines' and 'monograde'.

MACROECONOMIC DATA

– used in this report, unless otherwise specified, are based on the information available on the website of the Central Statistical Office.

ABSOLUTE VALUES

– absolute values given in this report include sales figures from seven members of POPiHN: BP/Castrol, Fuchs, Grupa LOTOS (LOTOS Oil), PKN ORLEN (ORLEN Oil), Shell, Total and Slovnaft and were collected by the Organisation as part of the ongoing monitoring of the lubricating oils market.

Starting from 2016, the number of reporting entities has decreased from 7 to 6 due to Fuchs-Oil taking over Statoil (currently Circle K). As of 2018, Slovnaft has been reporting again, so the number of reporting entities once more increased to 7. All the above-mentioned companies were and are POPiHN members; therefore, the market share of entities associated in POPiHN in the overall market in Poland has not changed, and the reported market data have been fully continuous and adequate.

Starting from 2012, market data obtained from monitoring activities have been adjusted upwards, as a statistical correction, by 25% (for the automotive segment) and by 15% (for the industrial and other oils segment) to take into account the rest of the market which is outside the companies covered by monitoring. The Organisation estimates that such an approach reflects the current market share of entities not associated with POPiHN. It should be noted that for the period of 2006–2011, the statistical adjustment of data was by 10%, equally for both segments of the market. The changes introduced in 2012 arise from a review of the estimate of the market volume 'outside POPiHN'.

DOUBLE REPORTING

The methodology used for data collection and processing eliminates the problem of the so-called double reporting. POPiHN member companies only report sales 'outside' POPiHN (directly to the domestic market and to small independent producers, whose total market share has been estimated at around 10%), and therefore volume sales among POPiHN member companies are not reported.

ESTIMATED DATA

For legal reasons related to European regulations on sensitive data, at the time of publication of this report, POPiHN did not possess data for the fourth quarter of 2019, as it is aggregated after over three months. For this reason, the data for the fourth quarter presented in this report were based on the estimates prepared by the POPiHN office with the participation of member firms and on analyses of historical data and current market trends.

IMPORTS AND EXPORTS

For the purpose of this report, in relation to lubricating oils, the above terms include both the Intra-Community Acquisition of Goods in the case of 'imports', and the Intra-Community Supply of Goods in the case of 'exports'.

THE LOGISTICS MARKET FOR CRUDE OIL AND LIQUID FUELS

PERN S.A. is a leader in crude oil and fuel logistics and a strategic company which guarantees the energy security of Poland, and thus the European Union, in terms of oil supplies to the largest fuel producers in Poland and Germany.

The company manages a network of oil and product pipelines – it has about 3.6 m. m³ of storage capacity for crude oil and about 2 m. m³ for liquid fuels.

The primary services provided by PERN S.A. include:

- transport of crude oil and fuels through a pipeline system,
- storage of liquid fuels for the current supply of filling stations,
- storage of stocks of petroleum products,
- creation and maintenance of mandatory stocks of liquid fuels – the so-called stock ticket reserves service,
- storage of crude oil,
- transshipment of crude oil (service provided by PPPP Naftoport Sp. z o.o.),
- transshipment of fuels,
- adding biocomponents to fuels,
- adding company additives to fuels,
- laboratory testing of petroleum products,
- telecommunication services,
- as well as other services.

CRUDE OIL SECTOR

PERN S.A. offers transport services of crude oil using a pipeline network consisting of three sections: Eastern, Western and Pomeranian.

The Eastern Section of the 'Przyjaźń' pipeline is 233 km long, and it links the Depot in Adamowo, near the Polish-Belarus border, with the Crude Oil Depot in Miszewko Strzałkowskie near Płock. The Eastern Section transports REBCO oil by land for PKN ORLEN S.A., Grupa LOTOS S.A., German refineries [PCK Raffinerie GmbH, TRM Raffinerie GmbH] and other trading companies within available free transmission capacities. The maximum capacity of the Eastern Section is 56 m. tonnes/year, which was achieved after the construction of the III conduit of the Eastern Section was finalised.

The Western Section connects the Miszewko Strzałkowskie Depot to a German operator's MVL depot, and it transports crude oil to German refineries: [TRM and PCK Raffinerie GmbH], both from land and sea routes. Additionally, this pipeline transports crude oil to/from Underground Oil and Fuel Storage Facility 'Góra', and also sends Polish crude oil from Polish fields of LMG (Wierzbno) and BMB (Dębno), owned by PGNiG, to German refineries. The total length of this route is 416 km, and its nominal capacity is 27 million tonnes of crude oil per year.

The Pomeranian Section connects the Miszewko Strzałkowskie Depot with the Depot in Gdańsk. It plays a crucial role in the import of different types of crude oil from sea shipments (an alternative to land shipments). It has the capacity of transporting up to 30 m. tonnes of crude oil yearly from Gdańsk to Płock. The Pomeranian Section is reversible, which means that it enables pumping of crude oil in the reverse direction from Adamowo through the Miszewko Strzałkowskie Depot to Grupa LOTOS S.A.'s refinery in Gdańsk and exports through NAFTOPORT, in volumes of up to 27 m. tonnes per year. It is worth noting that PERN S.A. is carrying out investment works on the construction of II conduit of the Pomeranian Section, which in the future will allow for simultaneous pumping of crude oil in both directions, i.e. from/to Gdańsk/Płock.

PERN S.A. owns four crude oil storage depots with a total capacity of approximately 3.6 m. m³. They are located in Adamowo, Płock and Gdańsk [Storage Depot and Oil Terminal in Gdańsk]. The company utilises its capacities to provide a crude oil storage service; at the same time, it fulfils the crucial function of crude oil flow stabiliser.

Given the above fact, only some of its storage capacities can be permanently assigned to commercial storage services. PERN S.A. has at its disposal various storage capacities with a nominal capacity of up to 100.000 m³/storage tank.

Crude oil storage services can be divided into the following groups:

- storing mandatory stocks – a service provided for entities which have a statutory obligation to store mandatory stocks,
- storing operational stocks – a service offered to refineries for crude oil intended for processing. The availability of crude oil for refining is of crucial importance here. The majority of storage services are provided for companies which also use transport services (with the exception of the Material Reserves Agency).

As a result of the introduction of the Fuel Package in previous years and increased supplies by sea routes,



Fot.: TANQUID



PERN S.A.'s storage capacities are fully utilised, mostly by Polish entities. In 2018 and 2019, PERN S.A. launched a series of investments aimed at expanding its crude oil storage capacities in Gdańsk by approximately 590,000 m³. The new storage capacities built in the Gdańsk Depot are to be entered into operation in the second quarter of 2020. The four storage tanks with the total capacity of 345,000 m³, which are located at the Oil Terminal (Terminal Naftowy) in Gdańsk, are scheduled to be commissioned in the fourth quarter of 2020, and the last storage tank, of the total capacity of 45,000 m³, will be finalised and incorporated into the existing infrastructure in 2021.

As a result of the new investments, seven storage tanks will be commissioned, five of which will have a capacity of 100,000 m³ (two tanks in the Depot in Gdańsk and three tanks at the Oil Terminal in Gdańsk as part of stage II of the investment) and two storage tanks with a capacity of 45,000 m³ (Oil Terminal in Gdańsk - stage II).

In addition to investments aiming at the expansion of aboveground capacities, the company carries out linear investments. The construction of the II conduit of the Pomeranian Section, of about 240 km in length, is a key investment to the energy security of crude oil supplies. The implementation of the investment will enable a more effective diversification and will allow for better quality separation of various types of crude oil, including new types of oil imported for refineries.

According to the assumptions, the planned crude oil pipeline will run along the existing first conduit of the Pomeranian Section through nine counties. The pipeline will operate bidirectionally, independently of conduit I. The implementation of the project will allow for the redirection of crude oil in emergency situations from one pipeline to another and will enable transferring crude oil through 'combined both conduits'.

In 2019, PERN S.A. passed a difficult test.

In the second half of April 2019, crude oil with increased content of organic chlorides entered the

Polish transmission system, which posed a risk to refinery systems.

Due to the occurrence of high concentrations of organic chlorides in the crude oil supplied to the PERN S.A. system from the east, the company, upon request and together with the refineries, decided to suspend deliveries from Adamowo from 24 April. Until 9 June, REBCO Russian crude oil was not delivered to Polish and German refineries by land, and instead, it was imported by alternative routes, mainly by sea.

The pumping, initially part-time, resumed on 9 June 2019. PERN S.A. gradually increased its pumping capacity through the Eastern Section to achieve full capacity in July 2019. At that time, PERN S.A. was providing ongoing services to refineries, transporting crude oil from intervention stocks and crude oil delivered to Poland by sea through Naftoport. End customers at filling stations were not affected by this situation.

The key role of Naftoport

Naftoport is Poland's only offshore crude oil transshipment terminal and the largest domestic terminal for the transshipment of refined crude oil products, as well as one of the largest oil transshipment terminals in the Baltic Sea. The company's potential enables the transshipment of over 36 million tonnes of crude oil and 4 million tonnes of petroleum products per year, ensuring the possibility of fully covering the needs of Polish refineries connected to the PERN S.A.'s pipeline system. During the crisis caused by contaminated oil, Naftoport worked at increased capacity. In May, the company received twice as much oil from sea deliveries as usual. In total, in the first half of 2019, the company acquired 8.3 million tonnes of crude oil, i.e. almost 30 per cent more than in the same period of 2018. In terms of the volume of transshipments, it was the highest in the history of Naftoport.

For 46 days when the 'Friendship' pipeline was at a standstill, Naftoport received 51 tankers, i.e. 13 more than in the same period a year earlier.



Special Act on the implementation of strategic investments in the oil sector

The construction of the Boronów-Trzebinia pipeline and the construction of the second conduit of the Pomeranian Section, as strategic investments in the oil sector, are carried out based on the Act of 22 February 2019 on the preparation and implementation of strategic investments in the oil sector (known as Special Act), which came into force on 18 April 2019.

The Special Act is a particular type of regulation concerning only selected investments of supra-local importance, which are crucial to the public and serve to maintain Poland's energy security.

The Act is part of the Polish government's policy, adopted in November 2017, for the logistics infrastructure in the oil sector, which gives PERN S.A. a vital role in the transport and storage of crude oil and fuels, as well as provides the company with a number of tasks in the field of logistics infrastructure.

PERN with a modern system for measuring crude oil flowing from the east

In the years 2018–2019, an investment was carried out to modernise the crude oil settlement and calculation centre in the PERN S.A. depot in Adamowo. The main elements of the system were replaced with new equipment, which will enable it to increase the quality and reliability of measurements, as well as settlements performed between PERN S.A. and TransNeft. The replacement included, among others, measurement lines, quality control block, electronic data processing system and valves with automatic leakage control, which dated back to 2002.

Prior to commissioning, the measuring centre was legalised. The centre meets the technical requirements applicable both in the European Union and in the Russian Federation. The modernised centre has already been put into operation. As a result, the settlement and the calculation centre guarantee the reliability of raw material measurements (over 40 million tonnes of crude oil per year).

LIQUID FUELS STORAGE LOGISTICS

PERN S.A., being a leader in the fuel logistics sector in Poland, has modern infrastructure which meets all legal requirements for fuel depots, including the ones related to the environment. Most importantly, it satisfies the growing requirements of its clients.

The company owns a network of fuel depots, the total capacity of which is approximately 2 m. m³. PERN S.A. stores petrol, diesel, light fuel oil, biofuels and aviation fuel intended for the ongoing supply of the market, as well as maintaining the intervention fuel stocks. The storage tanks at the company's disposal can store up to 32,000 m³.

The five largest depots in: Koluszki, Nowa Wieś Wielka, Boronów, Rejowiec, and Emilianów are connected with the refinery in Płock by long-distance fuel pipelines. The depots located at the eastern border of the country have terminals for handling fuel, gas and other petroleum products. The Fuel Depot in Dębogórze allows diesel to be exported and imported by sea through the Port of Gdynia.

Moreover, the company also owns accredited petroleum product laboratories, which, apart from comprehensive supervision of the quality of fuel held and stored in PERN S.A.'s depots, also provide services to third parties. PERN S.A.'s laboratories use the most modern equipment meeting all the requirements and standards, which ensure the best possible tools for conducting quality controls of fuels in the course of trade.

PERN S.A. is constantly looking for new solutions in order to meet customer expectations. To maintain customer trust and confidence, the company has implemented, maintains and improves the Integrated Management System, compliant with the standards PN-EN ISO 9001, PN-EN ISO 14001 and PN-N-18001. Additional solutions introduced last year comprise business continuity (PN-EN ISO 22301) and information security (PN-EN ISO 27001) management systems.

CAPACITY UTILISATION

PERN S.A. has a share of about 50% in the liquid fuels storage market. Apart from providing services to fuel market operators, the company plays a vital role in the country's energy security. PERN S.A.'s tanks hold intervention stocks, including those assigned to the Material Reserves Agency. The year of 2018 was another year of increases in fuel consumption, which directly translated into the volume of intervention stocks stored in 2019, thus increasing PERN S.A.'s capacity utilisation practically to the limit values. The legislative changes implemented in 2016, the so-called Fuel, Energy and Transport Package, influenced the spike in fuel trade. Thus, 2019 was another consecutive year of increased fuel turnover. The previous year resulted in an even greater need for storage capacity in the fuel market, also in PERN S.A.

Investment programme comprising the construction of new storage capacities and Boronów – Trzebinia crude oil pipeline

In the fuel segment, PERN S.A. is planning to construct new storage tanks: in the I and II stage, altogether amounting to 350,000 m³. In the first stage of this programme, two tanks in Koluszki and two tanks in Nowa

Wieś Wielka – of 32,000 m³ each, 128,000 m³ in total – have already been completed.

In the second stage, tanks will be built in the fuel depot in Koluszki, Boronowo, Rejowiec, Emilianów and Małaszewicze, as well as in Dębogórze. PERN S.A. plans to complete this stage of capacity expansion in mid-2021.

Currently, analyses are being carried out on the possibility of launching stage III of the fuel storage capacity expansion project, as well as its material and time scope.

PERN S.A. will also construct a fuel pipeline from the Fuel Depot in Boronów to Trzebinia (length: 97 km). The investment is an extension of the existing product pipeline from Płock - Koluszki - Boronów to the PKN ORLEN S.A. Fuel Terminal. This construction project is to improve the security of fuel supply to the south of Poland. Furthermore, there are ongoing efforts to increase the capacity of the fuel pipeline in order to supply the Warsaw agglomeration.

Loading from PERN S.A.'s Fuel Depots

In 2019, the total volume of loadings from PERN S.A.'s fuel depots equalled almost 14.5 m. m³, and thus it was another year of intensified use of the company's infrastructure, whereas the loadings were record-breaking in the history of PERN S.A.

Since 2016, a number of provisions have been introduced, aiming at tightening the so-called 'grey' market in fuel trade. Since the entry into force of new regulations, PERN S.A. has noted substantial growth in fuel

trade, and each subsequent year brings significantly more loadings from fuel depots. As a result of the implementations mentioned above, in 2019, the company has recorded a further increase in loadings to road tankers when compared to previous years.

PERN S.A. is launching a series of actions to modernise the infrastructure to adjust it to the recently observed intensification of loadings from depots.

Blending with biofuels

The biofuels blending service has a crucial role for business operators. It is aimed at businesses bound with an obligation to achieve the National Biofuels Target (NBT), i.e. a minimum, required by law % share of biofuels and other renewable fuels in the total amount of fuel introduced into the market.

PERN S.A. creates conditions that allow to achieve the NBT by offering the service of blending esters with diesel, as well as bioethanol with petrol.

At the start of 2017, the provisions of the amended Energy Law entered into force. The act introduces the obligation to achieve the National Biofuels Target through biofuels contained in liquid fuels (the so-called obligatory blending). In 2019, PERN S.A. expanded the possibility of adding biofuels in the following fueldepots: Wola Rzędzińska, Skarżysko Kościelne, Strzemieszyce and Kawice. In light of increasing demand for fuel blending in 2020, PERN S.A. is planning to expand its capacity allowing the storage of biofuels in depots, in which the service meets the greatest demand.



Fot.: ORLEN



Fot.: PERN

Stock ticket reserves

Stock ticket reserves service consists in creating and maintaining mandatory oil stocks on behalf of obliged entities. The clients using this service fulfil the obligation to maintain mandatory stocks without involving their own fuels (Article 11 of the Law of 16 February 2007 on stocks of crude oil, petroleum products and natural gas, the principles of proceeding in circumstances of a threat to the fuel security of the State and disruption on the petroleum market, Journal of Laws of the Republic of Poland of 2014, item 1695).

The service is also aimed at LPG importers, who can maintain LPG stocks alternatively in unleaded petrol.

The service is expanding rapidly, and in 2019 the volume offered by PERN S.A. remained at a high level.

PERN S.A. will shorten the time of service for road tanker driver

The construction of new capacities is only part of the activities related to fuel depots. The company focuses on improving quality and speeding up customer service.

Rebuilding the filling stations, equipping the filling lines with the latest modules for dosing branded additives, as well as equipping these lines with equipment for dosing biofuels – these are the main areas that PERN S.A. intends to modernise in order to improve

drivers' comfort and shorten the time of servicing tankers at fuel depots.

The modernisation will take place at fuel depots in Koluszki, Nowa Wieś Wielka, Rejowiec and Kawice. The first modernised filling stations will go into operation in autumn 2020. The aim of the changes is also to optimise the loading of road tankers and improve safety at the depots, as drivers will be able to refuel all products at one station.

The modernisation of filling stations, which has just begun, will contribute to the creation of 'multi product' filling stations. Thanks to this, the driver will be able to pick up any composition of fuels and additives at one station, without the need for the tanker to go to another loading island. The application of this solution shortens the total loading time by a few minutes and reduces the waiting time of drivers in front of the fuel depot. The implementation of tasks within the framework of modernisation and standardisation of tanker fronts will also enable an increase in the number of releases of diesel oil with added biofuels, which is extremely important for the company's clients given the need to meet the NBT ratio.

25 Lat
POPiHN

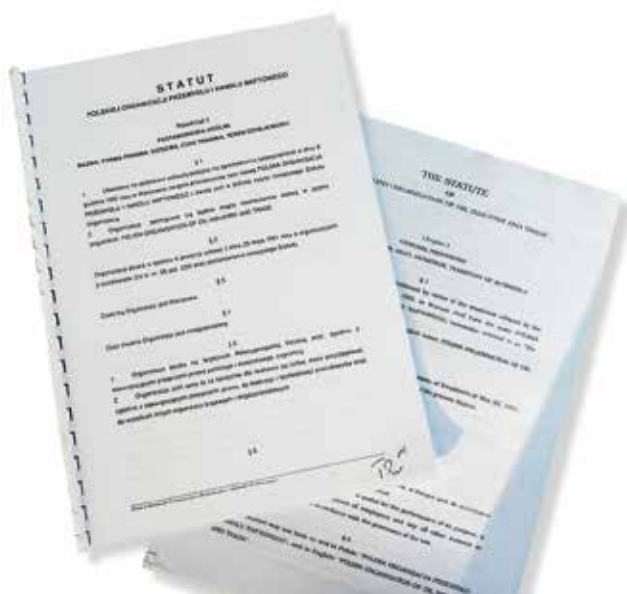
Polska Organizacja Przemysłu i Handlu Naftowego

THE ACHIEVEMENT OF THE ORGANISATION'S OBJECTIVES REQUIRED COOPERATION BETWEEN FOREIGN COMPANIES, PRIVATE POLISH COMPANIES, AS WELL AS ENTITIES CONTROLLED BY THE STATE TREASURY.

This year marks the 25th anniversary of the establishment of Polish Organisation of Oil Industry and Trade (POPiHN). The Organisation groups entities operating in the fuel sector under the Act of 23 May 1991 on employers' organisations (Polish Journal of Laws 55, item 235). The founding meeting on 8 December 1995 was attended by 12 companies: Agip, Amoco, Aral, BP, Ciech, Conoco, Du Pont, Esso, PERN, 'Przyjaźń', Shell, Statoil and Texaco. In the past quarter of a century, some international fuel companies withdrew from the Polish market and thus the membership of POPiHN was also changing. Currently, the Organisation is formed by: Amic Polska Sp. z o.o., ANWIM S.A. (owner of MOYA stations network), BP EUROPA SE, Circle K Polska Sp. z o.o., Fuchs Oil Corporation (PL) Sp. z o.o., Grupa LOTOS S.A., PERN S.A., PKN ORLEN S.A., Shell Polska Sp. z o.o., Slovnaft Polska S.A. – MOL Group, TanQuid Polska Sp. z o.o., Total Polska Sp. z o.o. The Organisation represents the interests of the largest fuel companies in Poland, which operate in the area of production, logistics, storage and distribution of liquid fuels and lubricating oils.

It is worth reminding that in the last 25 years we have witnessed dynamic development of the Polish economy. When POPiHN was established, a filling station was associated with 'CPN', i.e. the state-owned Petroleum Products Centre, with vehicles queueing up to enter it. The memory of petrol rationing stamps was still vivid and the quality of the fuel often left much to be desired. At the same time, large privatisation processes were beginning and investments involving foreign capital were becoming increasingly bolder.

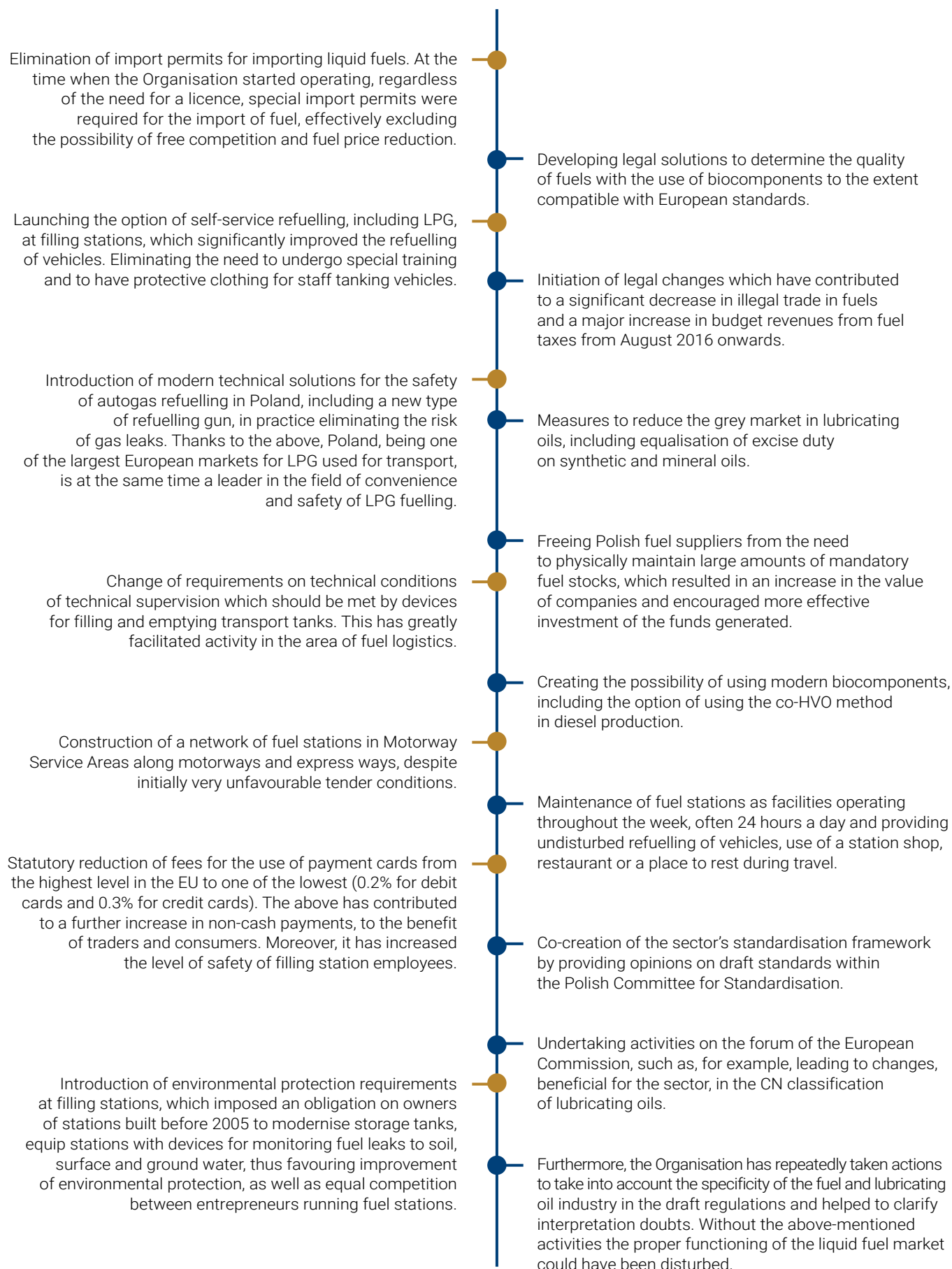
The achievement of the Organisation's objectives required cooperation between foreign companies, private Polish companies, as well as entities controlled by the State Treasury. It was necessary to develop a principle of dialogue between the representation of traders and state administration. The main challenge faced by the Organisation at that time was to build a competitive fuel market which would ensure the possibility of development for independent businesses and to enable consumers to choose, for the benefit of the entire Polish economy and all customers. Today we can confidently say that we have succeeded!



POPiHN experts developed a comprehensive analytical and statistical system which collects data on the liquid fuels and lubricating oils market. As a result, POPiHN prepares periodic analyses and reports, which are the main source of knowledge about the sector for analysts, traders, the media and, above all, decision-makers responsible for creating the legal framework for the functioning of the sector. The annual conferences organised by POPiHN attract crowds of experts interested in exchanging thoughts and experiences on the problems of the sector.



Over the past 25 years, POPiHN has contributed to the entry into force of a number of changes encouraging an environment favourable to the broadly understood fuel industry and consumers of petroleum products. The most important changes include:





In recognition of the merits for the development of the oil and gas industry, on 23 March 2015 the Minister of Economy awarded the Polish Organisation of Oil Industry and Trade the Badge of Honour for Merits to the Oil and Gas Industry.

(VAT, excise duty, fuel surcharge, emissions fee), i.e. about 20% of the total income of the tax office. These entities play an essential role in ensuring energy security of our country.

POPiHN participates in issuing opinions on legal acts in Poland and on the EU forum. The Organisation represents the Polish fuel sector in the European Refining Industry Association FuelsEurope and the oil sector in the European Union of the Oil Industry (UEIL).

Fuel offered by Polish filling stations meets stringent European standards. Polish refineries are among the world leaders in terms of technological advancement, complexity of crude oil processing and environmental protection. Besides, Polish pipelines and fuel depots, gradually modernized and extended, provide undisturbed logistics of the fuel sector, servicing almost all sectors of the national economy within EU single market.

Filling stations selling fuel to drivers are world class in customer service, services and environmental protection.



POPiHN's objective remains a fully competitive, customer-friendly market and to ensure safe and sustainable development of enterprises operating in the production and distribution of liquid fuels and lubricating oils. In pursuit of this objective, POPIHN will continue the dialogue with all stakeholders, sharing knowledge and experience with them.

POPiHN has been involved in educating drivers, implementing such initiatives as 'Refuel without risk' or 'Save not only fuel'. By implementing the idea of corporate social responsibility, the Organisation supported activities aimed at drivers' sobriety, including the action 'I never drink'. POPIHN is a supporting member of the Association 'Partnership for Road Safety' and a partner of the 'Friendly Automotive' programme, implemented by the Polish Automotive Industry Association.

Presently, the companies forming POPIHN carry out 100% of domestic refinery production, 81% of wholesale trade in liquid fuels, 60% of retail trade in fuels, 100% of pipeline transport of crude oil and petroleum products, 95% of storage capacity for petroleum products in Poland, as well as the vast majority of lubricating oils supplies. Entities in the sector provide about PLN 70 bln in taxes paid to the state budget

